

RECORD OF DECISION

Former Marlou Formal Wear
State Superfund Project
Schenectady, Schenectady County
Site No. 447040
October 2018



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

DECLARATION STATEMENT - RECORD OF DECISION

Former Marlou Formal Wear
State Superfund Project
Schenectady, Schenectady County
Site No. 447040
October 2018

Statement of Purpose and Basis

This document presents the remedy for the Former Marlou Formal Wear site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Former Marlou Formal Wear site and the public's input to the remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows;
 - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
 - Reducing direct and indirect greenhouse gas and other emissions;
 - Increasing energy efficiency and minimizing use of non-renewable energy;
 - Conserving and efficiently managing resources and materials; and
 - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.
2. A soil vapor intrusion evaluation will be completed in the building whose footprint encompasses a portion of the site. The evaluation will build upon the evaluation efforts already completed and include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.
3. Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with a Department approved Site Management Plan.

4. Site Management Plan

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

- a) an Institutional Control Plan that identifies all use restrictions for the site and details the steps and media-specific requirements necessary to ensure the following institutional control remain in place and are effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 3 above. This plan includes, but may not be limited to:

- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site or for buildings in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion; and
- a provision that, should the owners of properties where sampling was previously declined request to have their properties sampled in the future, the NYSDEC, in consultation with the NYSDOH, shall assess the need for soil vapor intrusion sampling and take appropriate action.

New York State Department of Health Acceptance

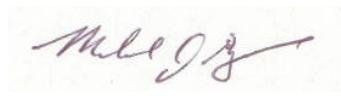
The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

October 2, 2018

Date



Michael J. Ryan, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

Former Marlou Formal Wear
Schenectady, Schenectady County
Site No. 447040
October 2018

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. Based on the findings of the investigation of the site the past disposal of hazardous wastes and hazardous material at the site does not pose a threat to public health and the environment. Therefore, the selected remedy is No Action.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Schenectady County Public Library
99 Clinton Street
Schenectady, NY 12305
Phone: 518-388-4500

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the remedy.

Comments on the remedy received during the comment period are summarized and addressed in

the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at <http://www.dec.ny.gov/chemical/61092.html>

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Former Marlou Formal Wear site is a 0.12-acre portion of 1108 State Street (1.22 acres) in the city of Schenectady. The site is in an urban area with a mix of commercial and residential properties along State Street and residences on the side streets off of State Street. The site encompasses the footprint of the original Former Marlou Formal Wear building. This original building no longer exists.

Site Features: The main features include a building and parking lot for the current retail pharmacy at 1108 State Street. The Former Marlou Formal Wear site boundary is partially in the parking lot and partially under the Rite Aid building.

Current Zoning/Use(s): The current use of the site is commercial with residential/commercial use in the immediate area. The site is zoned mixed use commercial and surrounding properties are zoned mixed use commercial and business.

Past Use(s) of the site: The Former Marlou Formal Wear was a tuxedo rental business that performed on-site dry cleaning.

Site Geology and Hydrogeology: The soils are primarily sandy to the investigated depth of about 24 feet below grade. Bedrock was not encountered. Depth to groundwater is 11-15 feet below grade, and the groundwater flow direction is south-southwesterly.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, an alternative which allows for unrestricted use of the site was evaluated.

A comparison of the results of the investigation against unrestricted use standards, criteria and guidance values (SCGs) for the site contaminants is included in the Tables for the media being

evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

Marlou Cleaners, Inc.

Southside Development LLC

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

trichloroethene (TCE)	cis-1,2-dichloroethene (cis-1.2-DEC)
tetrachloroethene (PCE)	

Based on the investigation results, comparison to the SCGs, and an evaluation of potential public health and environmental exposure routes, no remediation is required for this site. More complete information can be found in the RI Report and Exhibit A.

6.2: Interim Remedial Measures

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

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

6.3: Summary of Environmental Assessment

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

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination: Based on investigations performed to date, the primary contaminants of concern are chlorinated solvents (PCE, TCE, and cis-1,2-DCE) in groundwater and soil vapor.

A total of 27 soil samples collected during the Brandywine Plume Trackdown investigation and the RI. Samples were analyzed for volatile organic compounds (VOCs). Samples were collected from both on-site and off-site locations. No VOCs were detected above unrestricted use or protection of groundwater soil cleanup objectives (SCOs). The highest concentration detected was from an off-site location, MW-Z, with a concentration on 0.012 parts per million (ppm) of PCE. (unrestricted SCO of 1.3 ppm).

An additional eight soil samples were collected from four locations and analyzed for VOCs, semi-volatile organic compounds (SVOCs), metals, pesticides and PCBs. Results showed no exceedances of commercial or residential SCOs.

Groundwater samples were collected from 14 overburden monitoring wells on the pharmacy property. PCE, detected at MW-AB at a concentration of 5.2 parts per billion (ppb), was the only VOC constituent detected at a concentration above Class GA Standards and Guidance Values (SGVs). The PCE concentration detected at MW-AB was slightly above the Class GA SGV of 5 ppb. PCE was detected at MW-AB during the 2009, 2010, and 2011 Brandywine Avenue Plume Trackdown investigations at concentrations of 5 ppb, 10 ppb, and 15 ppb, respectively. Other VOCs detected in MW-AB included acetone at an estimated concentration of 3.7 ppb. VOCs detected at MW-1401 included site-related contaminants of concern (PCE, TCE, and cis-1,2-DCE), ethylbenzene, and xylene. Concentrations of these constituents were below Class GA SGVs.

The 2013 RI groundwater sampling event included collection and analysis from twelve monitoring wells downgradient of the pharmacy. VOCs detected above Class GA SGVs during the 2013 RI groundwater sampling event included PCE, cis-1,2-DCE, and VC. PCE was detected in each well sampled, ranging in concentration from 1.1 ppb at MW-1003 to 55 ppb at MW-Z. Cis-1,2-DCE was detected in five of the 12 wells sampled, ranging from an estimated concentration of 0.94 ppb at MW-1006 to 89 ppb at MW-1003. Vinyl chloride was detected at a concentration of 2.8 ppb in one monitoring well, MW-1003. TCE was detected in each well sampled, but at concentrations below Class GA SGVs

During implementation of the RI, soil vapor samples were collected from ten soil vapor points (Figure 4). PCE was detected in each off-site soil vapor sample collected during the RI at concentrations ranging from 6.2 ug/m³ at SV-17 located upgradient of the groundwater plume, to 69,000 ug/m³ at SV-01 located immediately downgradient of the site. TCE was detected in each off-site soil vapor sample collected during the RI at concentrations ranging from 0.3 ug/m³ at SV-17 to 1,300 ug/m³ at SV-01. Cis-1,2-DCE was detected in 2 of the 9 soil vapor samples collected during the RI at concentrations of 400 ug/m³ at SV-01 and 39 ug/m³ at SV-02. One

on-site soil vapor sample, SV-16, was collected as part of the RI. As indicated on Table 5-4 and Figure 5-3, three site-related COCs, PCE, TCE, and cis-1,2-DCE, were detected at concentrations of 120,000 ug/m³, 2,700 ug/m³, and 390 ug/m³, respectively. These were the highest concentrations of site-related COCs detected in soil vapor within the RI Study Area.

