

RECEIVED

OCT 01 2009

Division of Environmental Conservation
Office of Environmental Assessment
100 State Street, 3rd Floor
Albany, NY 12243-1499
Tel: 518/474-2900
Fax: 518/474-2901
www.dec.state.ny.us

**REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AND
PROPOSED INTERIM REMEDIAL MEASURE**

Blauvelt Laundry Site

**549 Western Highway
Town of Orangetown
Rockland County, New York**

NYSDEC Site Code: 344037

August 2009

ESI File: RO07010.50

Prepared By:



Ecosystems Strategies, Inc.

24 Davis Avenue, Poughkeepsie, NY 12603

phone 845.452.1658 | fax 845.485.7083 | ecosystemsstrategies.com



Ecosystems Strategies, Inc.

REMEDIAL INVESTIGATION / FEASIBILITY STUDY

AND

PROPOSED INTERIM REMEDIAL MEASURE

Blauvelt Laundry Site

**549 Western Highway
Town of Orangetown
Rockland County, New York**

NYSDEC Site Code: 344037

August 2009

ESI File: RO07010.50

Prepared By:

**Ecosystems Strategies, Inc.
24 Davis Avenue
Poughkeepsie, New York 12603**

Prepared For:

**R.M.G.K. Realty Corp.
c/o James D. Licata
Licata & Conklin
222 Route 59, Suite 111
Suffern, New York 10911**

The undersigned has reviewed this Remedial Investigation/Feasibility Study and certifies to R.M.G.K. Realty Corp. that the information provided in this document is accurate as of the date of issuance by this office.

Any and all questions or comments, including requests for additional information, should be submitted to the undersigned.

Paul H. Ciminello
President

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Purpose	
1.2	Site Location and Description	
1.2.1	Site Specific Geology	
1.3	Known and Suspect Environmental Conditions	
1.3.1	Previous Environmental Reports	
1.3.1.1	Previous Soil Vapor Investigation	
1.3.1.2	Previous Soil Investigation	
1.3.1.3	Previous Groundwater Investigation	
1.4	Objectives	
2.0	REMEDIAL INVESTIGATION	4
2.1	Summary of Services	
2.2	Fieldwork Methodology	
2.2.1	Site Preparation Services	
2.2.1.1	Utility Markout	
2.2.1.2	Agency Notification	
2.2.1.3	Subcontractors	
2.2.1.4	Equipment Decontamination and Calibration	
2.2.2	Extension of Soil Borings	
2.2.3	Monitoring Well Installation	
2.2.3.1	Monitoring Well Development	
2.2.3.2	Groundwater Elevation and Flow	
2.2.4	Soil Vapor / Air Quality Samples	
2.2.5	Sample Collection	
2.3	Laboratory Analysis	
2.3.1	Terminology	
2.3.2	Sample Submission	
2.3.3	Laboratory Results and Discussion of Findings	
2.3.4	Qualitative Human Health Exposure Assessment	
3.0	INVESTIGATIVE CONCLUSIONS AND RECOMMENDATIONS	13
4.0	FEASIBILITY STUDY.....	14
4.1	Remedial Goals and Remedial Action Objectives	
4.2	Remedial Alternatives	
4.3	Evaluation of Remedial Alternatives	
4.3.1	Selection of Remedial Alternative	
5.0	Overview of Proposed Remediation Services Including Interim Remedial Measure	19
5.1	Proposed Site Preparation Services	
5.1.1	Agency Notification	
5.1.2	Clean-up Levels	
5.1.3	Site Remediation Coordination Activities	
5.1.4	Health and Safety Plan (HASP)	
5.1.5	Dust Suppression	
5.2	Proposed Specific Remediation Services	
5.2.1	Excavation of Contaminated Soils as Interim Remedial Measure	
5.2.2	Post-Excavation Soil Sampling	
5.2.3	Soil Importation Requirements	
5.2.4	Installation of a Sub-Slab Depressurization System	
5.2.4.1	System Installation	
5.2.4.2	System Start Up and Testing	
5.2.4.3	Conduct Post-Construction System Confirmation	



TABLE OF CONTENTS (cont'd)

	5.2.5	Groundwater Monitoring
	5.2.6	Implementation of the In-situ Treatment Alternative
	5.2.7	Documentation of Site Remediation and/or Closure
5.3		Project Schedule

APPENDICES

A	Maps
	Figure 1 – Site Location Map
	Figure 2 – PCE in Soils Map
	Figure 3 – PCE in Groundwater Map
	Figure 4 – Groundwater Flow Map
	Figure 5 – VOCs in Soil Vapor Map
	Figure 6 – Proposed Excavation Map
B	Data Summary Tables
C	Laboratory Reports
D	Boring Logs



1.0 INTRODUCTION

1.1 Purpose

This Remedial Investigation/Feasibility Study (RI/FS) documents environmental fieldwork performed by Ecosystems Strategies, Inc. (ESI) on portions of the Blauvelt Laundry Site (hereafter referred to as the "Site") located at 549 Western Highway, Town of Orangetown, Rockland County, New York. Investigative and analytical work was performed to address potential environmental liabilities on the subject property as specified in the New York State Department of Conservation (NYSDEC) approved Remedial Investigation/Feasibility Study Work Plan (Work Plan), dated April 30, 2007. The NYSDEC was notified of modifications/changes to the approved Work Plan during investigative activities and provided guidance, as necessary. The specific purpose of this RI/FS is to summarize the work performed by ESI and ESI's subcontractors, and to suggest remedial options regarding identified on-site conditions.

This RI/FS describes all fieldwork methodologies for the work conducted by this office, includes discussions of the resulting analytical data from collected samples, provides conclusions and recommendations drawn from the fieldwork and analytical data, and presents remedial alternatives based on the findings of the investigative activities.

1.2 Site Location and Description

The Blauvelt Laundry Site is an approximately 0.6-acre commercial property consisting of two contiguous tax parcels (Town of Orangetown Tax IDs: Section 70.14, Block 2, Lots 43 and 44) located on the eastern side of Western Highway and the northern side of North Troop Road. A Site Location Map is provided as Figure 1 in Appendix A. The property consists of a commercial shopping plaza building on the western portion of the property (i.e., the portion nearest Western Highway), paved parking areas to the west and south of the building, a gravel parking lot to the east of the building, and a grassy area on the northeastern corner of the property. The plaza consists of three storefronts currently occupied by the Blue Hill Cleaners dry-cleaning facility in the center, Orangetown Florist on the northern end, and Blauvelt Station Deli on the southern end. Maps indicating specific Site characteristics are provided in Appendix A.

1.2.1 Site Specific Geology

A review of the Geologic Map of New York and the Surficial Geologic Map of New York (lower Hudson sheets) indicates that soils on the subject property are likely to consist of variable thickness glacial till (clays, silts, sands, and/or gravels) overlying Upper-Triassic age mudstone, siltstone, and arkose of the Brunswick formation (Newark Group). Soil maps presented in the USDA NRCS Soil Survey of Rockland County, New York (Soil Survey) indicate that the Wethersfield-Urban Land complex (2-8% slopes) soil series is likely to be located on the property. The Urban Land designation is provided for areas where the surface is covered by buildings, parking areas or other impervious structures, and specific soil and bedrock characteristics are generally not well known. The Wethersfield gravelly silt loam is a very deep, well drained, and gently sloping soil.

A Preliminary Site Assessment Report, Blauvelt Laundry and Dry Cleaning Center (PSA) prepared by Camp Dresser & McKee (CDM) in December 1995 (see below) documented red, silty or sandy-silty clay with gravel to a maximum depth of approximately twenty feet below surface grade (bsg). Groundwater was not encountered in overburden soils during on-site work completed by CDM.

Geological information for the Site was obtained by ESI during the installation of an on-site groundwater monitoring well (MW-4) and during the extension of on-site soil borings (See Section 2.0). Site soils generally consisted of moist, reddish sands and dark brown silts, with gravel and cobble inclusions to approximately ten feet bsg. Red to dark red sandy silts were generally encountered to depths of approximately twenty feet bsg. No groundwater was encountered in the overburden during the installation of the monitoring well or the extension of the soil borings. Bedrock (a red, fine to medium grained, massive sandstone, lacking significant bedding planes and having only minor fractures) was encountered between approximately twenty to thirty feet bsg.

1.3 Known and Suspect Environmental Conditions

Persistent contamination by tetrachloroethene (PCE), a chlorinated solvent commonly used in dry cleaning operations, was documented in the late 1970s at a nearby public potable supply well (the former Spring Valley Water Authority well field #15, located on the southern side of North Troop Road, approximately 1,000 feet to the east of the Site). PCE concentrations ranged from 9 to 162 µg/L during testing conducted in 1978 to 1982, and ranged from non-detect to 25 µg/L between 1999 and 2000. Low levels of PCE breakdown products (e.g., trichloroethene and dichloroethylene) were also detected. The Site is considered by the NYSDEC as the probable source of this contamination, based on its presumed upgradient location, the long-term use of the central storefront as a dry cleaning facility (dating from at least 1971), and documented PCE contamination in on-site soil vapor and groundwater.

A Preliminary Site Assessment was conducted in the mid-1990s (see below); the Site was subsequently listed as a Class 2 Inactive Hazardous Waste Disposal (IHWD) Site in 2001 (NYSDEC Site Code: 344037).

1.3.1 Previous Environmental Reports

CDM performed a PSA in 1994 and 1995, at the request of the NYSDEC, in order to determine if hazardous wastes, which could potentially be the source of the contamination at well #15, were disposed of on-site. The investigation included sampling of soil, soil vapor, and groundwater. CDM concluded that a release of PCE was likely to have occurred at the Site. CDM issued the PSA in December 1995. The findings of the PSA are summarized, below, by specific media.

1.3.1.1 Previous Soil Vapor Investigation

Twenty-two exterior soil vapor samples were collected from areas located east of the on-site building: nine samples at the central and eastern, undeveloped portions of the Site; ten samples at the area immediately adjoining the exterior building wall; and three in the paved parking area just east of the building. Soil vapor was collected from four-foot deep borings and was screened for organic vapors using a photoionization detector (PID) and organic vapor analyzer (OVA). The soil vapor was also screened for PCE and trichloroethene (TCE) using a portable gas chromatograph (GC).

Peak concentrations of PCE were identified near the southeastern corner of the dry cleaner portion of the building, with diminishing concentrations found in samples collected to the north and south. Low concentrations of PCE were detected to the east of the building (1 parts per million [ppm] or less) and PCE was non-detect on central and eastern portions of the property. A low concentration of TCE (1 ppm) was detected to the east of the dry cleaner portion of the property (These data are consistent with data generated by ESI, as summarized in Section 2.3).

1.3.1.2 Previous Soil Investigation

During monitoring well installation, CDM attempted to collect a two-foot soil core from every five-foot interval advanced by the drill rig. No field evidence of contamination (e.g., elevated PID readings) was noted in the boring logs.

Three soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and USEPA Target Analyte List (TAL) metals [note: the copy of the PSA reviewed by this office did not include the full laboratory reports.]

Laboratory analysis of soil samples did not identify any contaminants at significant concentrations. No VOCs or PCBs were detected above contract required detection limits (CRDLs). Very low levels of several SVOCs and pesticides were detected; the data validation report, however, determined that these positive identifications should be considered as estimated concentrations only, and that all non-detected concentrations be rejected, due to quality control issues. Metals were detected at concentrations consistent with regional background values.

1.3.1.3 Previous Groundwater Investigation

Three monitoring wells (MW-1, MW-2, and MW-3) were installed by CDM. The wells were installed to the east of the dry cleaner portion of the building (MW-1 to the east of the dry cleaner and MW-3 to the north of the dry cleaner) and on the southeastern portion of the property (MW-2). All three wells were extended into bedrock. No field evidence of contamination was observed in any soil samples collected during the installation of the wells. Groundwater samples were submitted for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and TAL metals. Elevated concentrations of PCE were detected in all three wells and low levels of PCE breakdown products were also detected in MW-1. No other VOCs were detected in the wells above CRDLs.

No SVOCs, pesticides, or PCBs were detected in any sample, with the exception of gamma-BHC (lindane) detected at an estimated concentration in the blind duplicate sample for MW-1. An elevated concentration of mercury was detected in MW-1. All other metals were detected at concentrations below guidance levels (thallium results were rejected based on quality control issues).

1.4 Objectives

The objectives of the work conducted by ESI were as follows:

- To identify the extent of previously identified environmental concerns associated with the past use of the subject property as a dry cleaning facility;
- To suggest, if appropriate, further investigative and/or remedial options regarding identified subsurface or surface contamination; and,
- To provide sufficient description of the Site's environmental conditions to secure IHWD Site reclassification and, eventually, declassification.

ESI prepared Work Plans for the Site which were subsequently approved by the NYSDEC. The NYSDEC was notified of all work in ongoing communications.



2.0 REMEDIAL INVESTIGATION

2.1 Summary of Services

In order to achieve the objectives specified in Section 1.4, above, the following services were conducted by ESI:

- Coordination and supervision of the extension of sixteen exterior soil borings;
- Extension of three interior soil borings;
- Collection of twenty soil gas samples and three air quality samples;
- Coordination and supervision of the installation of four groundwater monitoring wells (one on-site and three off-site);
- Documentation of the on-site presence or absence of contamination through sampling and laboratory analysis of subsurface soil samples, soil gas samples, air quality samples, and groundwater samples for VOCs; and,
- Performance of a Qualitative Human Health Exposure Assessment based on the laboratory data obtained from the analysis of the samples.

The fieldwork described above was performed in order to provide a general screening of the property to identify and delineate previously identified impacts associated with the historic use of the property as a dry cleaning facility.

The Remedial Investigation portion of this RI/FS is divided into individual sections that document fieldwork methodology (Section 2.2), and laboratory results (Section 2.3), and present ESI's conclusions and recommendations (Section 3.0). The Feasibility Study is provided as Section 4.0 of this RI/FS.

2.2 Fieldwork Methodology

2.2.1 Site Preparation Services

2.2.1.1 Utility Markout

Prior to the initiation of fieldwork, a request for a complete utility markout of the subject property was submitted by ESI as required by New York State Department of Labor regulations. Confirmation of underground utility locations was secured and a field check of the utility markout was conducted prior to the extension of soil borings and/or the installation of monitoring wells.

2.2.1.2 Agency Notification

The NYSDEC was notified in writing prior to the initiation of the on-site work and during the course of the fieldwork if deemed necessary by on-site personnel. Changes to fieldwork scheduling and interim updates were provided via email.



2.2.1.3 Subcontractors

Soil boring and monitoring well installation services were provided by personnel from Enviroprobe Services, Inc. (Enviroprobe) and SoilTesting, Inc. (SoilTesting), respectively. Soil borings and monitoring well installation were completed under the direct supervision of ESI and no installations were completed without ESI oversight. Laboratory services were subcontracted to Test America Laboratories, Inc. (Test America), a New York State Environmental Laboratory Approval Program (ELAP) certified laboratory (ELAP Number 10602).

2.2.1.4 Equipment Decontamination and Calibration

Prior to the initiation of fieldwork, all field equipment used during the work was properly decontaminated in accordance with NYSDEC guidelines, and all field instruments were properly calibrated in accordance with procedures set forth by the equipment manufacturer(s).

A MiniRAE 2000 (Model PGM 7600) photo-ionization detector (PID) was utilized by ESI personnel to screen all encountered material for the presence of any volatile organic vapors where appropriate. Prior to the initiation of fieldwork, this PID was properly calibrated to read parts per million calibration gas equivalents (ppm-cge) of isobutylene in accordance with protocols set forth by the equipment manufacturer.

2.2.2 Extension of Soil Borings

ESI personnel supervised the extension of sixteen mechanical exterior soil borings by personnel from Enviroprobe, and ESI personnel extended three hand borings at the interior of the on-site structure on September 10 and 11, 2007. A PCE in Soils Map indicating boring locations and associated selected Site features is provided as Figure 2 in Appendix A.