Indoor air sampling at the on-site building showed no elevated levels of contaminants of concern in the indoor air with a high of 2.4 ug/m³ of PCE. Sub-slab readings showed a high of 65,000 ug/m³ of PCE and 330 ug/m³ of TCE. The environmental impacts are discussed in more detail in Exhibit A.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

Direct contact with contaminants in the soil is unlikely because the site is covered with a building and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Environmental sampling indicates inhalation of site-related contaminants in indoor air is not a current concern. However, actions are recommended to address the potential for future exposures associated with soil vapor intrusion. The potential exists for the inhalation of site contaminants due to soil vapor intrusion in off-site buildings. However, many nearby property owners have declined the Agencies sampling offers.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

Soil

RAOs for Public Health Protection

- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: SUMMARY OF SELECTED REMEDY

1. Green remediation principals and techniques will be implemented to the extent feasible in the site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials; and
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste.

2. A soil vapor intrusion evaluation will be completed in the building whose footprint encompasses a portion of the site. The evaluation will build upon the evaluation efforts already completed and include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

3. Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with a Department approved Site Management Plan.

4. Site Management Plan

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

- a) an Institutional Control Plan that identifies all use restrictions for the site and details the steps and media-specific requirements necessary to ensure the following institutional control remain in place and are effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 3 above. This plan includes, but may not be limited to:

- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site or for buildings in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion; and
- a provision that, should the owners of properties where sampling was previously declined request to have their properties sampled in the future, the NYSDEC, in consultation with the NYSDOH, shall assess the need for soil vapor intrusion sampling and take appropriate action.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described above, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The only contaminants at the site are volatile organic compounds (VOCs). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use.

The site-related contaminants of concern (COCs) associated with the historic dry-cleaning operations at the site include tetrachloroethene (PCE) and associated degradation products: trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC). PCE and associated degradation products have been used as solvents in the dry-cleaning industry. Although not related to dry cleaning operations, petroleum-related compounds (toluene, ethylbenzene and xylenes) have also been detected in groundwater at the site. These compounds appear to be coming from upgradient of the site (see discussion below).

Concentrations of detected constituents in soil were compared to 6NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs), Restricted Residential Use SCOs (RRSCOs) for residential and commercial use, and NYSDEC CP-51 SCOs for residential use to provide context for describing the nature and extent of the impacts to soil. 6NYCRR Part 375 Protection of Groundwater SCOs (PGWSCOs) were used as criteria to identify soil impacts potentially affecting groundwater quality. Site-related COCs were not detected at concentrations above unrestricted SCOs.

Historic and Remedial Investigation (RI) groundwater analytical results are compared to the Class GA Standards and Guidance Values (SGV). PCE was the primary site related COC detected at concentrations above Class GA SGVs.

Groundwater

During implementation of the RI, groundwater samples were collected from 11 existing shallow overburden monitoring wells and three wells installed during implementation of the RI. An environmental investigation, the Brandywine Avenue Plume Trackdown, was completed in 2011 in the area and included installation and sampling of 16 monitoring wells on and around the site. The plume trackdown revealed VOC groundwater contamination, but showed no exceedences for SVOCs, metals or pesticides. During the RI, the groundwater samples were analyzed for VOCs using USEPA Method 8260.

On-Site Groundwater Characterization

PCE was detected at 5.2 parts per billion (ppb) [groundwater standard 5 ppb] in MW-AB. The maximum concentration of PCE was 15 ppb found in 2011. In MW-1401 the concentration of PCE was found to be 2 ppb [standard of 5 ppb], TCE at 0.21 ppb [standard of 5 ppb], and cis-1,2-DCE was found at 0.28 ppb [standard of 5 ppb]. No other VOCs exceeded groundwater standards in the on-site monitoring wells.

Off-Site Upgradient Groundwater Characterization

One off-site monitoring well, MW-A, is located upgradient of the site. This monitoring well was not sampled during the 2013 RI groundwater sampling event, but was sampled as part of the Brandywine Avenue Plume Trackdown investigations. VOC constituents detected included toluene (76 ppb, groundwater standard is 5 ppb), ethylbenzene (64 ppb, groundwater standard is 5 ppb), and xylene (322 ppb, groundwater standard is 5 ppb). No site-related COCs were detected in this monitoring well.

Off-Site Downgradient Groundwater Characterization

The 2013 RI groundwater sampling event included collection and analysis from twelve off-site, downgradient monitoring wells (MW-W, MW-X, MW-Z, MW-AG, MW-AH, MW-AJ, MW-1003, MW-1004, MW-1005, MW-1006, MW-1301, and MW-1302). VOCs detected above Class GA SGVs during the 2013 RI groundwater sampling event included PCE, cis-1,2-DCE, and VC. TCE was not detected above Class GA SGVs of 5 ppb in any of the wells. PCE was detected in each well sampled, ranging in concentration from 1.1 ppb at MW-1003 to 55 ppb at MW-Z [groundwater standard is 5 ppb]. Cis-1,2-DCE was detected in five of the 12 wells sampled, ranging from an estimated concentration of 0.94 ppb at MW-1006 to 89 ppb at MW-1003 [5 ppb]. VC was detected at a concentration of 2.8 ppb in one monitoring well, MW-1003 [2 ppb].

Groundwater Characterization Summary

Figure 2 shows concentrations of site-related COCs detected during the RI and previous investigations. Figure 2 illustrates fluctuations in COC concentrations, with no apparent increasing or decreasing trends. This suggests that the plume geometry has not changed substantially since the 2009 Brandywine Avenue Plume Trackdown investigation. The plume is therefore considered to be in a steady-state condition. It should be noted that 1,4-dioxane, an emerging contaminant of concern in New York State groundwater, was not reported on the VOC constituent list by the analytical laboratory for shallow overburden groundwater samples collected during the RI, nor was it reported during previous site investigations. However, the analytical laboratory was able to re-process groundwater data for the groundwater sample collected from MW-1401 collected during December 2014. 1,4-dioxane was not detected in this sample.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb) ^a	SCG ^b (ppb)	Frequency Exceeding SCG/total no. of samples
VOCs			
Tetrachloroethene	1.1 to 55	5	29/44
Cis-1,2-dichloroethene	0.28 to 89	5	7/44

Detected Constituents	Concentration Range Detected (ppb) ^a	SCG ^b (ppb)	Frequency Exceeding SCG/total no. of samples
Vinyl chloride	2.8	2	1/44

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b - SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary site-related groundwater contaminants are PCE and its degradation products. These are associated with operation of the former on-site dry cleaner. The highest concentration of PCE was in a well downgradient of the site which had 55 ppb of PCE.

Based on the findings of the RI, the presence of PCE and its degradation products has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: PCE, cis-1,2-dichloroethene and vinyl chloride.

Soil

A total of 27 soil samples collected during the Brandywine Plume Trackdown and subsequent RI were analyzed for VOCs using USEPA Method 8260 (Figures 3 and 3A). These samples were both on-site and off-site. Two samples exceeded the UUSCO (0.05 ppm) for methylene chloride with levels as high as 0.35 ppm. No COCs were detected above UUSCOs or PGWSCO; the highest concentration of a COC was off-site at MW-Z with a concentration on 0.012 ppm of PCE. (UUSCO and PGWSCO of 1.3 ppm).

An additional eight soil samples were collected from four locations (Figure 3A) and analyzed for SVOCs, metals, pesticides and PCBs. Results showed no exceedances of commercial (or residential) soil cleanup objectives (SCO). Copper, lead, p-p'-DDD and p-p'-DDT exceeded the UUSCO with levels of 55.6 ppm for copper (UUSCO is 50 ppm), lead at 130 ppm (UUSCO is 63 ppm), p-p'-DDD at 0.12 ppm (UUSCO is 0.0033 ppm) and p-p'-DDT at 0.31 ppm (UUSCO is 0.0033 ppm).

Based on the findings of the Remedial Investigation, soil contamination is not currently a problem at this site.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of soil vapor, sub-slab soil vapor under structures, and indoor air inside structures. At this site, due to the presence of a building in the impacted area, a full suite of samples was collected to evaluate whether soil vapor intrusion was occurring.

Sub-slab, soil vapor and indoor air samples were collected from the Rite-Aid parking lot, the building located on-site and in three adjacent residential properties. The samples were collected to assess the potential for soil vapor intrusion. The results indicate that none of the structures need mitigation. However, sub-slab sampling for the on-site building showed PCE at 65,000 ug/m³ and TCE at 330 ug/m³. The highest indoor air reading was 2.4 ug/m³.

During implementation of the RI, soil vapor samples were collected from ten soil vapor points. PCE was detected in each off-site soil vapor sample collected during the RI at concentrations ranging from 6.2 µg/m³ at SV-17 located upgradient of the groundwater plume to 69,000 µg/m³ at SV-01 located immediately downgradient of the Site. TCE was detected in each off-site soil vapor sample collected during the RI at concentrations ranging from 0.3 µg/m³ at SV-17 to 1,300 µg/m³ at SV-01. Cis-1,2-DCE was detected in 2 of the 9 soil vapor samples collected during the RI at concentrations of 400 µg/m³ at SV-01 and 39 µg/m³ at SV-02. One on-site soil vapor sample, SV-16, was collected as part of the RI. As indicated on Table 5-4 and Figure 5-3, three Site-related COCs, PCE, TCE, and cis-1,2-DCE, were detected at concentrations of 120,000 µg/m³, 2,700 µg/m³, and 390 µg/m³, respectively. These were the highest concentrations of site-related COCs detected in soil vapor within the RI Study Area. Figure 4 shows the soil gas sampling results.

Indoor air sampling at the on-site building showed no elevated levels of COCs in the indoor air with a high of 2.4 ug/m³ of PCE. Sub-slab readings showed a high of 65,000 ug/m³ of PCE and 330 ug/m³ of TCE.

Based on the findings of the Remedial Investigation, soil vapor intrusion sampling indicates site-related contaminants are not above NYSDOH air guidelines in the indoor air of the on-site building or off-site buildings that agreed to sampling. However, the sub-slab concentrations of PCE underneath the Rite-Aid building indicate that continued monitoring is required and may require mitigation in the future based on those results.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment. The no action alternative, by definition, involves no further institutional controls, environmental monitoring, or remedial action, and therefore, includes no technological barriers. In accordance with DER-10, *Technical Guidance for Site Investigation and Remediation*, this alternative serves as a baseline, defining the minimum steps that would be taken at the site in the absence of any type of action directed at the existing contamination.

Present Worth:\$0
Capital Cost:\$0
Annual Costs:\$0

Alternative 2: No Action with Institutional Controls

Alternative 2 would include the following items:

A soil vapor intrusion evaluation will be completed. The evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion.

Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with a Department approved Site Management Plan.

Site Management Plan

- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site or for buildings in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

- a provision that should the owners of properties where sampling was previously declined request to have their properties sampled in the future, the NYSDEC, in consultation with the NYSDOH, shall assess the need for soil vapor intrusion sampling and take appropriate action.

Present Worth:.....\$58,000
Capital Cost:.....\$50,000
Annual Costs:.....\$500

Alternative 3: Soil Vapor Extraction

Soil vapor extraction (SVE) is used to remediate unsaturated (vadose) zone soil. A vacuum is applied to the soil to induce the controlled flow of air and remove volatile and some semi-volatile organic contaminants from the soil. SVE can be utilized as an in-situ or ex-situ technology. For this application, SVE would be used in-situ. Prior to air discharge contaminants are typically destroyed through thermal or catalytic oxidation or adsorbed to activated carbon to control air pollution.

Based on the size of the current lot, 1.22 acres, and using the assumption that the extraction wells would achieve a radius of influence of fifty-feet, this remedial element would require the installation of four extraction wells. The extraction wells would be strategically placed in the western area of the lot and surrounding the perimeter of the on-site building. This placement is intended to address the area of highest soil vapor and groundwater contamination and also address a potential source area located beneath the existing building.