All mechanical soil borings were extended using a Geoprobe equipped with disposable acetate sleeves (used to prevent the cross contamination of soil samples); all manual soil borings were extended using a direct push hand-corer equipped with disposable acetate sleeves. Sampling was conducted at each mechanical boring location at four-foot intervals to a maximum depth of twenty feet below grade or until refusal was reached; hand borings were extended to a maximum depth of six feet below grade or until refusal was reached. The sampling equipment was properly decontaminated prior to the initiation of fieldwork and after the collection of each sample.

An assessment of subsurface soil characteristics, including soil type, the presence of foreign materials, field indications of contamination (e.g., unusual coloration patterns, or odors), and instrument indications of contamination (i.e., PID readings) was made by ESI personnel during the extension of each soil boring. ESI personnel maintained independent field logs documenting physical characteristics, PID readings, and any field indications of contamination for all encountered material at each boring location. Relevant information for each well installation location is summarized in the boring logs, located in Appendix D.

Samples of soil material were collected from each of the soil borings where appropriate (see Section 2.2.5 for specifics regarding sample collection methodology) and notations were made regarding the sampled material's physical characteristics. A sufficient volume of material was collected at each sample location for the required analyses and for potential additional analyses.

Site soils generally consisted of moist, reddish sands and dark brown silts, with gravel and cobble inclusions to approximately ten feet bsg. Red to dark red sandy silts were generally encountered to depths of approximately twenty feet bsg. Groundwater was not encountered in overburden soils during the extension of soil borings.



2.2.3 Monitoring Well Installation

The installation of one on-site (MW-4) and three off-site groundwater-monitoring wells (MW-5 through MW-7) was performed by personnel from SoilTesting on April 18, 2007 (MW-4 and MW-5) and on August 31, 2008 (MW-6 and MW-7). MW-4 is located on the northeastern corner of the property, MW-5 is located on the adjoining Blauvelt Volunteer Fire Company property to the west, and MW-6 and MW-7 are located on the adjoining commercial property to the south. These off-site sampling points were selected by ESI and NYSDEC personnel and were based on groundwater flow.

Each well is constructed of two-inch PVC casing and 0.01-inch slotted PVC well screening. All the wells were completed as "drive-over" wells with locked metal covers. The annular spaces between well screens and boreholes were backfilled with clean #1 silica sand and a one-foot thick bentonite seal was poured above the sand. Remaining annular spaces were then grouted.

The location of all wells is provided on the PCE in Groundwater Map, provided as Figure 3 Appendix A.

2.2.3.1 Monitoring Well Development

All monitoring wells were developed within a week of installation using a two-inch diameter, properly decontaminated, stainless steel submersible Grundfos Low Flow pump with dedicated tubing attached.

Field indicator parameters (temperature, pH, specific conductance, dissolved oxygen, oxidation reduction potential [ORP]) were measured during well purging using a Horiba U-22 field instrument with an inline testing cell. Development was performed in order to clear fine-grained material that might have settled around the well screen and to enhance the natural hydraulic connection between the well screen and the surrounding soils. Prior to development, each monitoring well casing was opened and the well column immediately screened with a PID to document the presence of any volatile organic vapors. Water removed from each monitoring well was visually inspected for indications of contamination.

Development was considered complete when turbidity was found to be less than 50 NTUs.

2.2.3.2 Groundwater Elevation and Flow

The locations of wells MW-1, MW-2, MW-4, and MW-5 were surveyed to a horizontal and vertical accuracy of 0.01 foot. An artificial benchmark elevation of 100' was established on the Site and all measurements were defined from that datum.

The direction of groundwater flow was determined based on elevations of static groundwater, measured prior to water quality sample collection. Measurements were collected with an electronic depth meter accurate to the nearest 0.01-foot. The direction of groundwater flow was determined to be in a southwesterly direction. A Direction of Groundwater Flow Map is provided as Figure 4 in Appendix A.



2.2.4 Soil Vapor / Air Quality Samples

Sixteen soil gas samples were collected throughout the exterior of the Site between August 1 and August 3, 2007. Three interior soil gas samples and three air quality samples were collected on August 5, 2007. All soil gas samples were collected by extending manual or mechanical borings into the subsurface (see Section 2.2.5, below for specific methodology). Air quality samples were collected utilizing summa canisters equipped with eight-hour flow controllers. VOCs in Soil Vapor Map is provided as Figure 5 in Appendix A.

2.2.5 Sample Collection

Soil Samples

All material samples were obtained in a manner consistent with NYSDEC sample collection and decontamination protocols. Soil samples were collected using dedicated gloves, which were used at each sample location to place the material into laboratory supplied glassware.

All sample containers were placed in a cooler immediately after sample collection and were maintained at cold temperatures prior to transport to the laboratory. All samples were transported via courier to Test America Laboratories, Inc., formerly Severn Trent Laboratories, Inc., (ELAP Certification Number 10602), a New York State Department of Health certified laboratory. Appropriate chain-of-custody procedures were followed.

Groundwater Sampling

Prior to sampling, wells were screened using a photo-ionization detector (PID) calibrated to 100 parts per million calibration gas equivalents (ppm-cge) isobutylene in air. Screening results were utilized in determining the presence or absence of elevated concentrations of organic vapors in the work area.

Field indicator parameters (temperature, pH, specific conductance, dissolved oxygen, oxidation reduction potential [ORP]) were measured during low-flow well purging using a Horiba U-22 field instrument with an inline testing cell. Well purging was considered adequate when the field-measured parameter readings stabilized. Once the field indicator parameters stabilized, groundwater samples were collected using dedicated tubing. Groundwater samples were collected into 40 ml vials, preserved with acid as appropriate for the specific analysis.

All sample containers were placed in a cooler immediately after sample collection and were maintained at cold temperatures prior to transport to the laboratory. All samples were transported via courier to Test America Laboratories, Inc. Appropriate chain-of-custody procedures were followed.

Soil Gas Samples

Soil gas samples were collected by inserting a hollow, 1.5" steel rod with an expendable tip into the boring hole, removing the tip, and lowering an air-stone attached to ¼" Teflon tubing into the rod to the invert of the boring. Sand was poured into the void surrounding the air stone leaving approximately two inches of depth between the top of the sand and the surface. The remaining space was sealed off with a non-VOC containing material (moistened bentonite) to prevent surface air from entering the system. Before purging, a properly calibrated PID was used to measure volatile organics by connecting the PID to the inserted Teflon tubing.



The space around the sampling point was enclosed and sealed (with a metal hemisphere and clay) in order to introduce a tracer gas [helium] into the area surrounding the probe point. Helium was introduced into the enclosure and a Radiodetection Multi-gas Leak Locator model MDG 2002 (helium detector) was utilized to determine when the interior atmosphere reached 80% helium. At this point, a vacuum pump was utilized to obtain a sample of the soil gas air for testing. The air was collected into laboratory supplied Summa Canisters equipped with one hour flow controllers. A result of less than 10% helium indicated that the seal was adequate to prevent surface air from entering the system during the duration of the test.

Indoor and outdoor air quality samples were collected into laboratory supplied Summa Canisters equipped with eight-hour flow controllers. One canister was placed in the florist portion of the building, one in the deli portion, and one at the exterior of the building in the north-central portion of the Site. For each sampling canister, the pre- and post-sample canister pressure, start and stop times, and exact location of each sampling point was recorded.

All samples were transported via courier to Test America Laboratories, Inc. Appropriate chain-of-custody procedures were followed.

2.3 Laboratory Analysis

2.3.1 Terminology

Guidance Levels

The term "guidance level", as defined in this RI/FS, refers to the concentration of a particular contaminant above which remedial actions are considered more likely. The overall objective of setting guidance levels is to assess the integrity of on-site media relative to conditions which are likely to present a threat to public health or the environment, given the existing and probable future uses of the Site. On-site media with contaminant levels exceeding these guidance levels are considered more likely to warrant remediation. No independent risk assessment was performed as part of this investigation.

Guidance levels for all compounds detected in soils are based on the NYSDEC Remedial Program (6 NYCRR Subpart 375-6) Soil Cleanup Objectives (SCOs) for "unrestricted" use.

Guidance levels for all compounds detected in water are based on NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards And Guidance Values And Groundwater Effluent Limitations, June 1998 (TOGS 1.1.1).

Few official guidance levels currently exist for VOCs in soil gas. The New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006, contains "air guideline values" for five compounds (methylene chloride, polychlorinated biphenyls, tetrachlorodibenzo-p-dioxin, tetrachloroethene [PCE], and trichloroethene [TCE]). All data presented in this RI/FS have been analyzed in accordance with applicable guidance levels.

2.3.2 Sample Submission

Submission of samples for laboratory analysis was based on NYSDEC direction and observations made by ESI personnel during the extension of the soil borings, the collection of soil gas samples, and the installation of monitoring wells. Decisions regarding sample submission were based on factors including the presence or absence of elevated PID readings, unusual odors, discoloration, or, any other unusual patterns. A sufficient number of samples were submitted for



analysis to delineate the extent of the known contamination on the property associated with the use of the Site as a dry cleaning facility.

Samples submitted for analysis are listed below.

Soil Samples

BSB-01 (2-4'), (4-8'), (8-12'), and (12-16')
BSB-02 (2-4'), (4-8'), (8-12'), and (16-19')
BSB-03 (2-4'), (4-8'), (8-12'), (12-16'), (16-20'), and (20-24)
BSB-04 (2-4'), (4-8'), (8-12'), and (12-16')
BSB-05 (4-8'), (8-12'), (12-16'), and (16-18')
BSB-06 (2-4'), (4-8'), (8-12'), (12-16'), and (16-18')
BSB-07 (2-4'), (4-8'), (8-12'), (12-16'), (16-20'), and (20-21')
BSB-08 (2-4') and (4-8')
BSB-09 (2-4') and (4-8')
BSB-10 (2-4') and (4-8')
BSB-11 (2-4') and (4-8')
BSB-12 (2-4') and (4-8')
BSB-13 (2-4') and (4-6')
BSB-14 (2-4') and (4-8')
BSB-15 (2-4') and (4-8')
BSB-16 (2-4'), (4-8'), and (8-10')
HB-1 (0-4'), HB-2 (0-4'), and HB-3 (0-4')

All samples submitted for analysis of VOCs utilizing USEPA Method 8260.

Groundwater Samples

MW-1 (Sampled September 2007 and May 2008)
MW-2 (Sampled September 2007 and May 2008)
MW-4 (Sampled September 2007 and May 2008)
MW-5 (Sampled September 2007 and May 2008)
MW-6 (Sampled May 2008)
MW-7 (Sampled May 2008 and August 2008)

All samples submitted for analysis of VOCs, utilizing USEPA Method 8260.

Soil Gas Samples

SG-1 through SG-16 and SG-18 through SG-21

All samples submitted for analysis of VOCs utilizing USEPA Method (TO-15).

Indoor/Outdoor Air Quality Samples

AQ-1 (located outside of the building on the north-central portion of the property)
AQ-2 (located in the deli portion of the on-site building)
AQ-3 (located in the florist portion of the on-site building)

All samples submitted for analysis of VOCs utilizing USEPA Method (TO-15).



2.3.3 Laboratory Results and Discussion of Findings

A summary of the results of the laboratory analyses conducted on all samples is presented below (Data Summary Tables are presented in Appendix B and complete copies of Laboratory Reports are included as Appendix C). Recommendations regarding these findings are located in Section 3.0 of this RI/FS, Conclusions and Recommendations.

Laboratory Results

Soil Samples

VOCs

PCE was detected above the guidance level of 1,300 parts per billion (ppb) at BSB-01 (2-4') (8,900 ppb). Cis-1,2-dichloroethylene was also detected above the guidance level of 250 ppb at this location (350 ppb). Low-level concentrations of several other VOC compounds, including TCE, 1,2 dichloroethylene (cis and total), and 1,1,1,2-tetrachloroethane were also detected well below guidance levels at several other boring locations. Methylene chloride and acetone, often laboratory introduced contaminants, were also detected in the samples well below guidance levels, with the exception of acetone at SB-14 (4-8') detected at 96 parts per billion (ppb), guidance level 50 ppb.

A limited area of soils with elevated and low-levels of dry-cleaning related solvents was detected to the rear (east) of the building, directly behind the dry-cleaning operation. Analysis of the 2-4' interval from soil boring BSB-1 indicated the presence of a "hot spot", located near the southeast corner of Blue Hill Cleaners. Although the hot spot is located directly behind the building, results from the 2 to 4 foot interval at BSB-10 (270 ppb) and BSB-12 (250 ppb) indicate that lower levels of PCE are present to the east of the building. Soil excavation and removal is planned for this area (see Section 4.0, below) and is anticipated to consist of rectangle that is 40 feet in length, starting 20 feet north of the southeast corner of the building, and extending 20 feet in width. The depth of excavation is anticipated to be 5 to 8 feet below surface grade, and will be based on field observations. Due to the location of the hot spot excavation will require protection of the building foundation (e.g., shoring) during soil removal activities.

Groundwater Samples

VOCs

PCE was detected above the guidance level of 5 µg/L at MW-5 in the September 2007 sampling event (9 µg/L) and the May 2008 sampling event (10 µg/L). PCE was also detected above the guidance level at MW-7 in the May 2008 sampling event (1,400 µg/L); however, this well was re-sampled in August 2008 to confirm the initial level, with no PCE detected above minimum detection limits. An estimated concentration of TCE was also detected above the guidance level of 5 µg/L at MW-7 (9.5 µg/L) in the May 2008 sampling event (note: this compound was not detected in the August 2008 sampling event). Low-level concentrations of several other VOC compounds including PCE, 1,2-dichloroethene, toluene, chloroform, and TCE, were detected below their respective guidance levels during the September 2007 and May 2008 sampling events.

Soil Gas Samples

PCE

PCE was detected above the guidance level of 100 µg/m³ at SG-6 (12,000 µg/m³), SG-7 (3,000 µg/m³), SG-8 (330 µg/m³), SG-9 (160 µg/m³), SG-10 (20,000 µg/m³), SG-11 (2,600 µg/m³), SG-

12 (39,000 $\mu\text{g}/\text{m}^3$), SG-13 (44,000 $\mu\text{g}/\text{m}^3$), SG-14 (1,600 $\mu\text{g}/\text{m}^3$), and SG-15 (250 $\mu\text{g}/\text{m}^3$). Low-level concentrations of PCE were detected at all other sampling locations.

TCE

TCE was detected above the guidance level of 5 $\mu\text{g}/\text{m}^3$ at SG-10 (18,000 $\mu\text{g}/\text{m}^3$), SG-13 (8,600 $\mu\text{g}/\text{m}^3$), SG-19 (8.1 $\mu\text{g}/\text{m}^3$), and SG-21 (6 $\mu\text{g}/\text{m}^3$). Low-level concentrations of TCE were also detected at SG-4 and SG-20.

Other Compounds

Low-level concentrations of several other VOC compounds in soil gas samples collected throughout the Site. The majority of the compounds were detected in areas on the eastern portion of the property, and at the front of the building.

Air Quality Samples

A memorandum (memo) dated October 16, 2007 from Ronald E. Bielinski, PE, CH of Erwin Lobo Bielinski, PLLC to Mr. Scott Spitzer of ESI documents a non-invasive inspection of the on-site building for potential PCE migration from the dry-cleaning facility to other portions of the building. The memo indicated that there is a potential for airborne PCE migration from the dry cleaner to the general airspace, and to the interstitial space above the ceiling. Depending on conditions, the memo indicated that air from the dry cleaning shop could reach the deli. PCE was detected above its guidance level in AQ-2 (located inside of the deli, 1,400 $\mu\text{g}/\text{m}^3$) and AQ-3 (located inside of the florist, 560 $\mu\text{g}/\text{m}^3$). Low-level concentrations of toluene, benzene, Isopropanol, n-heptane, and acetone were also detected in the interior air quality samples.

2.3.4 Qualitative Human Health Exposure Assessment

This section describes the types of human exposures that may present added health risks to persons at or around the Site. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a Site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge) and/or the location where contaminants remain in sufficient concentrations to represent a potential threat to human health and the environment. Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The source of contaminant at this Site is associated with the presumed release of dry-cleaning related compounds to shallow surface soils from the rear of the on-site building. A summary of the exposure assessment specific to the Site is presented below.

Soils

The sole contaminants in Site soils are dry-cleaning related VOC compounds; specifically PCE and PCE breakdown products. PCE was found to be present at an elevated concentration in



shallow soils (2-4' bsg) at one location to the rear of the on-site building. Low-level concentrations of PCE, TCE, and PCE-breakdown products were also detected in shallow soils at other boring locations in this area.

Potential exposure pathways for on-site contaminated soils are anticipated during remediation. Inhalation of dust, and direct contact with soils are the likely routes of exposure for receptor populations (construction workers, customers of current on-site stores, and users of adjoining properties). 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.

Access to potential soil and groundwater contamination likely to remain on-site after remediation (low-level VOCs) will be limited by paved areas and the presence of the on-site building.

Soil Vapors

Elevated concentrations of VOCs are present in on-site soil vapors and in indoor air inside of the on-site building. Soil vapors and indoor air are potential sources of concern for workers in the on-site building. Inhalation is the likely route of exposure for receptor populations (on-site employees). The installation of a sub-slab depressurization system (SSDS, see Section 5.2.4, below) will mitigate possible impacts to the on-site receptor populations.

The potential exists for low-level VOC soil vapor contamination to remain on-site after soil excavation activities. A SSDS will be installed in the on-site building to mitigate any potential soil vapors accumulating beneath the slab of the on-site building. No existing or potential exposure pathways for off-site soil vapors are anticipated.

Groundwater

The primary contaminants of concern are VOCs (specifically dry-cleaning related compounds). No existing or potential exposure pathways for contaminated groundwater are anticipated (no local uses of groundwater are known to exist).

Direct contact with on-site and off-site groundwater during periodic sampling is a potential route of exposure for receptor populations (sampling personnel). No existing or potential exposure pathways for contaminated groundwater are anticipated during the soil excavation activities (groundwater was not encountered in the overburden during monitoring well installation and/or soil boring activities). No current use of groundwater exists and no future use is proposed. Potential exposures will be limited to groundwater monitoring activities. The use of proper personal protective equipment (PPE) during sampling activities will mitigate possible impacts to the receptor population.



3.0 INVESTIGATIVE CONCLUSIONS AND RECOMMENDATIONS

This office has completed the services summarized in Section 2.0 on specified portions of the Blauvelt Laundry Site, located at 549 Western Highway, Town of Orangetown, Rockland County, New York. Services included the extension of 19 soil borings and collection of soil samples, the collection of 20 soil gas samples and 3 air quality samples, the installation of one on-site and three off-site groundwater monitoring wells, and the sampling of the groundwater monitoring wells to delineate the extent of known Site contamination resulting from the historic usage of the property as a dry-cleaning facility.

Based on the services provided and data generated, the following conclusions and recommendations (in **bold**) have been made.

1. Soil samples collected from soil borings BSB-01 through BSB-16, and HB-1 through HB-3 extended at locations at the exterior and within the on-site structure indicate the absence of widespread impacts to the subsurface. One area in the vicinity of BSB-01 was documented as containing elevated concentrations of PCE, and surrounding soils were documented with low levels of PCE. The lateral and vertical extent of this area of contamination is limited (less than 300 cubic yards). The PCE impacted soil in the vicinity of BSB-01 will require remediation.

No further investigation is recommended. Remedial action consisting of excavation and off-site disposal of contaminated soils is warranted at this location (see Section 4: Feasibility Study, below).

2. Soil gas samples collected from the areas to the east of the on-site building documented the presence of elevated concentrations of PCE and TCE. These areas will require remediation.

No further investigation is recommended. Remedial action consisting of the installation of a SSDS is warranted at this location (see Section 4: Feasibility Study, below).

3. Elevated concentrations of PCE were detected in one well (MW-5) located on the adjoining property to the west. PCE was also detected above guidance levels at a well on the adjoining property to the south (MW-6); however, this well was re-sampled approximately three months later, with no PCE detected. The proposed excavation of PCE-impacted soils (see Paragraph 1 above) is anticipated to mitigate the concentrations of PCE in the groundwater.

It is recommended that quarterly groundwater sampling be conducted for a minimum of one year subsequent to excavation activities to document groundwater conditions both on and off-site.

4. Elevated concentrations of PCE were detected in air quality samples collected inside of the Orangetown Florist and the Blauvelt Station Deli. Two potential sources of the PCE have been identified, including the operation of an active dry-cleaning facility on-site and potential migration of sub-slab vapor into the structure. The proposed SSDS (see Paragraph 2, above) is anticipated to mitigate the concentrations of PCE beneath the slab of the building.



4.0 FEASIBILITY STUDY

4.1 Remedial Goals and Remedial Action Objectives

Elevated concentrations of PCE and TCE have been documented in soil gas samples to the front, rear, and interior of the on-site building. Elevated concentrations of PCE have been documented in shallow soils at the rear of the building and in off-site groundwater monitoring wells. These areas of contamination present a potential threat to human health and the environment (see Section 2.3.4, above). The remedial goals are to eliminate the source of on-site soil contamination which will effectively reduce concentrations of contamination in soil vapor and groundwater.

4.2 Remedial Alternatives

The volume of PCE contaminated soil is anticipated to be less than 300 cubic yards. It is anticipated that this material can be excavated and removed from the Site.

The following remedial alternatives were considered for evaluation:

Alternative 1: No Action Baseline

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative will leave the Site in its present condition and will not provide any additional protection to human health or the environment.

Alternative 2: Excavation and Off-Site Removal

The excavation and off-site removal alternative would be conducted as an interim remedial measure (IRM) and would involve:

- Excavation of all accessible soils to the rear of the on-site dry cleaner with elevated and low-level contamination;
- Off-site disposal of the excavated soil per all applicable regulations;
- Collection and analysis of confirmatory endpoint samples;
- Back-filling of the excavation area with certified clean fill soils;
- Installation of a SSDS (see Section 5.2.4) to prevent potential buildup of soil gas containing VOCs beneath the building slab; and,
- Monitoring of groundwater (see Section 5.2.5).

Although all accessible soils to the rear of the on-site dry cleaner will be excavated and disposed of off-site, PCE may remain in deep soils beneath the building or in building footings. The SSDS will prevent buildup of soil vapors beneath the on-site structure. Quarterly monitoring of groundwater will be utilized to determine the change in groundwater quality due to the removal of the presumed source (contaminated soils behind the building).

Alternative 3: In-Situ Treatment

The in-situ treatment (i.e., chemical oxidation and/or bioremediation) alternative would be conducted subsequent to the IRM and would involve:

- Injection of the treatment chemical into the subsurface to interact with VOCs resulting in the controlled remediation of these compounds;
- Sampling of soil to the rear of the building to confirm the effectiveness of the in-situ treatment;
- Installation of a SSDS (see Section 5.2.4) to prevent potential buildup of soil gas containing VOCs beneath the building slab; and,
- Monitoring of groundwater (see Section 5.2.5).

The SSDS will prevent buildup of soil vapors beneath the on-site structure. Quarterly monitoring of groundwater will be utilized to determine the change in groundwater quality due to the treatment of the presumed source (contaminated soils behind the building); however, initial groundwater monitoring may indicate an increase in PCE due to increased mobility (see below).

4.3 Evaluation of Remedial Alternatives

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided.

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

1. Protection of Human Health and the Environment

This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective. It incorporates several of the criteria listed below with an emphasis on achieving the remediation goals described above.

Alternative 1 will not be protective of human health and the environment. Although some natural attenuation will occur, the process is slow and will allow continued exposure of tenants of the building. Alternatives 2 and 3 will be protective of human health and the environment because the presumed source of the contamination (overburden soil) will be removed (Alternative 2) or treated (Alternative 3).

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs)

Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The major SCGs applicable for this Site include "unrestricted" use SCOs, found in 6 NYCRR, Part 375, Table 375-6.8(a).

Alternative 1 will not meet SCGs. Alternative 3 will meet the SCGs for soil by treating the contamination present in the soil. Alternative 2 will have the highest level of compliance with soil SCGs because it includes direct removal of the contamination from the Site.

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

3. Short-term Effectiveness

The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

There will be no short-term impacts under Alternative 1 because the Site will not be remediated under this alternative.

The short-term impacts of Alternative 2 will be higher when compared to Alternative 3 because the subsurface must be disturbed to be removed. As discussed in Section 2.0, impacted soil exists at a depth of two to four feet bsg (at the "hot spot") and potentially up to eight feet bsg. Removal of this soil will expose it to on-site construction workers and potentially the public (i.e., dust). However, once the soil is removed from the Site, (approximately 2-3 days) the risk of exposure will cease.

Alternative 3 will not require the direct exposure of workers or the public to the contaminated soil; however, it will require time to remediate the soil, may require more than one treatment, and could potentially expose remediation personnel to the treatment chemicals necessary for the remediation.

4. Long-term Effectiveness and Permanence

This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 has no long-term effectiveness because the contaminated soil will remain on-site and risks will not change. Alternatives 2 and 3 are both effective in the long-term. Alternative 2 removes the contaminated soil from the Site, which also removes the source of groundwater and soil gas contamination. Alternative 3 will treat the soil, remediating the source of groundwater and soil gas contamination. Both soil removal and in-situ treatment are proven, reliable methods of soil remediation.

5. Reduction of Toxicity, Mobility or Volume

Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the Site.

Alternative 1 will not reduce toxicity, mobility, or volume except that natural attenuation should result in continued contamination reduction. All existing contamination will remain in place.

Although Alternative 2 does not directly reduce the toxicity or volume of contaminated soil, it will result in the removal and proper disposal of the contamination off-site. The removal of the soil will reduce the mobility of the contamination resulting in reduced groundwater and soil gas contamination.

Alternative 3 directly reduces both the toxicity and the volume of contamination through interaction of the treatment chemical with the contaminated media; however, injection of the chemical into the subsurface (dissolved into water) will, in the short-term, likely increase the mobility of the contamination in the groundwater.



6. Implementability

The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the remediation, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and equipment is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternative 1 presents no challenges to implementation; however, Alternative 1 is not feasible because it allows continued impacts to human health and the environment.

Alternative 2 is relatively easy to implement. Soil will be removed and disposed of in accordance with applicable regulations. However, the proximity of the on-site structure will require consideration during excavation of the overburden. Proven, reliable technology exists to protect the building during excavation activities. Sampling of remaining soils (endpoint sampling) and quarterly groundwater monitoring will be utilized to determine the effectiveness of the remedy.

Alternative 3 is technically more challenging to implement than Alternative 2. Alternative 3 may require bench testing or a pilot study in order to determine the proper treatment chemical. In addition, two or three treatments may be necessary to achieve SCGs. Post-treatment sampling of soil and groundwater monitoring would be used to determine the effectiveness of the remedy.

7. Cost

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

The following is the estimated total cost of each alternative:

Alternative 1	No Cost	
Alternative 2	Soil Excavation:	\$10,000
	Soil Disposal:	\$20,000-30,000
	Endpoint Sampling and Analysis	\$ 5,000
	SSDS Installation:	\$ 5,000
	Groundwater Monitoring ¹ :	\$10,000
	Final Report:	\$ 3,000
	Total:	\$53,000 – 63,000

Notes:

1. Annual monitoring for five years.

Alternative 3	In-situ Treatment ¹ :	\$40,000-60,000
	Soil Sampling and Analysis:	\$20,000
	SSDS Installation:	\$ 5,000
	Groundwater Monitoring ² :	\$16,000
	Final report:	\$ 6,000
	Total:	\$87,000 – 107,000

Notes:

1. Costs for in-situ treatment do not include bench testing or a pilot study.
2. Quarterly monitoring for first year, annual monitoring for four years.



4.3.1 Selection of Remedial Alternative

The recommended remedial alternative for this Site is Alternative 2, Excavation and Off-Site Removal, to be performed as an IRM as provided by the Order on Consent, for the following reasons:

1. The Excavation and Off-Site Removal Alternative meets remedial objectives set forth in Section 4.1 and is consistent with the continued use of the Site for commercial purposes.
2. Based on available environmental data, it is likely that this alternative will lead to the removal of all significant on-site contamination; remaining contamination, if present, will be minimal and is likely located beneath the building footprint and will be addressed with the installation of a SSDS. This alternative therefore provides effective protection of public health and the environment in both the short-term and the long term, and eliminates the possibility that future users would come into contact with on Site contaminants.
3. This alternative provides the owner with both short-term and long-term effective methods of preventing contaminants from migrating off-site or impacting future users. However, if post-excavation groundwater sampling indicates that PCE continues to impact groundwater quality, likely due to inaccessible contamination beneath the on-site building, the In-situ Treatment Alternative will be implemented on-site (see Section 5.2.6, below).

The following sections describe the implementation of this alternative.



5.0 Overview of Proposed Remediation Services Including Interim Remedial Measure

The proposed remedial services described in detail in subsequent sections of this Feasibility Study consist of the following:

1. Accessible PCE contaminated soils present on-site will be excavated and removed as an interim remedial measure. End point samples will be collected to document the integrity of remaining soils.
2. Groundwater monitoring for a minimum of five years after excavation to document any changes in groundwater quality.
3. A SSDS system will be installed in the on-site building to mitigate any soil vapors accumulating beneath the slab of the on-site building.
4. Preparation of a Final Remediation Services Report (Final Report) to the Owner and the NYSDEC.

5.1 Proposed Site Preparation Services

This section of the RI/FS provides details on activities and services necessary to be initiated and/or completed prior to the implementation of Site remediation services.

5.1.1 Agency Notification

The NYSDEC will be notified in writing at least five (5) business days prior to the start of fieldwork. Notification of subsequent field activities will be in accordance with reasonable business practice, with verbal notification for immediate (within 24 hours) activities and written notification otherwise. Written notifications will be transmitted to the NYSDEC via facsimile or e-mail.

5.1.2 Clean-up Levels

Site clean-up will be achieved when remaining soils in the area of excavation are documented to contain concentrations of all compounds at levels below NYSDEC "unrestricted" use Recommended Soil Clean-Up Objectives, as defined in 6NYCRR Part 375, Table 375-6.8(a).

5.1.3 Site Remediation Coordination Activities

Prior to the initiation of fieldwork, all on-site personnel and subcontractors will review the Site specific Health and Safety Plan. All necessary insurance certificates will be secured from subcontractors by the Owner.

An assessment of subsurface soil characteristics, including soil type, the presence of foreign materials, field indications of contamination (e.g., unusual coloration patterns, or odors), and instrument indications of contamination (i.e., PID readings) will be made by the On-Site Coordinator (OSC) during all Site remediation work.

The OSC will be responsible for identifying any soils that, in the opinion of the OSC, may contain elevated concentrations of contaminants and should, therefore, require special handling. Those soils identified by the OSC will be removed to the soil stockpiling area for characterization and proper disposition and/or live loaded for off-site disposal. The OSC will monitor the removal of all



contaminated soil, including monitoring the trucks and establishing the designated truck routes. The OSC will also ensure that any unforeseen environmental conditions are managed in accordance with applicable federal and state regulations.

5.1.4 Health and Safety Plan (HASP)

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; however, field personnel (including subcontractors) will be prepared to continue services wearing more protective levels of equipment should field conditions warrant.

5.1.5 Dust Suppression

Dust suppression activities will be conducted during remediation activities that will disturb on-site soils. At a minimum, soils will be misted when Site conditions indicate dry soils could potentially generate fugitive dust. Evidence of visible dust leaving the Site will result in the implementation of more aggressive dust suppression activities including increased misting, reduction in soil movement, or cessation of excavation.