Present Worth:.....\$300,000
Capital Cost:.....\$225,000
Annual Costs:.....\$26,000

Alternative 4: Chemical Oxidation

In-situ chemical oxidation (ISCO) would be implemented to treat "contaminants" in groundwater. A chemical oxidant will be injected into the subsurface to destroy the contaminants located in the western portion of the site where PCE and its daughter compounds were elevated in the groundwater via an infiltration gallery. It is preliminarily estimated that three injection points would be installed, however the method and depth of injection will be determined during the remedial design.

Present Worth:.....\$436,000
Capital Cost:.....\$290,000
Annual Costs:.....\$11,000

Exhibit C

Remedial Alternative Costs

Table 2

Remedial Alternative	Capital Cost (\$)	Annual Costs (\$)	Total Present Worth (\$)
No Action	\$0	\$0	\$0
No Action with Institutional Controls	\$50,000	\$500	\$58,000
Soil Vapor Extraction	\$225,000	\$15,000	\$300,000
In situ Chemical Oxidation	\$290,000	\$11,000	\$436,000

Exhibit D

Summary of The Selected Remedy

The Department is selecting Alternative 2, No Action with Institutional Controls as the remedy for this site. Alternative 2 would achieve the remediation goals for the site by requiring an easement for the property. The elements of this remedy are described above.

Basis for Selection

Alternative 2 would be protective of human health and the environment.

Based on the results of the investigation at the site and the evaluation presented here, the Department is selecting No Action with Institutional Controls as the remedy for the site. The findings of the investigation of this site indicate that the site does not pose a significant threat to human health or the environment. This remedy is effective in protecting human health and the environment and complies with the New York State standards, criteria, and guidance.

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "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 each alternative's ability to protect public health and the environment.

The selected remedy, Alternative 2, which includes additional soil vapor intrusion monitoring for the on-site building, would satisfy this criterion by providing the means to evaluate vapor intrusion impacts and prohibit the use of groundwater at the site.

Since contamination remains in the groundwater and soil vapor, Alternative 1, the no action as an alternative may not be protective of public health or the environment.

Alternative 3, Soil Vapor Extraction, would help to control potential vapor intrusion by causing the contaminants to volatilize and be collected. Alternative 3 might be protective in that soil vapor, and over time, contaminant mass could be removed from the site.

Alternative 4, ISCO, could help reduce contaminant levels in that there would be an active remediation occurring. ISCO can be effective in treatment of groundwater contamination, but is less reliable when treating soil contamination. This alternative could be effective in treating the groundwater plume but would not provide protection to public health from the potential off-site soil vapor intrusion in the way that Alternative 2 and 3 would be protective.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards

and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 1 would not meet SGCs. While Alternative 2 would not immediately reach SCGs for groundwater, Alternative 2 would protect the public and workers from exposure. Alternatives 3 and 4 are both proven technologies that can meet SCGs but would be subject to pilot studies or bench tests to demonstrate their effectiveness relative to site specific conditions.

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

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. 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 engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 is not effective in the long-term. Alternative 2 would effectively protect public health through Institutional Controls and evaluation of potential for soil vapor intrusion in the building on site. Contamination is expected to slowly dissipate over time. Alternatives 3 and 4 could be effective long-term and permanent if the hydrogeological structures on-site are compatible with available technologies.

4. 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.

Alternatives 1 and 2 would not actively reduce the toxicity or mobility of contamination over time, but contaminants would reduce over time through degradation. Alternative 3 would reduce the volume of contamination provided that current technologies are feasible considering the hydrogeological conditions on site. Alternative 4 would actively reduce the toxicity, mobility, and volume of contamination with treatment if hydrogeological conditions are compatible with available technologies

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

The alternatives are ranked below in the order of short-term impacts and effectiveness from most disruptive to the community to least disruptive:

1. Alternative 4 – In-situ Chemical Oxidation
2. Alternative 3 – Soil Vapor Extraction
3. Alternatives 2 – No Action with Institutional Controls
4. Alternative 1 – No Action

ISCO would require bringing a drill rig or geoprobe to inject the chemicals. Drill rigs and

geoprobes can produce short-term noise. Also, the chemicals being injected can find their way into basements on-site. Construction of the SVE system would also require a drill rig or geoprobe. Any construction project has short term impacts and inherent risks. Alternative 2 would have very minimal impact at the site. Alternative 1 would have no impact.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternatives 1 and 2 are the most easily implementable. Alternative 2 would require the cooperation of the owner to place an environment easement and continued access to the site. Alternatives 3 and 4 are also implementable using readily available resources and technologies if site conditions are compatible. Alternatives 3 and 4 would require ground intrusive activities and cooperation with the site owner for the remedial action to be carried out. Alternative 3 would require additional pilot testing to assure current technologies are feasible considering site hydrogeological conditions. Alternative 4 would also have to be conducted under all relevant rules and regulations for the use and transport of the oxidizing chemical. A bench test to determine the appropriate oxidizing agent would be necessary prior to implementation. A pilot test would be necessary for Alternative 4 to ensure the geologic conditions are conducive to ISCO.

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

A comparison of the costs for each alternative is provided in Table 2. The ranking of each of the alternatives, from lowest to highest cost, is shown below.

Costs for Alternatives 3 and 4 are priced given assumed site conditions. Due to the nature of these alternatives, additional pilot studies must be conducted to assure current technologies could be utilized on site. Alternative 2 includes/assumes installation of a vapor mitigation system and ongoing operation and maintenance.

Because contamination is at depth and exposure is unlikely, public health would be protected through continued components of alternative 2 such as indoor air testing and mitigation, if necessary. Alternative 2 is effective, and relatively less expensive than Alternatives 3 and 4.

1. Alternative 1 – No Action: \$0
2. Alternative 2 – No Action with Institutional Controls: \$58,000
3. Alternative 3 – Soil Vapor Extraction: \$300,000
4. Alternative 4, In Situ Chemical Oxidation: \$436,000

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the

Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

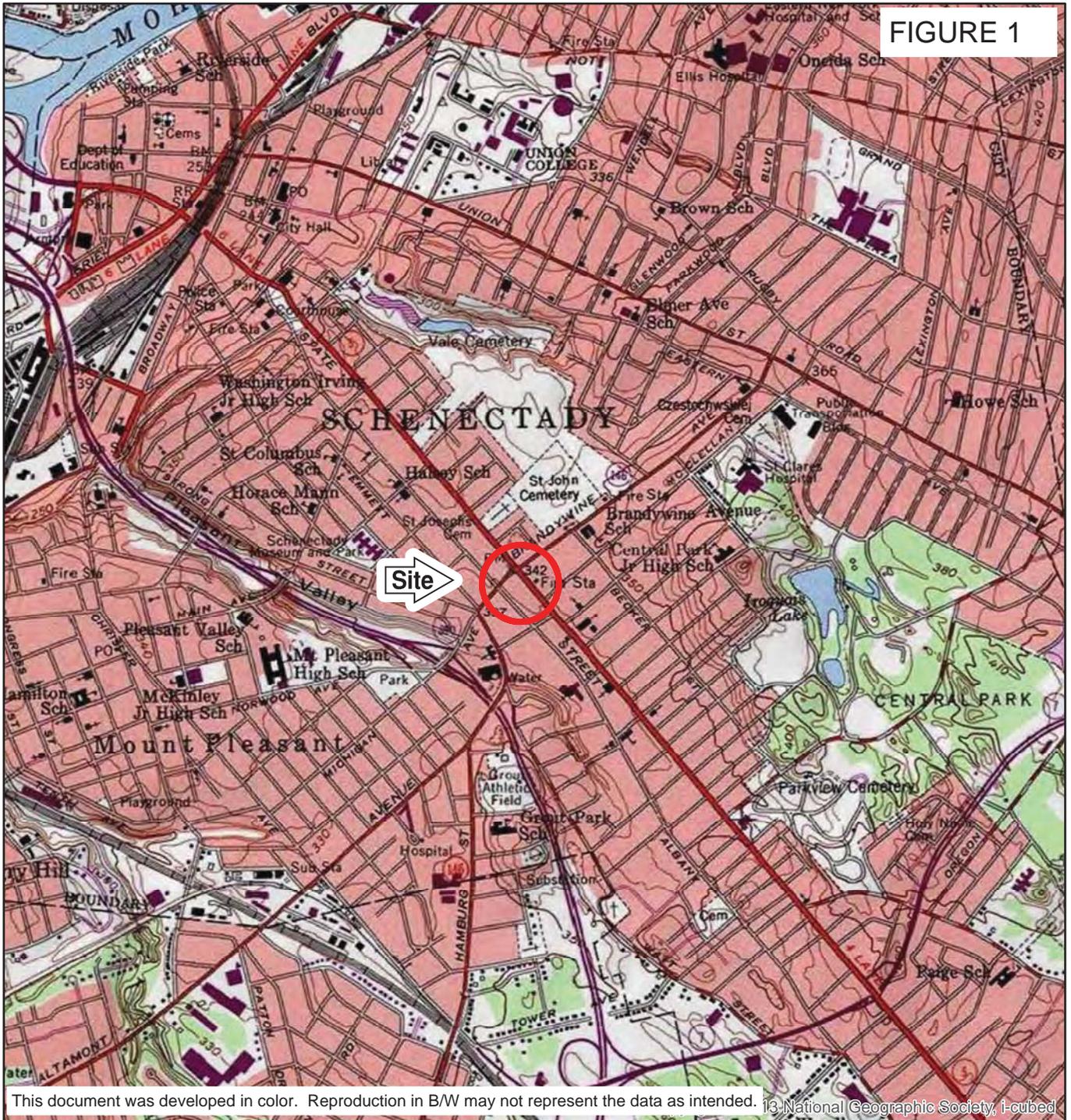
All alternatives would be in compliance with the current and reasonably anticipated land use of the site and surrounding area.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes

Alternative 2 has been selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

FIGURE 1



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PLOTDATE: 03/17/16 12:04:51 PM carnevdi

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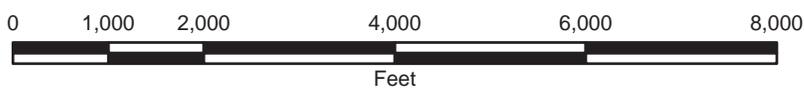
ADAPTED FROM: SCHENECTADY, NY USGS QUADRANGLE