5.2 Proposed Specific Remediation Services

This section of the RI/FS provides a detailed description of the remedial tasks that will be conducted at the subject property. During the course of all remedial activities, appropriate measures (e.g., vehicle traffic patterns, stormwater run-off controls) will be implemented to ensure that contaminated soil is minimally disturbed.

5.2.1 Excavation of Contaminated Soils as Interim Remedial Measure

Previous investigations have documented the presence of PCE and TCE contaminated soils at locations east of the on-site structure. The total volume of these soils is not known but is estimated to be less than 300 cubic yards. Based on soils and soil gas data, accessible soils from behind the Blue Hill Cleaners (providing for protection of the building foundation) will be excavated and properly disposed of off-site. The area of excavation will consist of at least a 40 foot long rectangle, starting approximately 20 feet north of the southeast corner of the building and continuing approximately 20 feet to the east. The depth of excavation is anticipated to be 5 to 8 feet below surface grade and will be based on field evidence of contamination.

These known contaminated soils will be excavated and removed from the Site in accordance with applicable NYSDEC regulations. All appropriate disposal documentation will be maintained by the Owner for inclusion in the Final Report. The location of known contaminated soils subject to the removal procedures detailed below is provided on the Soil Excavation Map, provided as Figure 6, Appendix A.

1. Surface material such as concrete, metal, and other miscellaneous materials will be removed and stockpiled or properly disposed of off-site as exempt waste, in accordance with NYSDEC Solid Waste regulations. Any subsurface debris encountered during the excavation of on-site soils will be disposed of in a manner consistent with applicable NYSDEC regulations (6 NYCRR, Part 360).
2. Excavation may, if needed, extend to bedrock. Shallow groundwater is not present at the Site. Excavation of materials exhibiting field evidence of contamination (i.e. elevated PID readings) will be conducted in a manner consistent with technical observations from field personnel. Excavated material not indicating field evidence of contamination will be

segregated, stockpiled, sampled, and analyzed to verify their integrity prior to off-site disposal or reuse on-site.

3. All excavated soils stored on-site will be placed on double-lined, 6-mil plastic sheeting and covered with a single sheet of 6-mil plastic. The stockpile will be located to minimize the likelihood of direct contact with standing water or water resulting from a storm event. The integrity of the overlaying plastic will be periodically inspected, and replacement of the plastic will occur when appropriate until such time as all soils are removed from the Site. To the extent feasible, landfill approvals will be secured to permit direct loading of trucks.
4. All contaminated materials will be removed from the property by an appropriately licensed hauler who will be responsible for exiting the Site and traveling on a pre-determined truck route. Trucks will be covered and leak-proof and appropriate measures will be taken to control the generation of fugitive dust from the trucks during transport.
5. All soils removed from the Site will be documented with appropriate transportation manifests and weight tickets, as well as disposal/recycling certificates from the off-site facility.
6. All wastes will be transported from the Site in a manner appropriate to reduce dust generation and/or fugitive discharges of soils onto local streets. The specific truck routes will be dependent on the location of the particular repository.

5.2.2 Post-Excavation Soil Sampling

Soil samples will be collected using decontaminated stainless steel trowels and dedicated, disposable latex gloves. Samples will be placed in pre-cleaned jars provided by the laboratory. After sample collection, the sample containers will be placed in a cooler prior to overnight transport to a NYSDOH-certified laboratory for analysis. Appropriate chain of custody procedures will be followed.

Underlying and surrounding soils will be visually inspected and screened with the PID after all contaminated soils have been removed from the ground. All soil samples will be analyzed for VOCs (USEPA Method 8260).

Test results from the post-excavation sampling event will be compared to SCOs for "unrestricted" use; any exceedances will warrant additional removal of soils, if accessible (i.e., not underneath the building). This process (testing, additional excavation) will be repeated until all contaminated soil is removed from the Site.

The number of post-excavation soil samples will be determined in the field based on the size and dimensions of the excavation. At a minimum, one soil sample will be collected per wall and one sample will be collected from the base of the excavation, if soils remain over bedrock. Wall samples will be collected from a depth consistent with the observed contamination. Soils encountered that exhibit unusual field conditions will be analyzed for specific compounds as determined by the field technician (in consultation with the NYSDEC Project Manager) to be most appropriate.

5.2.3 Soil Importation Requirements

The importation of the clean fill/top soil will be required. Such material will be from a specific source (e.g., not from an adjacent parcel near the proposed construction site). On-site soils will only be utilized for backfilling/grading purposes if they are tested and reveal that all contaminant

concentrations are below SCOs for "unrestricted" use Sites. Specifically soils being imported to the Site shall be from an acceptable borrow source that is free of industrial wastes and/or other 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 for the following parameters:

Total Weight Analysis:

VOCs	(USEPA Method 8260)
PAHs	(USEPA Method 8270)
TAL Metals	(USEPA Methods 6010 and 7471)
Pesticides	(USEPA Method 8081)
PCBs	(USEPA Method 8082)

Analysis by Toxicity Characteristic Leachate Procedure (TCLP):

VOCs	(USEPA Method 8260)
PAHs	(USEPA Method 8270)
RCRA Metals	(USEPA Methods 6010 and 7471)
Pesticides	(USEPA Method 8081)

Soils from each potential borrow source will be analyzed as follows: one sample per designated borrow pit will be submitted for analysis of the above TCLP parameters; and, one sample per 2,500 cubic yards of soil will be submitted for the analysis of above total-weight parameters.

Soils that are confirmed to be non-hazardous (through TCLP analyses) and that meet SCOs for "unrestricted" use Sites (through total-weight analyses) would be considered free of contamination. All analyses must be performed by a NYSDOH ELAP certified laboratory. A valid ELAP certification number must be provided with all laboratory data. Soils intended for importation to the Site cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a).

5.2.4 Installation of Sub-Slab Depressurization System

As a means of mitigating soil vapors present in soil gas beneath the slab of the building and in indoor air quality, a SSDS will be installed in the building.

5.2.4.1 System Installation

The SSDS will consist of four-inch slotted PVC piping. The PVC piping will be connected to vertical pipes extending above the roofline. Low-grade vacuum pumps or fans will be connected to each vertical pipe to ensure the maintenance of vacuum under the building. Discharge points will be properly located above the roofline to minimize the likelihood of air emissions deteriorously affecting indoor air quality via roof-mounted air intakes.

At this time, it is anticipated that a maximum of three extraction points will be required to effectively service this Site. Extraction points may be connected so that only two pumps are utilized. In addition, a maximum of three monitoring points, located throughout the building, will be installed to confirm effective vacuum in the entire subgrade.



5.2.4.2 System Start Up and Testing

System start-up and initial testing will occur after all components of the system have been installed. The following steps will be taken:

1. The system will be visually inspected and documentation of system conditions will be maintained in field logbooks.
2. The system will be started and all components will be checked for proper function.
3. Following a minimum of one hour of operation, air samples will be collected at each discharge point and submitted for analysis of VOCs using USEPA Method TO-15. These data will be used to determine the need for air discharge treatment and/or permitting.
4. Vacuum data (as measured in inches of water) will be collected from the monitoring points. Sufficient vacuum will be established if a minimum sub-slab pressure of -0.002 inches of water are measured at each monitoring point. Vacuum levels that do not meet this standard may necessitate the installation and connection of another extraction point.

5.2.4.3 Conduct Post-Construction System Confirmation

The SSDS will be tested (as described above) to establish that a sufficient vacuum is present beneath the slab of the building. Sampling of indoor air quality will not be performed due to the documented presence of VOCs in indoor air related to on-site dry-cleaning operations.

5.2.5 Groundwater Monitoring

No groundwater remediation is proposed in this RI/FS, based on existing data. The proposed groundwater-monitoring detailed in this Section of the RI/FS is intended to assess: a) changes in water quality over time (one year minimum), and b) confirm the absence of ground water contamination above guidance levels at down-gradient sampling locations.

The groundwater-monitoring plan at this Site consists of the following:

- Annual sampling of all wells for VOCs, per the procedures listed in Section 2.2.5, above.
- In the event that any of the existing on-site monitoring wells are destroyed, the NYSDEC will be informed and, in consultation with the NYSDEC, a determination will be made as to whether well replacement will be required.

5.2.6 Implementation of the In-situ Treatment Alternative

Based on existing data, ESI anticipates that the soil removal activities described above will remediate all significant on-site contamination. However, if subsequent groundwater monitoring events, indicate a remaining on-site source of PCE (e.g., beneath the on-site building) in-situ treatment of the soil may be implemented in order to remediate any remaining VOC contamination, as described above.

The need for additional remediation will be specified in the Final Report.

5.2.7 Documentation of Site Remediation and/or Closure

At the completion of all services detailed in this RI/FS, a Final Report will be prepared. This post-remedial (defined as the satisfactory completion of all remedial tasks detailed in this RI/FS) report



will include, at a minimum, results of any laboratory analyses generated during activities described in this RI/FS, waste transport/disposal manifests from all soil excavation and disposal activities, and maps illustrating Site remedial activities.

The Final Report will be submitted to the NYSDEC for review and approval.

5.3 Project Schedule

The following schedule is anticipated for implementing the remedial actions detailed in this RI/FS:

MONTHS	ACTION
0 - 2	Soil Excavation/Removal
0 - 2	Site Testing (soil)
3 - 6	Installation of SSDS
4	Groundwater Monitoring
6	Preparation of <u>Final Report</u>



APPENDIX A

Maps

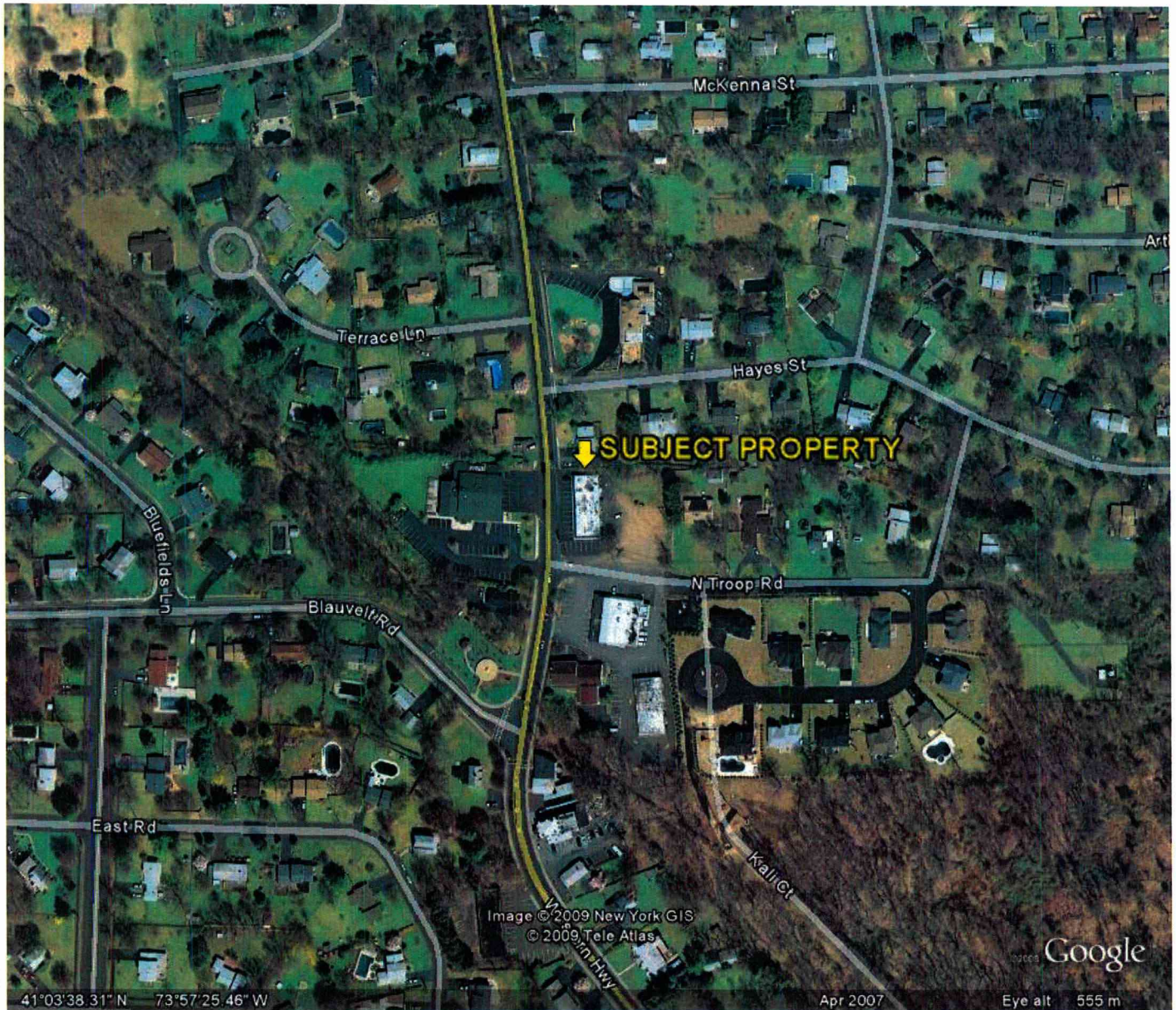


Figure 1 - Site Location Map

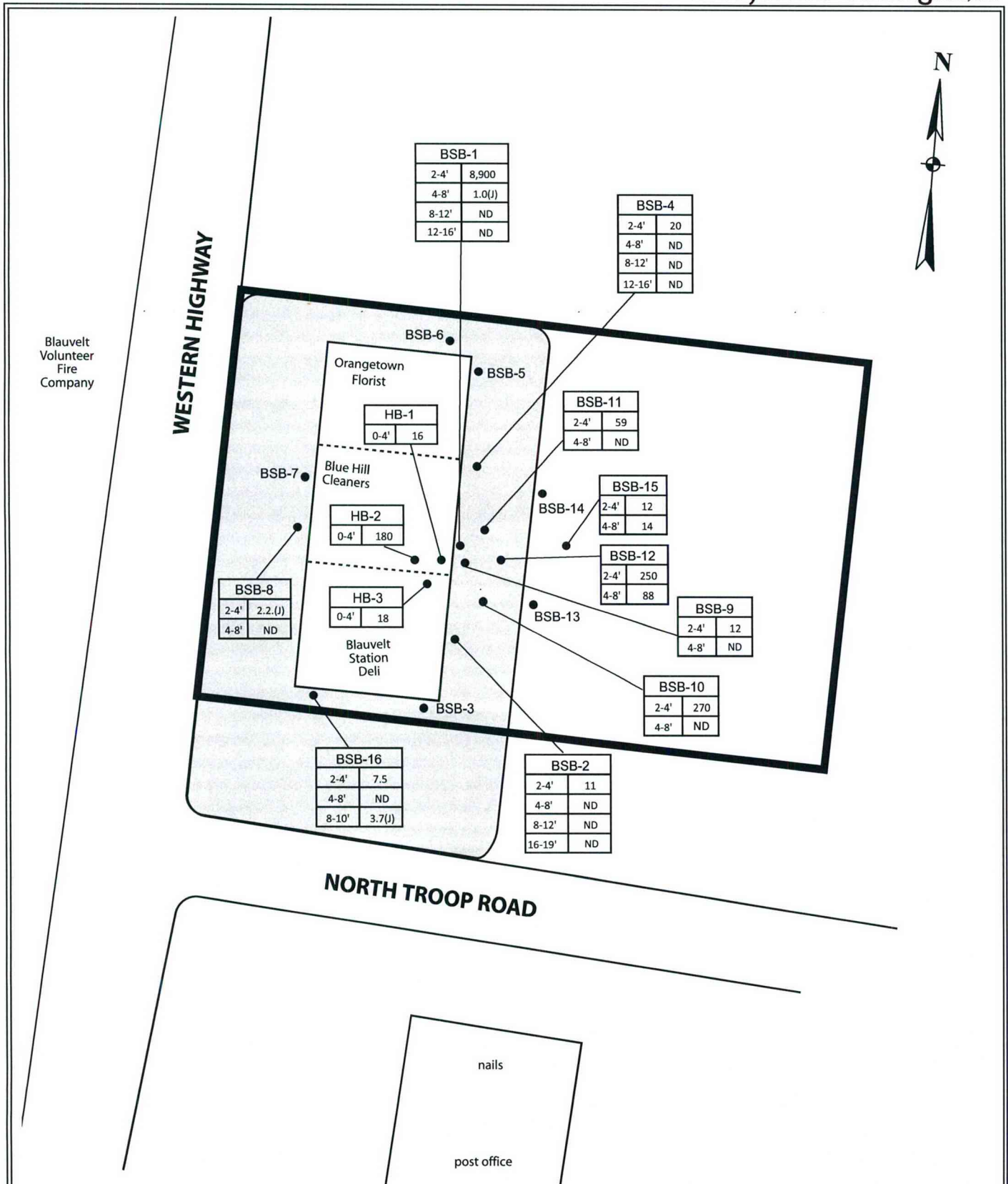
Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York



ESI File: RO07010.50

August 2009

Appendix A



All feature and sample 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 - PCE in Soils Map

Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York

Legend:

Site property border

asphalt

sample location

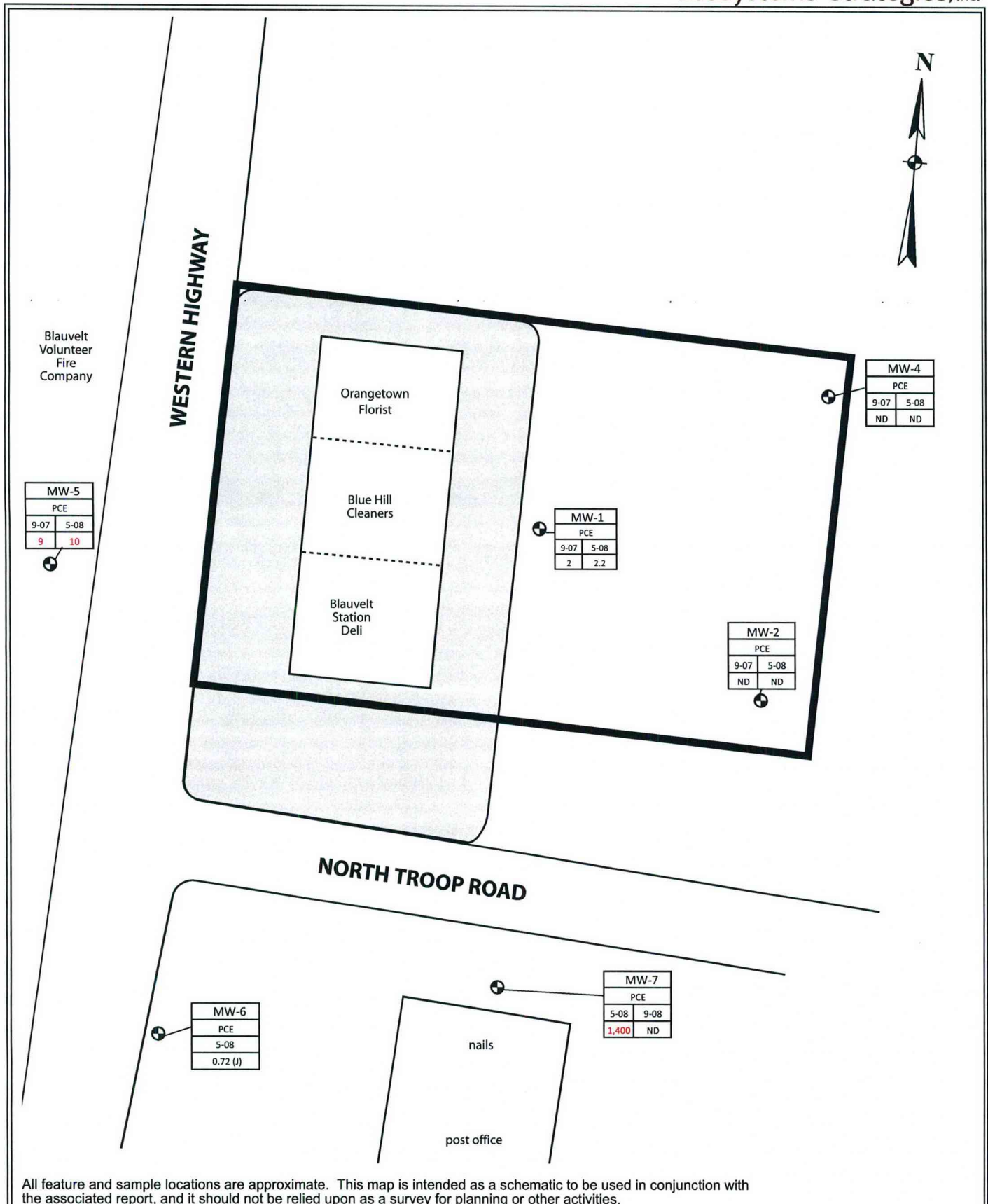
sample ID
depth : ug/kg

ESI File: RO07010.50

August 2009

Scale: 1" = 40' approximately

Appendix A



All feature and sample 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 3 - PCE in Groundwater Map

Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York

Legend:

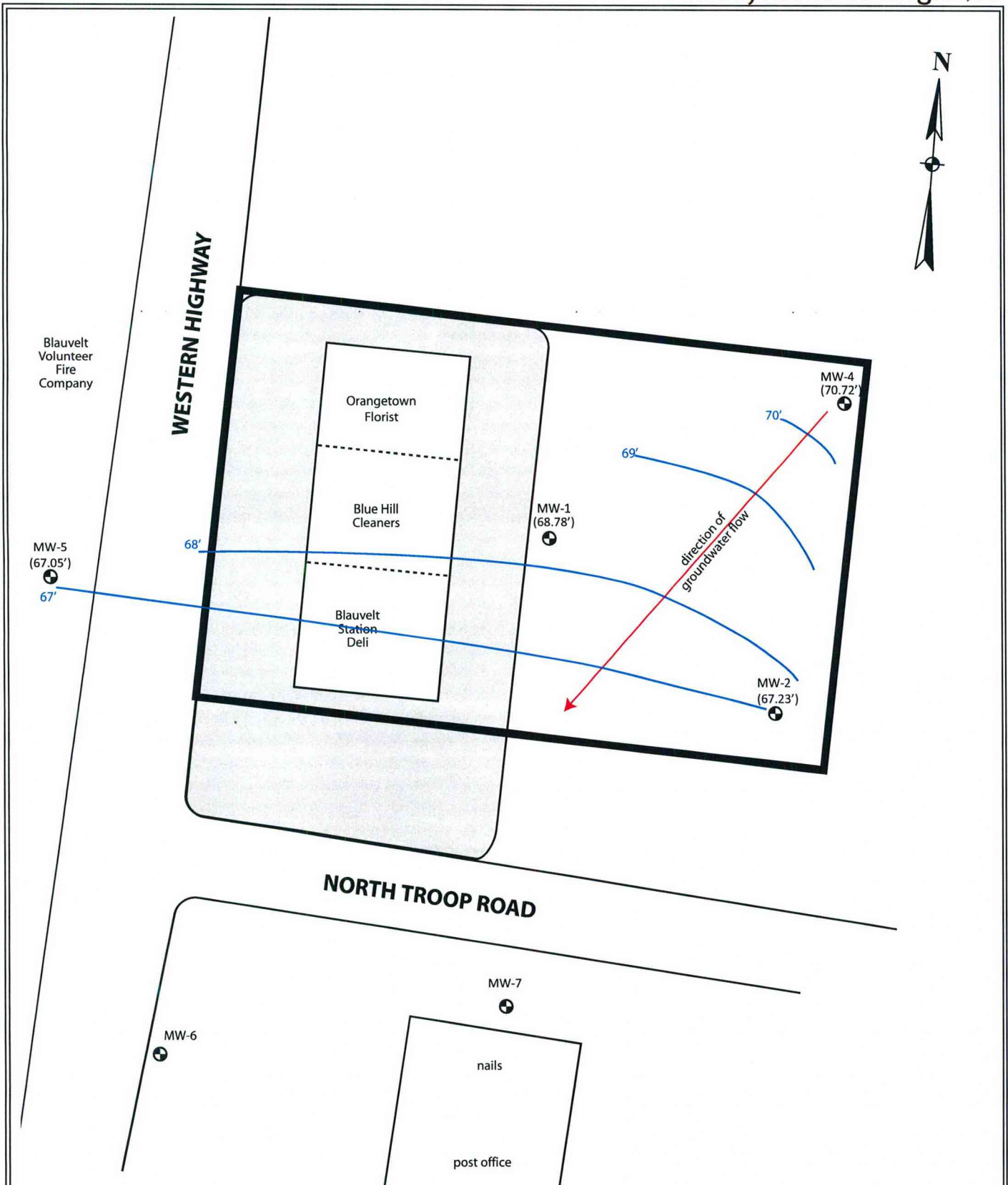
- Site property border
- asphalt
- monitoring well location - (ug/L)
- (red) - PCE exceedances

ESI File: RO07010.50

August 2009

Scale: 1" = 40' approximately

Appendix A



All feature and sample 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 4 - Groundwater Flow Map

Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York

Legend:

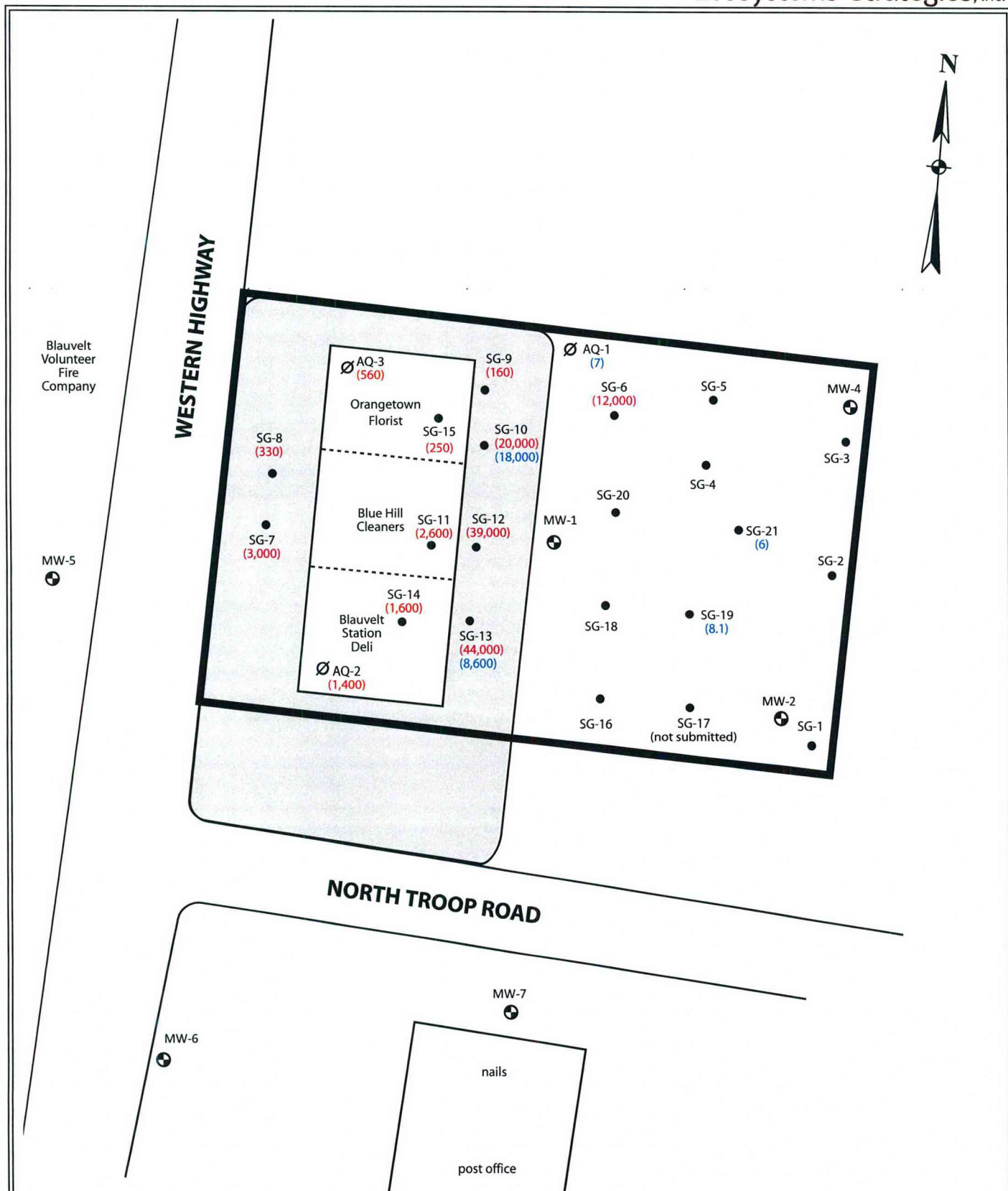
- Site property border
- asphalt
- monitoring well location
- contour lines

ESI File: RO07010.50

August 2009

Scale: 1" = 40' approximately

Appendix A



All feature and sample 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 5 - VOCs in Soil Vapor Map

Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York

Legend:

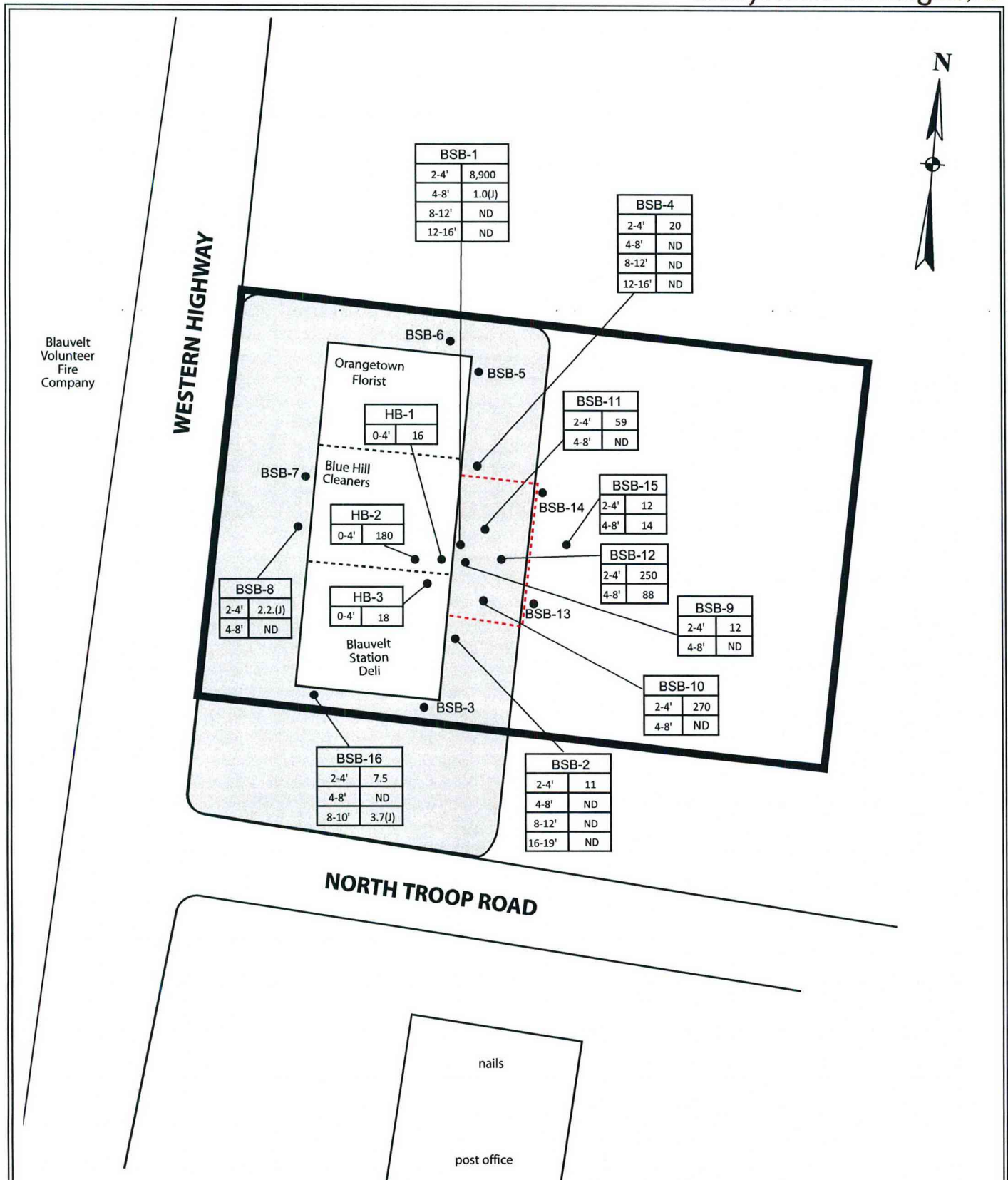
- Site property border
- asphalt
- monitoring well location
- soil vapor location - (ug/m3) (red) - PCE exceedances (blue) - TCE exceedances
- air sample location - (ug/m3)

ESI File: RO07010.50

August 2009

Scale: 1" = 40' approximately

Appendix A



All feature and sample 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 6 - Proposed Excavation Map

Blauvelt Laundry Site
549 Western Highway
Blauvelt, Rockland County, New York

Legend:

Site property border

asphalt

sample location

sample ID
depth ug/kg

proposed excavation

ESI File: RO07010.50

August 2009

Scale: 1" = 40' approximately

Appendix A

APPENDIX B

Data Summary Tables

Table 1: VOCs in Soil

All results provided in µg/kg (parts per billion). Results in bold exceed designated guidance levels.