NYSDEC
 FORMER MARLOU FORMAL WEAR
 SCHENECTADY, NEW YORK
 SITE NO. 447040



SITE LOCATION



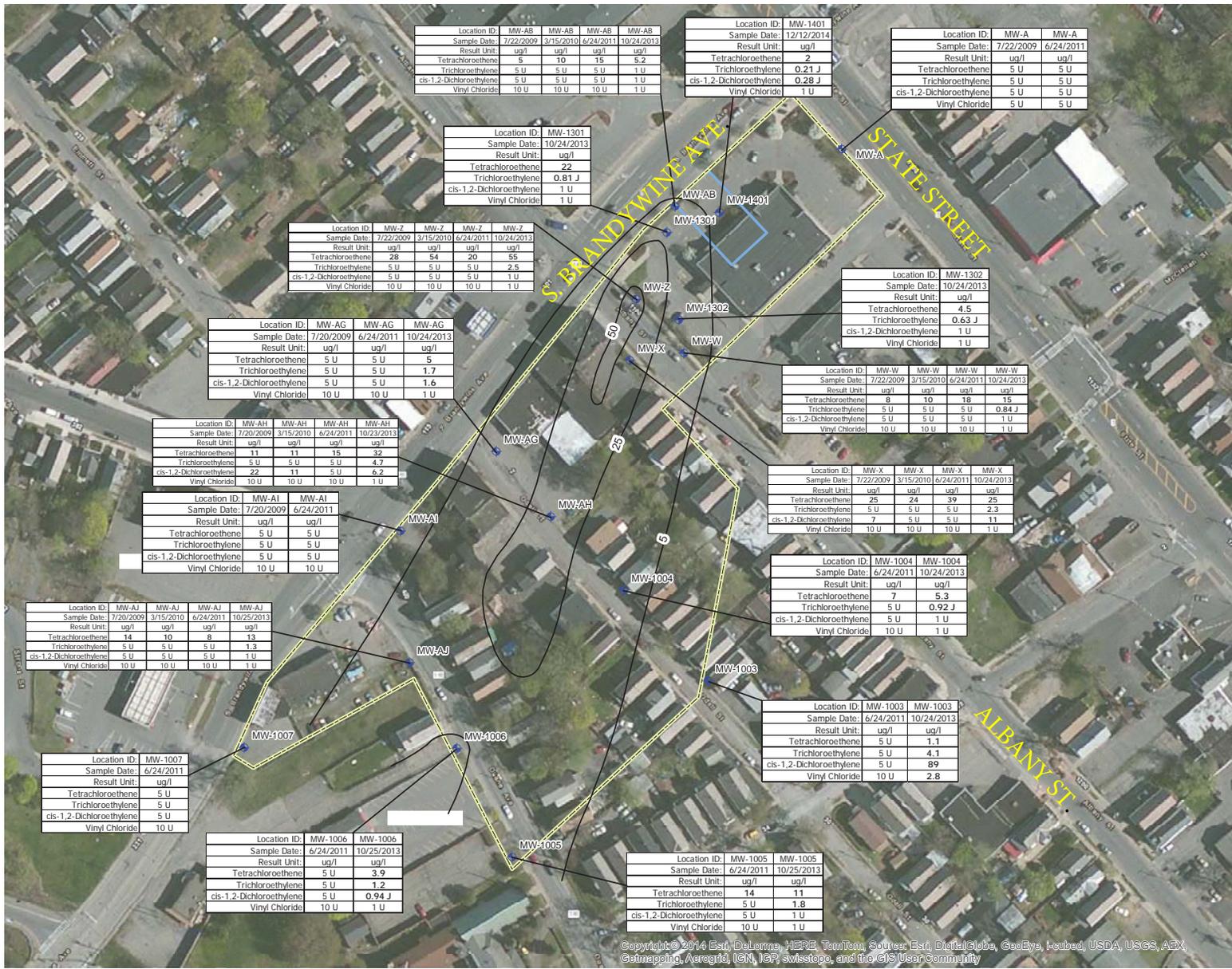


FIGURE 2

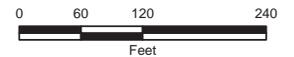


LEGEND

- FORMER MARLOU FORMAL WEAR
- RI STUDY AREA
- MONITORING WELL
- TOTAL COC ISOCONCENTRATIONS (ug/L)

NYSDEC
 FORMER MARLOU FORMAL WEAR
 1108 STATE STREET
 SCHENECTADY, NEW YORK

COC
 CONCENTRATIONS -
 GROUNDWATER



MARCH 2016
 8653.50285



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FIGURE 2-1

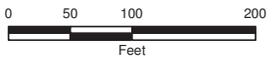


LEGEND

-  FORMER MARLOU FORMAL WEAR
-  RI STUDY AREA
-  MONITORING WELL
-  GROUNDWATER ELEVATION CONTOUR
-  GROUNDWATER FLOW DIRECTION

NYSDEC
FORMER MARLOU FORMAL WEAR
1108 STATE STREET
SCHENECTADY, NEW YORK

GROUNDWATER ELEVATION
CONTOURS
OCTOBER 24 AND 25, 2013



MARCH 2016
6653.50285



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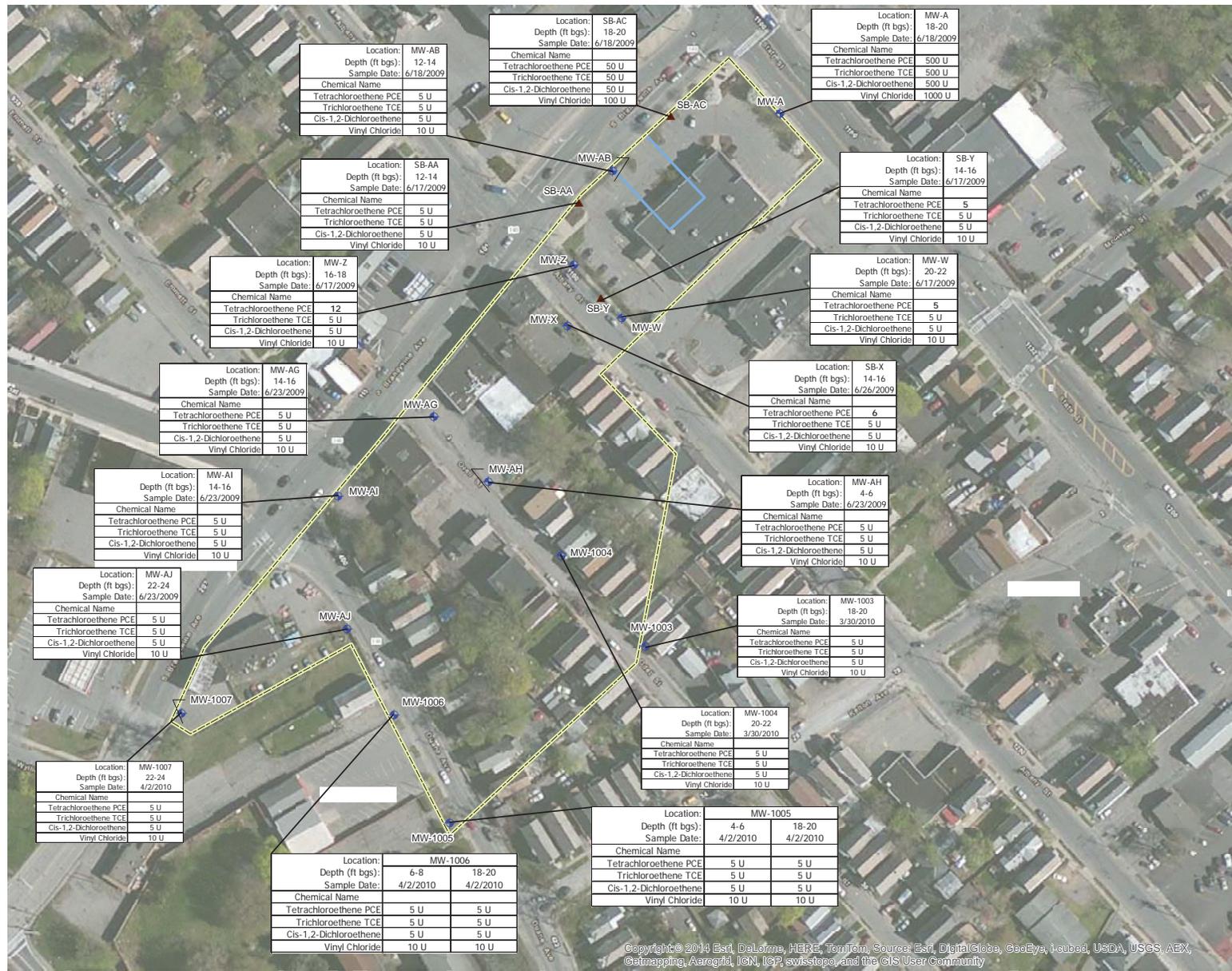