(USEPA Method 8260)	Guidance Level	Sample Identification																	
		BSB-01 (2-4')	BSB-01 (4-8')	BSB-01 (8-12')	BSB-01 (12-16')	BSB-02 (2-4')	BSB-02 (4-8')	BSB-02 (8-12')	BSB-02 (16-19')	BSB-03 (2-4')	BSB-03 (4-8')	BSB-03 (8-12')	BSB-03 (12-16')	BSB-03 (16-20')	BSB-03 (20-24')	BSB-04 (2-4')	BSB-04 (4-8')	BSB-04 (8-12')	BSB-04 (12-16')
1,1,1,2-Tetrachloroethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	680	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	600*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	400*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	3,400*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromooethane (EDB)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethylene (cis)	250	350	ND	3.7 (J)	ND	2.5 (J)	ND	ND	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	ND
1,2-Dichloroethylene (trans)	190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	**	350	11	3.7 (J)	ND	2.5 (J)	ND	ND	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	ND
1,2-Dichloropropane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	300*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chlorohexane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	300*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	1,000*	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ND	ND	ND	7.1 (J)	ND	ND	ND	ND	ND	ND	ND	5.3 (J)	ND	ND	ND	ND	ND	ND
Benzene	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	2,700*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	760	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	1,900*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	370	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	50	34 (J)	4.5 (J)	5.1 (J)	5.3 (J)	5.2 (J)	5.7 (J)	4.6 (J)	5.0 (J)	5.1 (J)	5.2 (J)	6.0 (J)	4.4 (J)	4.8 (J)	4.9 (J)	4.9 (J)	6.3 (J)	4.9 (J)	4.5 (J)
Methyl ethyl ketone	120	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl-ether (MTBE)	930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p- & m-Xylenes	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1,300	8,900	1.0 (J)	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND
Toluene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	470	140	ND	ND	ND	2.7 (J)	ND	ND	ND	ND	ND	ND	ND	ND	3.3 (J)	ND	ND	ND	ND
Trichlorofluoromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Guidance levels based on BCP Unrestricted Use SCOs, 6 NYCRR Part 375, Table 375-6.8(a), except as noted.

* = Guidance level based on NYSDEC TAGM 4046.

** = Guidance level not established (TAGM 4046 total individual and sum of VOCs not listed must be less than or equal to 10,000 ppb).

J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

ND = Not Detected NA = Not Analyzed

Table 1: VOCs in Soil (continued)
All results provided in µg/kg (parts per billion). Results in bold exceed designated guidance levels.

(USEPA Method 8260)	Guidance Level	Sample Identification																
		BSB-10 (2-4')	BSB-10 (4-8')	BSB-11 (2-4')	BSB-11 (4-8')	BSB-12 (2-4')	BSB-12 (4-8')	BSB-13 (4-8')	BSB-14 (2-4')	BSB-14 (4-8')	BSB-15 (2-4')	BSB-15 (4-8')	BSB-16 (2-4')	BSB-16 (4-8')	BSB-16 (6-10')	HB-1 (0-4')	HB-2 (0-4')	HB-3 (0-4')
1,1,1,2-Tetrachloroethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	680	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	600*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	400*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	3,400*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (EDB)	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethylene (cis)	250	5 (J)	ND	6.8	ND	8.6	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethylene (trans)	190	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	**	5 (J)	ND	6.8	ND	8.6	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	2,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	300*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chlorohexane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	300*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
4-Isopropyltoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (MIBK)	1,000*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ND	ND	ND	ND	ND	ND	ND	ND	96	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	2,700*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	760	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	1,900*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	370	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	50	6.3 (J)	2.8 (J)	4.2 (J)	6.5 (J)	3.3 (J)	6.1 (J)	4.7 (J)	3.7 (J)	7.3 (J)	3.6 (J)	4.1 (J)	5 (J)	3.4 (J)	3.7 (J)	4.4 (J)	4.8(J)	4.7 (J)
Methyl ethyl ketone	120	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl-ether (MTBE)	930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-8m-Xylenes	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1,300	270	ND	59	ND	250	88	ND	ND	ND	12	14	7.5	ND	3.7 (J)	16	180	18
Toluene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	470	4.8 (J)	ND	5.1 (J)	ND	10	6.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Guidance levels based on BCP Unrestricted Use SCOs, 6 NYCRR Part 375, Table 375-6.8(a), except as noted.
* = Guidance level based on NYSDEC TAGM 4046.
** = Guidance level not established (TAGM 4046 total individual and sum of VOCs not listed must be less than or equal to 10,000 ppb).
J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.
ND = Not Detected NA = Not Analyzed

Table 1: VOCs in Soil (continued)

All results provided in µg/kg (parts per billion). Results in **bold** exceed designated guidance levels.

[illegible]

Table 2: VOCs in Groundwater

All results provided in µg/L. Results in **bold** exceed designated guidance levels.

Compound (USEPA Method 8260)	Guidance Level	Sample Identification					
		MW-1		MW-2		MW-4	
		Sep-07	May-08	Sep-07	May-08	Sep-07	May-08
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	NE	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	0.04	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	NE	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	3	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5*	0.69	1.5	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NE	ND	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	5	ND	ND	ND	ND	ND	ND
Acetone	50	ND	ND	ND	ND	ND	ND
Benzene	0.7	ND	ND	ND	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND	ND	ND
Bromoform	50	ND	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND	ND
Carbon disulfide	NE	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND	ND
Chloroethane	5	ND	ND	ND	ND	ND	ND
Chloroform	7	0.15	ND	0.34	0.42 (J)	ND	0.60 (J)
Chloromethane	5	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.4**	ND	ND	ND	ND	ND	ND
Cyclohexane	NE	ND	ND	ND	ND	ND	ND
Dibromochloromethane	5	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND	ND
m&p-Xylene	5***	ND	ND	ND	ND	ND	ND
Methyl Acetate	NE	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	50	ND	ND	ND	ND	ND	ND
Methylcyclohexane	NE	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND	ND
Methyl isobutyl ketone	NE	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	10	ND	ND	ND	ND	ND	ND
N-Butylbenzene	5	ND	ND	ND	ND	ND	ND
N-Propylbenzene	5	ND	ND	ND	ND	ND	ND
o-Xylene	5	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	5	ND	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	2	2.2	ND	ND	ND	ND
Toluene	5	ND	0.16 (J)	ND	0.16 (J)	ND	0.14 (J)
trans-1,3-Dichloropropene	0.4**	ND	ND	ND	ND	ND	ND
Trichloroethene	5	0.17	0.28 (J)	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	ND	ND	ND	ND	ND	ND

Notes:

Guidance levels based on NYSDEC TOGS 1.1.1.

*Applies to the individual isomers cis-1,2-Dichloroethene and trans-1,2-Dichloroethene.

**Applies to the sum of cis- and trans-1,3-dichloropropene.

*** Applies to the individual isomers 1,3-Xylene (m-Xylene) and 1,4-Xylene (p-Xylene).

J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

ND = Not Detected NE = Not Established

Table 2: VOCs in Groundwater (continued)

All results provided in µg/L. Results in **bold** exceed designated guidance levels.

Compound (USEPA Method 8260)	Guidance Level	Sample Identification						
		MW-5		MW-6		MW-7		
		Sep-07	May-08	Sep-07	May-08	Sep-07	May-08	Aug-08
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	NE	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	0.04	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	NE	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5*	0.33	0.15 (J)	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	5	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NE	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	5	ND	ND	ND	ND	ND	ND	ND
Acetone	50	ND	ND	ND	ND	ND	42 (J)	0.70 (J)
Benzene	0.7	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND	ND	ND	ND
Bromoform	50	ND	ND	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	NE	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND	ND	ND
Chloroethane	5	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	0.34	0.17 (J)	ND	0.30 (J)	ND	ND	0.39 (J)
Chloromethane	5	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.4**	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NE	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	5	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	5***	ND	ND	ND	ND	ND	ND	ND
Methyl acetate	NE	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	50	ND	ND	ND	ND	ND	ND	ND
Methylcyclohexane	NE	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND	56 (J)	ND
Methyl isobutyl ketone	NE	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	10	ND	ND	ND	ND	ND	ND	ND
N-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND
N-Propylbenzene	5	ND	ND	ND	ND	ND	ND	ND
o-Xylene	5	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	9	10	ND	0.72 (J)	ND	1,400	ND
Toluene	5	ND	0.18 (J)	ND	0.13 (J)	ND	4.4 (J)	ND
trans-1,3-Dichloropropene	0.4**	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ND	0.25 (J)	ND	ND	ND	9.5 (J)	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	ND	ND	ND	ND	ND	ND	ND

Notes:

Guidance levels based on NYSDEC TOGS 1.1.1.

*Applies to the individual isomers cis-1,2-Dichloroethene and trans-1,2-Dichloroethene.

**Applies to the sum of cis- and trans-1,3-dichloropropene.

*** Applies to the individual isomers 1,3-Xylene (m-Xylene) and 1,4-Xylene (p-Xylene).

J - Data indicate the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

ND = Not Detected NE = Not Established

Table 3: VOCs in Soil Gas/Air - All Compounds

Results provided in µg/m³. Results in **bold** exceed designated guidance levels.

Compound	Guidance Levels	Sample Identification																						
		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10	SG-11	SG-12	SG-13	SG-14	SG-15	SG-16	SG-18	SG-19	SG-20	SG-21	AQ-1	AQ-2	AQ-3
1,1,1-Trichloroethane	NE	1	ND	ND	ND	ND	ND	ND	ND	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	NE	5	12	38	27	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.8	98	79	21	32	ND	ND	ND
1,2-Dibromoethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (total)	NE	ND	ND	ND	12	ND	ND	ND	ND	ND	56,000	2,000	67,000	15,000	ND	ND	ND	24	59	29	23	ND	ND	ND
1,2-Dichloropropane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	NE	2	4	11	8	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	44	32	6.4	11	ND	ND	ND
1,3-Butadiene	NE	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	150	14	5.3	6	4.2	ND	ND	ND
1,3-Dichlorobenzene	NE	4	1	4	14	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	7	17	9	ND	ND	ND
1,4-Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	NE	1	ND	ND	4	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	30	15	61	ND	ND	ND
2-Chlorotoluene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Chloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	NE	4	10	36	24	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	54	37	18	26	ND	ND	ND
Acetone	NE	23	18	24	100	55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	190	180	120	310	110	13	140	ND
Allyl Chloride	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NE	1	1	7	6	12	ND	ND	ND	ND	ND	ND	ND	ND	27	ND	6	480	150	18	83	ND	ND	6.4
Bromodichloromethane	NE	ND	2	11	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	22	7	ND	ND	ND	ND
Bromoethene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NE	ND	ND	2	ND	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16	6.9	ND	ND	ND	ND	ND
Carbon Tetrachloride	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	NE	3	10	42	12	14	ND	180	210	29	ND	ND	ND	ND	ND	ND	8.8	ND	130	310	ND	ND	ND	ND
Chloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.9	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	NE	ND	ND	ND	10	ND	ND	ND	ND	ND	52,000	2,000	63,000	15,000	ND	ND	ND	24	52	17	19	ND	ND	ND
cis-1,3-Dichloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NE	1	1	2	3	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2	45	69	14	89	ND	ND	ND
Dibromochloromethane	NE	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	NE	ND	ND	ND	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND
Ethyl acetate	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NE	4	7	31	18	19	ND	ND	ND	ND	ND	ND	ND	ND	43	18	6.9	96	48	13	20	ND	ND	ND
Freon TF	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloro-1,3-butadiene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropanol	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	190	ND
Methyl Butyl Ketone	NE	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND
Methyl Ethyl Ketone	NE	3	3	4	18	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	27	32	29	71	27	ND	ND	ND
Methyl Isobutyl Ketone	NE	ND	ND	3	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	NE	ND	ND	ND	35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	ND	ND	ND
Methylene Chloride	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Heptane	NE	2	2	3	4	6	57	130	140	74	ND	ND	ND	ND	90	34	5.3	49	70	14	82	ND	9	ND
n-Hexane	NE	ND	2	2	4	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	39	92	20	130	ND	ND	ND
Propylene	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NE	ND	ND	2	3	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	25	ND	14	ND	ND	ND
Tert-Butyl Alcohol	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	100	22	15	10	13	30	12,000	3,000	330	160	20,000	2,600	39,000	44,000	1,600	250	25	40	18	75	17	ND	1,400	560
Tetrahydrofuran	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	NE	14	21	140	110	68	1,700	4,500	4,900	2,700	2,100	2,300	ND	ND	4,100	2,000	16	680	210	83	53	1.2	12	21
trans-1,2-Dichloroethene	NE	ND	ND	ND	2	ND	ND	ND	ND	ND	1,500	ND	9,100	ND	ND	ND	ND	6	12	4.4	ND	ND	ND	ND
trans-1,3-Dichloropropene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ND	ND	ND	2	ND	ND	ND	ND	ND	18,000	ND	ND	8,600	ND	ND	ND	ND	8.1	4	6	ND	ND	ND
Trichlorofluoromethane	NE	2	2	2	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND
Vinyl acetate	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Bromide	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NE	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16	8.4	36	ND	ND	ND	ND	ND
Xylene (m,p)	NE	17	31	120	61	87	ND	91	ND	65	ND	ND	ND	ND	140	56	23	310	110	43	61	ND	ND	ND
Xylene (o)	NE	6	10	36	21	43	ND	ND	ND	ND	ND	ND	ND	ND	48	ND	8.3	190	74	20	43	ND	ND	ND
Xylene (total)	NE	23	41	150	83	130	ND	96	ND	65	ND	ND	ND	ND	180	56	33	520	190	65	110	ND	ND	ND

Notes:

Guidance Levels based on NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October, 2006.

ND = Not Detected NE = Not Established NA = Not Analyzed



APPENDIX C

***Laboratory Reports
(provided on CD)***

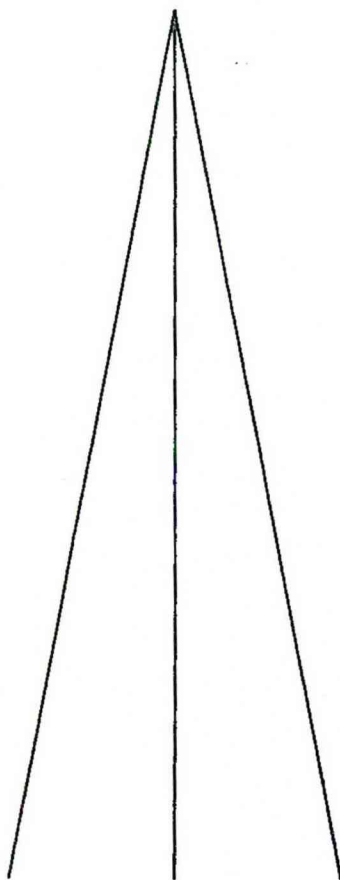


APPENDIX D

Boring Logs

SOILTESTING, INC.

TO Ecosystems Strategies Inc. DATE April 18, 2008
ADDRESS 24 Davis Avenue, Poughkeepsie, NY 12603-2332
SITE LOCATION Strip Mall, 547 Western Highway, Blauvelt, NY
REPORT SENT TO Paul Ciminello
SAMPLES SENT TO Storage (Max. 60 days)



140 Oxford Road
Oxford, Connecticut 06478
203-888-4531

Branch Office:
White Plains, New York 10607
914-946-4850

JOB NO.
E20-8153-08

Phone
(203) 888-4531

Telefax
(203) 888-6247



WHITE PLAINS, N.Y.
(914) 946-4850

SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling
UNDERPINNING - HELICAL PILES - SOIL NAILS



April 18, 2008

Ecosystems Strategies Inc.
24 Davis Avenue
Poughkeepsie, NY 12603-2332
845-452-1658

Attn: Paul Ciminello

Re: Strip Mall
547 Western Highway
Blauvelt, NY

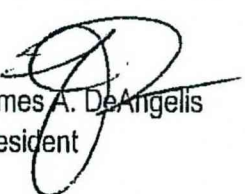
E20-8153-08

Dear Mr. Ciminello,

Enclosed are boring logs for the above referenced project site.

If you have any questions please do not hesitate to contact us.

Very truly yours,
SOILTESTING, INC.


James A. DeAngelis
President

JAD:cw



SOILTESTING, INC. 140 OXFORD RD. OXFORD, CT 06478 CT (203) 888-4531 NY (914) 946-4850						CLIENT: Ecosystems Strategies Inc.				SHEET 1 OF 1 HOLE NO. MW-6				
FOREMAN - DRILLER MD/djd						PROJECT NO. E20-8153-08				BORING LOCATIONS as directed				
INSPECTOR						PROJECT NAME Strip Mall								
GROUND WATER OBSERVATIONS AT 17'6" FT AFTER 14 HOURS AT ___ FT AFTER ___ HOURS						LOCATION 547 Western Highway Blauvelt, NY								
						CASING SAMPLER CORE BAR TYPE HSA/FW SS HWD4 SIZE I.D. 4 1/4" 1 3/8" 3 3/8" HAMMER WT. 140# BIT HAMMER FALL 30" dia				OFFSET				
										DATE START 4/8/08				
										DATE FINISH 4/9/08				
										SURFACE ELEV.				
										GROUND WATER ELEV.				
DEPTH	CASING BLOWS PER FOOT	NO	Type	PEN	REC.	DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 6 - 12 12 - 18				CORE TIME PER FT (MIN)	DENSITY OR CONSIST	STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
							MOIST	ELEV						
5												3"	Blacktop	
													Dkbrn redbrn FC SAND,silt,cobble,boulders, concrete,brick	
													Granite boulders to 8'	
													Auger refusal - cored through boulder then advanced auger	
													Red brn FM SAND,sm silt,lit C sand,tr C gravel,cobble	
10														
15												15'0"		
20												17'0"	Decomposed rock Auger refusal (Set 4" casing)	
25														
30														
35														
40														

GROUND SURFACE TO _____ FT. USED _____ CASING THEN _____ CASING TO _____ FT.

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%

C = COARSE

M = M

Phone
(203) - 888-4531

Telefax
(203) - 888-6247



WHITE PLAINS, N.Y.
(914) - 946-4850

MONITOR WELL INSTALLATION DETAIL

SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

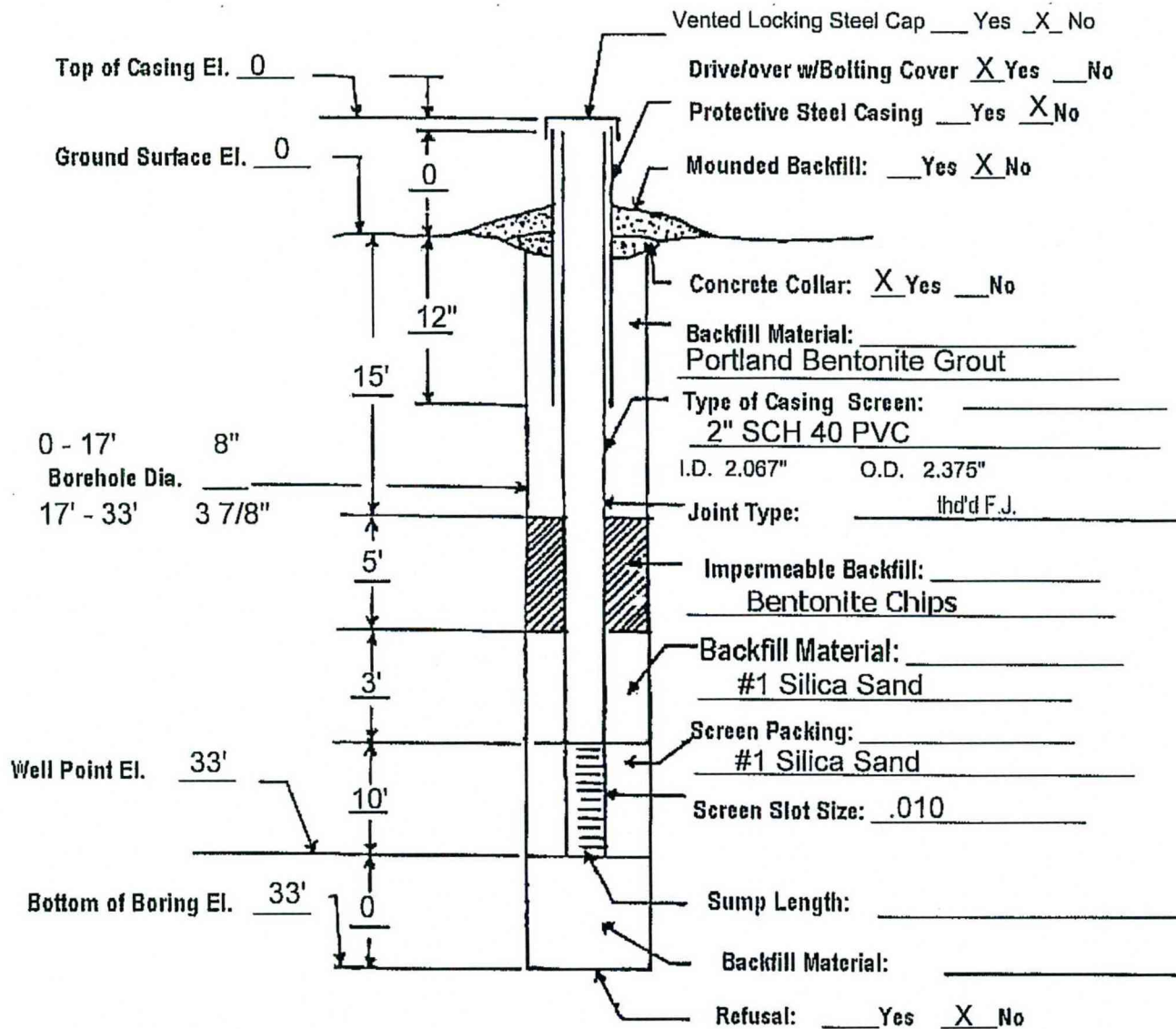
GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling

Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling

CLIENT: Ecosystems Strategies

JOB#: E20-8153-08

Observation Well # MW-6



Materials Used:

Screen (PVC) 10'
Riser (PVC) 25'
Plug (PVC) 1
Slip Cap (PVC)
Silica Sand 100#
Powdered Bentonite 1/4

Bentonite Pellets 1/2
Bentonite Chips 1
Concrete Mix
Portland 3

Locking Exp. Plug 1
Lock
D/O 1
SIU

SOILTESTING, INC. 140 OXFORD RD. OXFORD, CT 06478 CT (203) 888-4531 NY (914) 946-4850		CLIENT: Ecosystems Strategies Inc.		SHEET <u>1</u> OF <u>1</u>	
		PROJECT NO. E20-8153-08		HOLE NO. MW-7	
		PROJECT NAME Strip Mall		BORING LOCATIONS as directed	
FOREMAN - DRILLER MD/djd		LOCATION 547 Western Highway Blauvelt, NY			
INSPECTOR		CASING	SAMPLER	CORE BAR	OFFSET
GROUND WATER OBSERVATIONS AT <u>17'6"</u> FT AFTER <u>14</u> HOURS		TYPE HSA/FW	SS	HWD4	DATE START 4/9/08
AT <u> </u> FT AFTER <u> </u> HOURS		SIZE I.D. 4 1/4" / 4"	1 3/8"	3 3/8"	DATE FINISH 4/10/08
		HAMMER WT. 140#	BIT		SURFACE ELEV.
		HAMMER FALL 30"	dia		GROUND WATER ELEV.

DEPTH	CASING BLOWS PER FOOT	SAMPLE				DEPTH @ BOT	BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 - 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST MOIST	STRATA CHANGE DEPTH ELEV	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		NO	Type	PEN	REC						
										3"	Blacktop
5											Red brn FM SAND, sm silt, C sand, F gravel, tr C gravel, cobble
10											
15										15'6"	
		1	c	60"	60"	21'0"	RQD = 45%	1.5		16'0"	Decomposed bedrock Auger refusal (Set 4" casing)
								1.5			
								2.0			
20								2.0			Bedrock
								2.0			
		2	c	60"	60"	26'0"	RQD = 50%	1.5			
								2.0			
								2.0			
25								1.5			
								1.5			
		3	c	60"	60"	31'0"	RQD = 48%	1.5			
								1.5			
								1.5			
30								1.5			
								1.5			
		4	c	36"	42"	34'6"	RQD = 50%	1.5			
								1.5			
35								1.5			
											E.O.B. 34'6"
40											

GROUND SURFACE TO <u> </u> FT. USED <u> </u> CASING THEN <u> </u> CASING TO <u> </u> FT.	HOLE NO. MW-7
A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS C = COARSE SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER M = MEDIUM PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50% F = FINE	

Phone
(203) - 888-4531

Telefax
(203) - 888-6247



WHITE PLAINS, N.Y.
(914) - 946-4850

MONITOR WELL INSTALLATION DETAIL

SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling

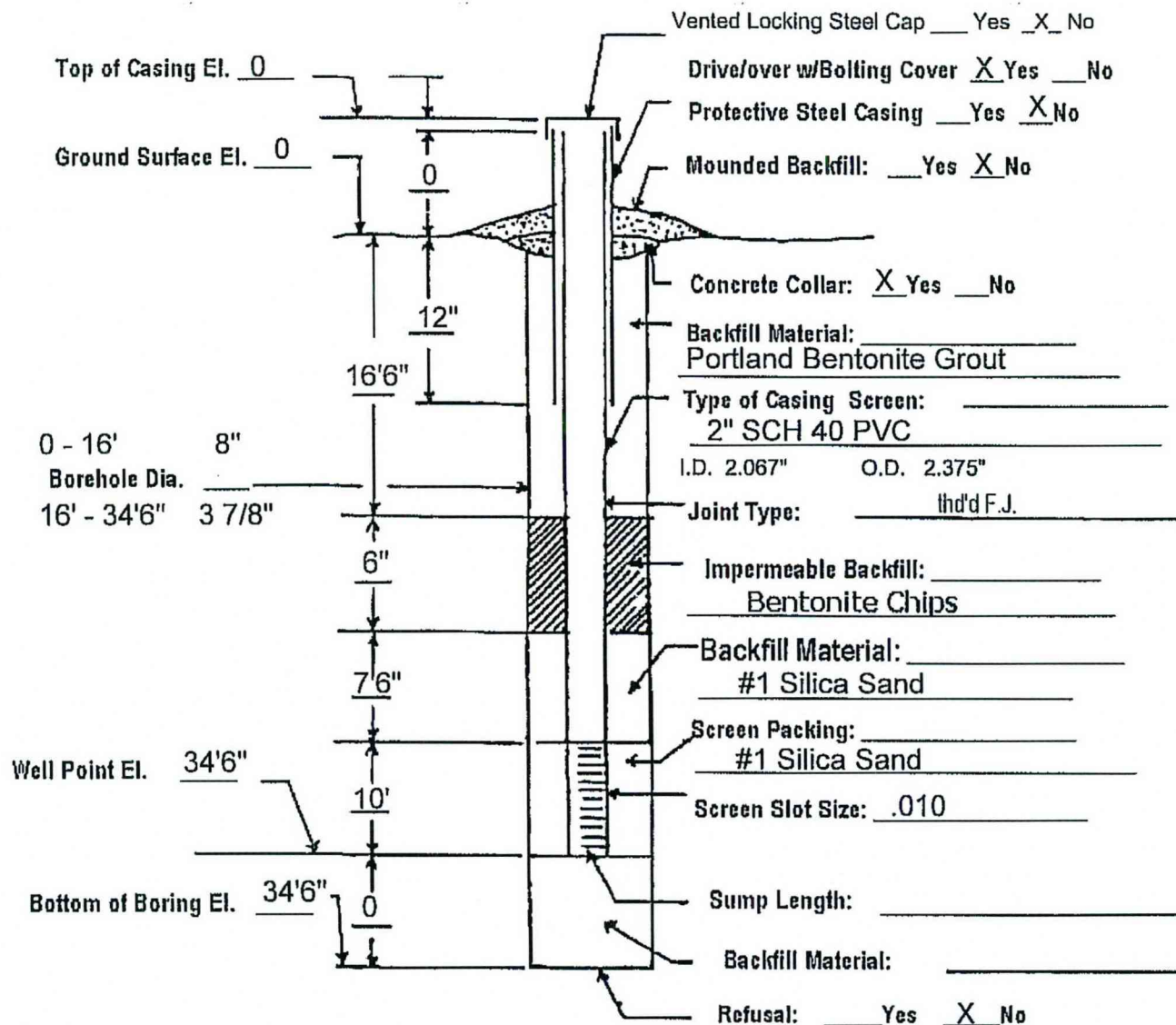
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling



Observation Well # MW-7

CLIENT: Ecosystems Strategies

JOB#: E20-8153-08



Materials Used:

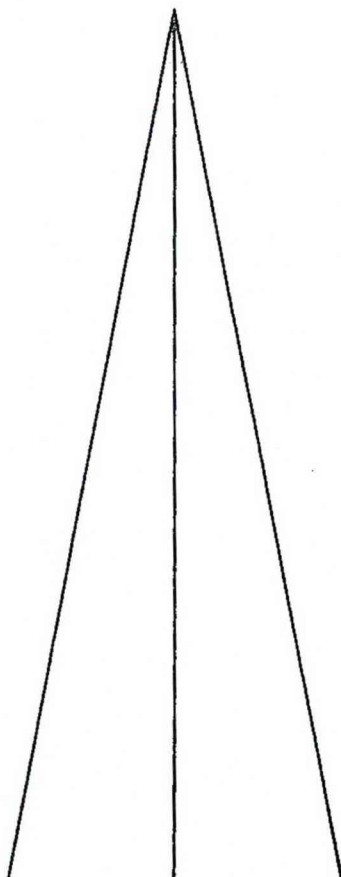
Screen (PVC) 10'
Riser (PVC) 25'
Plug (PVC) 1
Slip Cap (PVC)
Silica Sand 100#
Powdered Bentonite 1/4

Bentonite Pellets 1/2
Bentonite Chips
Concrete Mix 1
Portland 3

Locking Exp. Plug 1
Lock
D/O 1
SIU

SOILTESTING, INC.