FIGURE 3

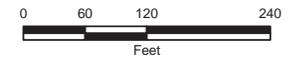


LEGEND

- FORMER MARLOU FORMAL WEAR
- RI STUDY AREA
- + MONITORING WELL
- ▲ SOIL BORING

NYSDEC
FORMER MARLOU FORMAL WEAR
1108 STATE STREET
SCHENECTADY, NEW YORK

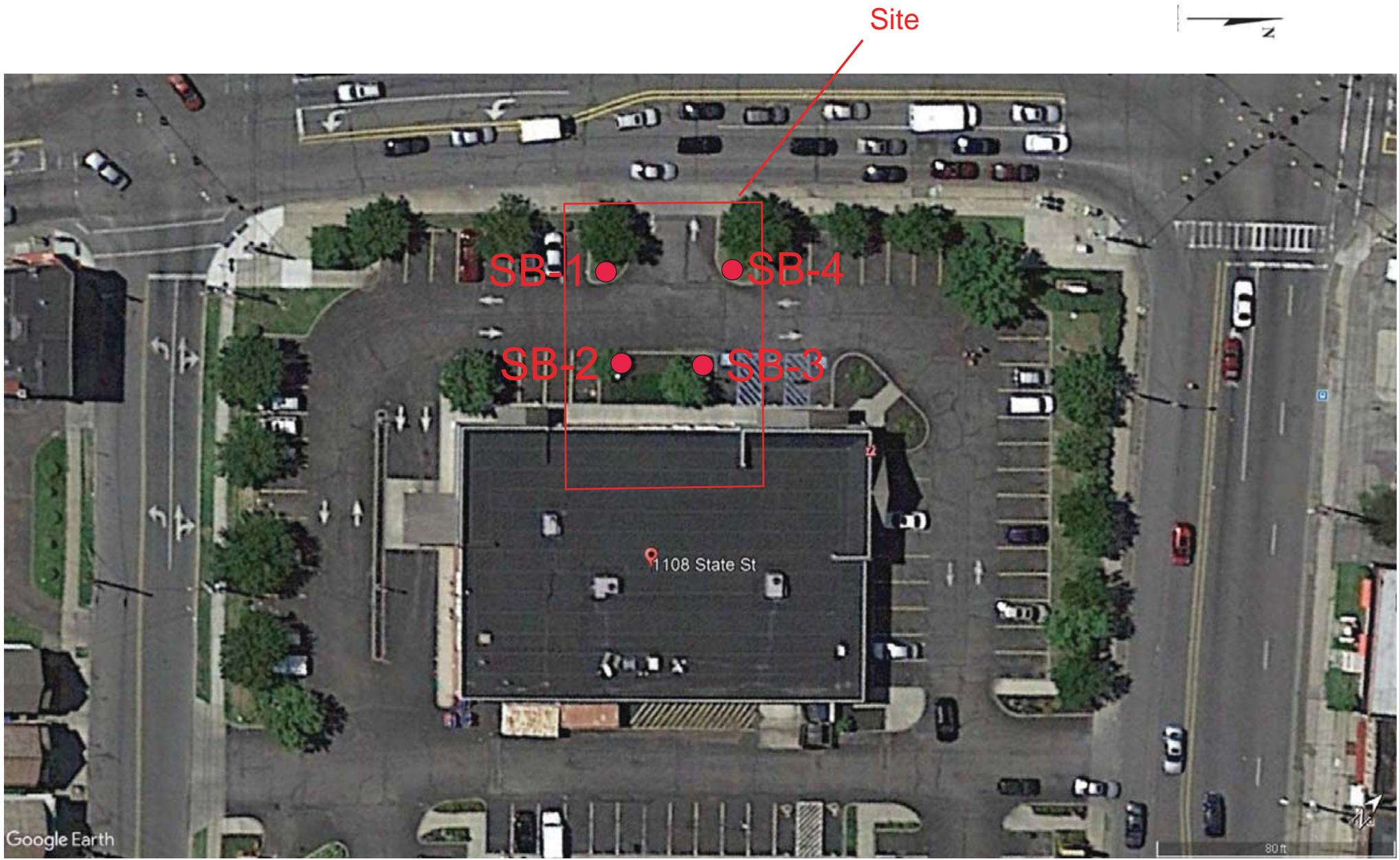
COC
CONCENTRATIONS (ug/kg) -
SUBSURFACE SOIL



MARCH 2016
8653.50285



O'BRIEN & GERE ENGINEERS, INC.