TO Ecosystems Strategies Inc. DATE April 18, 2008
ADDRESS 24 Davis Avenue, Poughkeepsie, NY 12603-2332
SITE LOCATION Strip Mall, 547 Western Highway, Blauvelt, NY
REPORT SENT TO Paul Ciminello
SAMPLES SENT TO Storage (Max. 60 days)



140 Oxford Road
Oxford, Connecticut 06478
203-888-4531

Branch Office:
White Plains, New York 10607
914-946-4850

JOB NO.
E20-8153-08

Phone
(203) 888-4531

Telefax
(203) 888-6247



WHITE PLAINS, N.Y.
(914) 946-4850

SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling
UNDERPINNING - HELICAL PILES - SOIL NAILS



April 18, 2008

Ecosystems Strategies Inc.
24 Davis Avenue
Poughkeepsie, NY 12603-2332
845-452-1658

Attn: Paul Ciminello

Re: Strip Mall
547 Western Highway
Blauvelt, NY

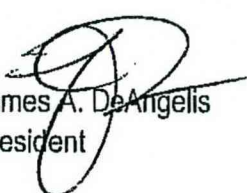
E20-8153-08

Dear Mr. Ciminello,

Enclosed are boring logs for the above referenced project site.

If you have any questions please do not hesitate to contact us.

Very truly yours,
SOILTESTING, INC.


James A. DeAngelis
President

JAD:cw



SOILTESTING, INC. 140 OXFORD RD. OXFORD, CT 06478 CT (203) 888-4531 NY (914) 946-4850						CLIENT: Ecosystems Strategies Inc.				SHEET 1 OF 1 HOLE NO. MW-6	
FOREMAN - DRILLER MD/djd						PROJECT NO. E20-8153-08				BORING LOCATIONS as directed	
INSPECTOR						PROJECT NAME Strip Mall					
GROUND WATER OBSERVATIONS AT 17'6" FT AFTER 14 HOURS AT ___ FT AFTER ___ HOURS						LOCATION 547 Western Highway Blauvelt, NY					
						CASING SAMPLER CORE BAR TYPE HSA/FW SS HWD4 SIZE I.D. 4 1/4" 1 3/8" 3 3/4" HAMMER WT. 140# BIT HAMMER FALL 30" dia				OFFSET	
										DATE START 4/8/08	
										DATE FINISH 4/9/08	
										SURFACE ELEV.	
										GROUND WATER ELEV.	
DEPTH	CASING BLOWS PER FOOT	SAMPLE				BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 6 - 12 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST	STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.	
		NO	Type	PEN	REC						DEPTH @ BOT
5									3"	Blacktop	
										Dkbrn redbrn FC SAND,silt,cobble,boulders, concrete,brick	
										Granite boulders to 8'	
										Auger refusal - cored through boulder then advanced auger	
										Red brn FM SAND,sm silt,lit C sand,tr C gravel,cobble	
10											
15									15'0"		
20									17'0"	Decomposed rock Auger refusal (Set 4" casing)	
25											
30											
35											
40											

GROUND SURFACE TO _____ FT. USED _____ CASING THEN _____ CASING TO _____ FT.

HOLE NO. MW-6

A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST

WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS

SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER

PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%

C = COARSE M = MEDIUM F = FINE

Phone
(203) - 888-4531

Telefax
(203) - 888-6247



SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

WHITE PLAINS, N.Y.
(914) - 946-4850

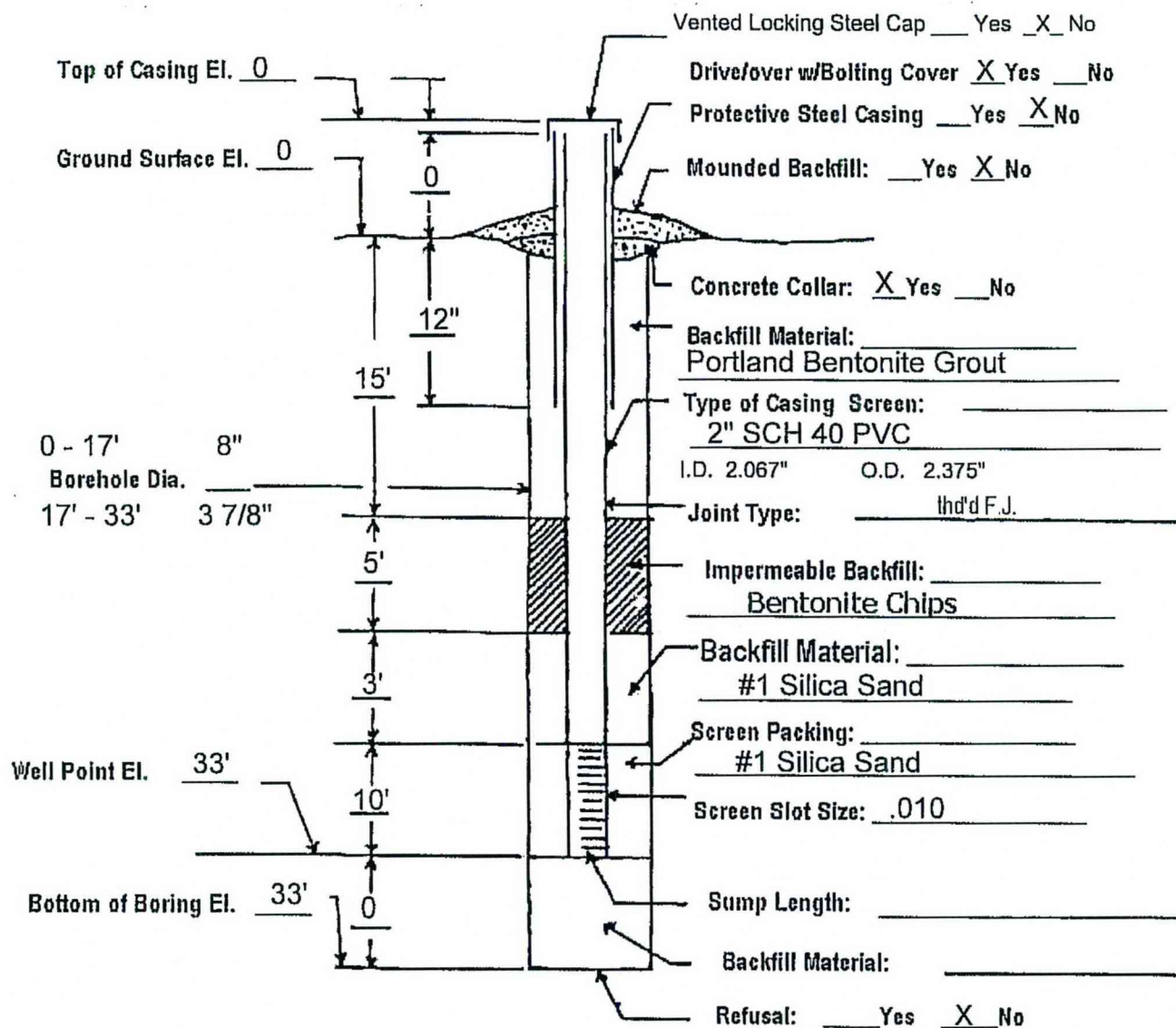
MONITOR WELL INSTALLATION DETAIL

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling

Observation Well # MW-6

CLIENT: Ecosystems Strategies

JOB#: E20-8153-08



Materials Used:

Screen (PVC) 10'
Riser (PVC) 25'
Plug (PVC) 1
Slip Cap (PVC)
Silica Sand 100#
Powdered Bentonite 1/4

Bentonite Pellets 1/2
Bentonite Chips 1
Concrete Mix
Portland 3

Locking Exp. Plug 1
Lock
D/O 1
SIU

SOILTESTING, INC. 140 OXFORD RD. OXFORD, CT 06478 CT (203) 888-4531 NY (914) 946-4850		CLIENT: Ecosystems Strategies Inc.				SHEET <u>1</u> OF <u>1</u>					
		PROJECT NO. E20-8153-08				HOLE NO. MW-7					
		PROJECT NAME Strip Mall				BORING LOCATIONS as directed					
FOREMAN - DRILLER MD/djd		LOCATION 547 Western Highway Blauvelt, NY									
INSPECTOR		CASING SAMPLER CORE BAR TYPE <u>HSA/FW</u> <u>SS</u> <u>HWD4</u> SIZE I.D. <u>4 1/4" / 4"</u> <u>1 3/8"</u> <u>3 3/8"</u> HAMMER WT. <u>140#</u> BIT HAMMER FALL <u>30"</u> dia				OFFSET					
GROUND WATER OBSERVATIONS AT <u>17'6"</u> FT AFTER <u>14</u> HOURS AT <u> </u> FT AFTER <u> </u> HOURS						DATE START 4/9/08 DATE FINISH 4/10/08 SURFACE ELEV. GROUND WATER ELEV.					
DEPTH	CASING BLOWS PER FOOT	SAMPLE					BLOWS PER 6 IN ON SAMPLER (FORCE ON TUBE) 0 - 6 6 - 12 12 - 18	CORE TIME PER FT (MIN)	DENSITY OR CONSIST	STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL REMARKS INCL. COLOR, LOSS OF WASH WATER, SEAMS IN ROCK, ETC.
		NO	Type	PEN	REC	DEPTH @ BOT					
5										3"	Blacktop
10										15'6"	Red brn FM SAND, sm silt, C sand, F gravel, tr C gravel, cobble
15										16'0"	Decomposed bedrock
20										16'0"	Auger refusal (Set 4" casing)
25											Bedrock
30											
35											
40											
GROUND SURFACE TO <u> </u> FT. USED <u> </u> CASING THEN <u> </u> CASING TO <u> </u> FT.										HOLE NO. MW-7	
A = AUGER UP = UNDISTURBED PISTON T = THINWALL V = VANE TEST WOR = WEIGHT OF RODS WOH = WEIGHT OF HAMMER & RODS SS = SPLIT TUBE SAMPLER H.S.A. = HOLLOW STEM AUGER PROPORTIONS USED: TRACE = 0 - 10% LITTLE = 10 - 20% SOME = 20 - 35% AND = 35 - 50%										C = COARSE M = MEDIUM F = FINE	

Phone
(203) - 888-4531

Telefax
(203) - 888-6247



SOILTESTING, INC.

140 OXFORD ROAD - OXFORD, CONN. 06478-1943

WHITE PLAINS, N.Y.
(914) - 946-4850

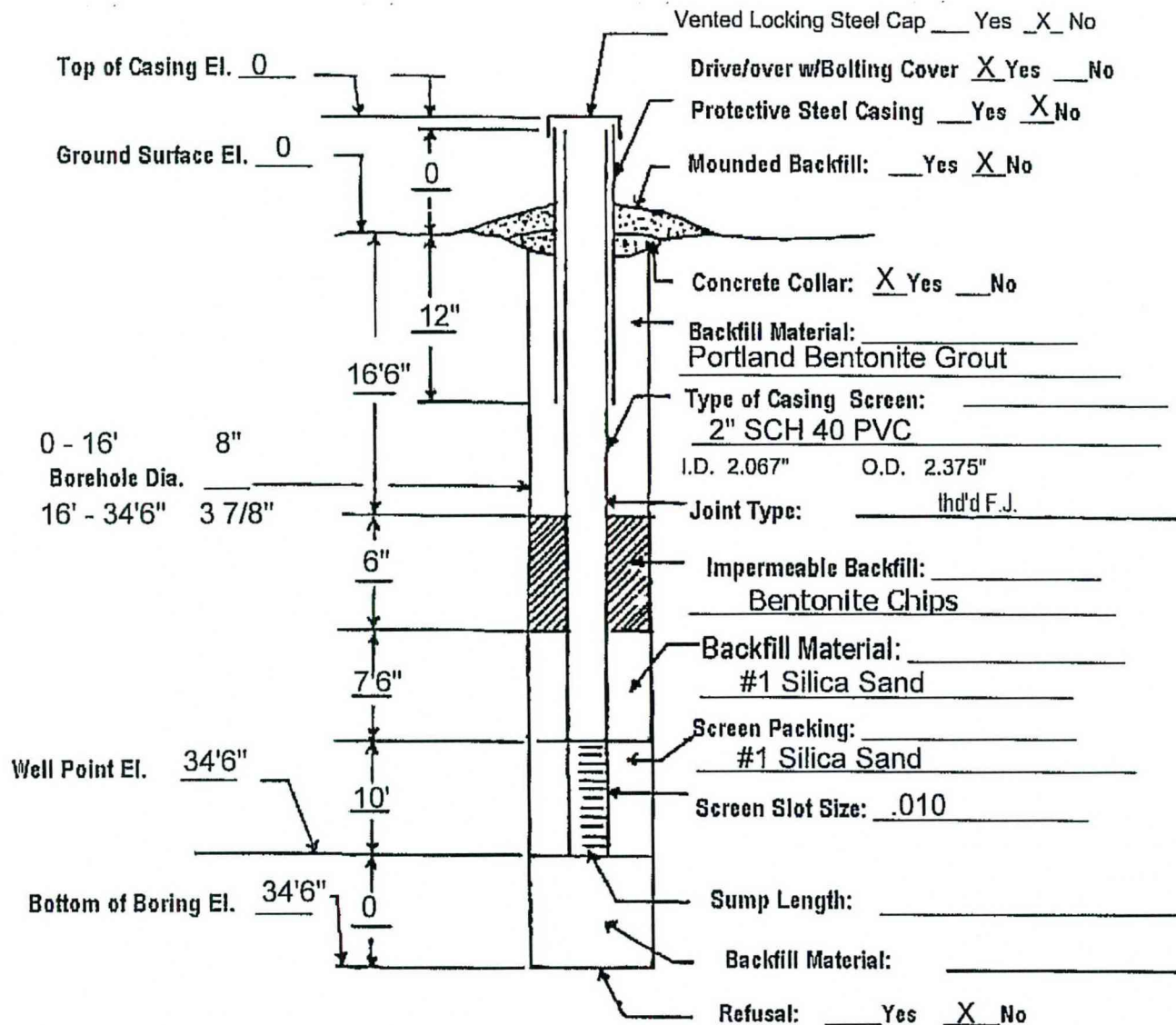
MONITOR WELL INSTALLATION DETAIL

GEOTECHNICAL / ENVIRONMENTAL SUBSURFACE INVESTIGATIONS - Test Borings - Core Drilling
Monitoring Wells - Recovery Wells - Direct Push/Probe Sampling

Observation Well # MW-7

CLIENT: Ecosystems Strategies

JOB#: E20-8153-08



Materials Used:

Screen (PVC) 10'
Riser (PVC) 25'
Plug (PVC) 1
Slip Cap (PVC)
Silica Sand 100#
Powdered Bentonite 1/4

Bentonite Pellets 1/2
Bentonite Chips
Concrete Mix 1
Portland 3

Locking Exp. Plug 1
Lock
D/O 1
SIU