PRECISION
ENVIRONMENTAL SERVICES, INC.
831 RT. 67 LOT 38
BALLSTON SPA, NY 12020
TEL: 518-885-4399
FAX: 518-885-4416

CERTIFIED WOMEN-OWNED BUSINESS ENTERPRISE

Soil sampling locations.
No exceedances of
Residential SCOs

Location: 1108 State Street, Schenectady, NY

Project No.: NYSDEC Spill No. 447040

Image Courtesy: Google Earth

Date: December 2017

Figure: 3A

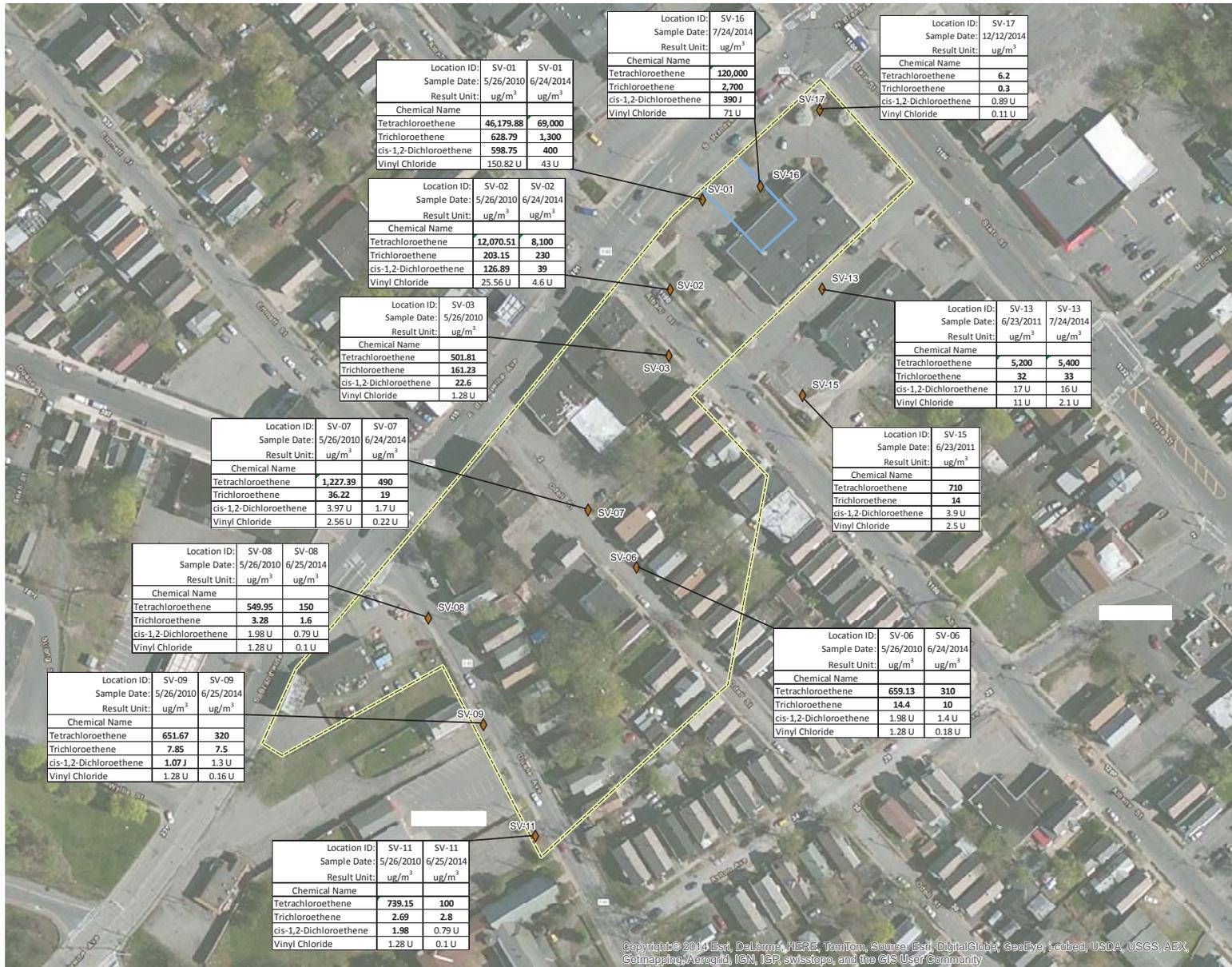


FIGURE 4

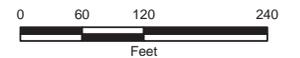


LEGEND

- FORMER MARLOU FORMAL WEAR
- RI STUDY AREA
- ◆ SOIL VAPOR POINT

NYSDEC
FORMER MARLOU FORMAL WEAR
SCHENECTADY, NEW YORK
SITE NO. 447040

COC
CONCENTRATIONS -
SOIL VAPOR



MARCH 2016
8653.50285



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APPENDIX A

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

**Former Marlou Formal Wear
State Superfund Project
City of Schenectady, Schenectady County, New York
Site No. 447040**

The Proposed Remedial Action Plan (PRAP) for the Former Marlou Formal Wear site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on August 20, 2018. The PRAP outlined the remedial measure proposed for the contaminated soil vapor at the Former Marlou Formal Wear site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on September 12, 2018 which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Former Marlou Formal Wear site, as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on September 18, 2018.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

Comment 1 – Why did the Department investigate this location originally?

Response 1 – Several geotechnical borings were collected in the vicinity of Brandywine Ave. and State Street as part of a property development in 1997. Stained soils were found in the geotechnical borings. Additional environmental investigations were initiated in the general area to determine the source(s) of the contamination. During the investigation called the “Brandywine Plume Trackdown” the Department found contaminated groundwater in the area and identified two potential areas of concern, the Marlou site and the Mid-Town Laundry site. Each site was investigated independently. No source of contamination was found on the Marlou site.

Comment 2 – How long will the cleanup take?

Response 2 –The remedy for this site is a No Action remedy. As such, no remediation will occur since no soil contamination was found at the site. The Department is requiring monitoring of the indoor air of any structures on the site to ensure that contaminant levels continue to remain low. The next round of monitoring of the indoor air should occur during the 2018/2019 heating season.

Comment 3 – What is the Department testing for?

Response 3 – During the Remedial Investigation the Department tested for a standard list of commonly-found chemicals including volatile organic compounds (VOCs) and semi-volatile organic compounds, PCBs, pesticides, and metals. This is referred to as the Target Compound List and Target Analyte List (TCL/TAL). In the future, indoor air samples will be analyzed for VOCs, including the site contaminants of concern.

Comment 4 – I work at Rite Aid and staff have had burning eyes and we have witnessed people in hazmat suits in the building. Can you inhale the contaminants? Could this site be the cause of our problems?

Response 4 – You can inhale the contaminants of concern associated with this site, however, the levels of VOCs detected in the indoor air of the Rite Aid building are typical of levels commonly found in indoor air and do not represent a health concern. Eye irritation can be caused by other indoor air quality issues that may result from building materials or products used or stored within the building. The Department will monitor the indoor air of the building for VOCs on a regular basis.

Comment 5 – Are the contaminants in the water?

Response 5 – Contaminants were found in the groundwater but the building is served by a public water supply that is not affected by this contamination. The public water supply is tested regularly as required by federal and state law.

APPENDIX B

Administrative Record

Administrative Record

**Former Marlou Formal Wear
State Superfund Project
City of Schenectady, Schenectady County, New York
Site No. 447040**

1. Proposed Remedial Action Plan for the Former Marlou Formal Wear Site, August 2018, prepared by NYSDEC.
2. Supplemental Subsurface Investigation Report Findings; Brandywine Avenue Plume Track Down, NYSDEC Spill No: 9706794, April 8, 2010 (Precision Environmental Services, Inc.)
3. Supplemental Subsurface Investigation Report Findings; Brandywine Avenue Plume Track Down, NYSDEC Spill No: 9706794 June 30, 2010 (PES, 2010b).
4. Supplemental Subsurface Investigation Report Findings; Brandywine Avenue Plume Track Down, NYSDEC Spill No: 9706794 September 30, 2011 (PES, 2011).
5. Remedial Investigation Report for Former Marlou Formal Wear July 2016, O'Brien & Gere.
6. Feasibility Study Report for Former Marlou Formal Wear, July 2017, NYSDEC.