JS Rochdale Cleaners
Remedial Action Work Plan

165-50 Baisley Boulevard, Jamaica
Block 12495, portion of Lot 2
BCP Site # C241165

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
1 Hunters Point Plaza
47-40 21st Street
Long Island City, New York

Prepared for:
Rochdale Village, Inc.
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Queens, New York 11434

Prepared by:
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&
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March 2019

CERTIFICATIONS

I, Matthew M. Carroll, certify that I am currently a registered professional engineer licensed by the State of New York and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that the Site description presented in this Remedial Action Work Plan (RAWP) is identical to the Site descriptions presented in the Brownfield Cleanup Agreement for the JS Cleaners Site and related amendments.

I certify that this plan includes proposed use restrictions, Institutional Controls, Engineering Controls, and plans for all operation and maintenance requirements applicable to the Site and provision for development of an Environmental Easement to be created and recorded pursuant ECL 71-3605. This RAWP requires that all affected local governments, as defined in ECL 71-3603, will be notified that such Easement has been recorded. This RAWP requires that a Site Management Plan must be submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, for approval by the Department.

I certify that this RAWP has a plan for transport and disposal of all soil, fill, fluids and other material removed from the property under this Plan, and that all transport and disposal will be performed in accordance with all local, State and Federal laws and requirements. All exported material will be taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that this RAWP has a plan for import of all soils and other material from off-Site and that all activities of this type will be in accordance with all local, State and Federal laws and requirements.

I certify that this RAWP has a plan for nuisance control during the remediation and all invasive development work, including a dust, odor and vapor suppression plan and that such plan is sufficient to control dust, odors and vectors and will prevent nuisances from occurring.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law.

STATE OF NEW YORK
MATTHEW M. CARROLL
091629
LICENSED PROFESSIONAL ENGINEER

091629	03/18/2019	
NYS Professional Engineer #	Date	Matthew M. Carroll, P.E. Signature

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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AGV	NYSDOH Air Guidance Value
AOC	area of concern
AS	air sparging
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
ECL	Environmental Conservation Law
BTEX	benzene, toluene, ethylbenzene and xylenes
CAMP	Community Air Monitoring Program
C&D	construction and demolition
CDS	construction dewatering system
Class GA Standards	NYSDEC TOGS 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CPP	Citizen Participation Plan
COC	Certificate of Completion
DCE	dichloroethylene
DER-10	NYSDEC Division of Environmental Remediation (DER), DER-10 / Technical Guidance for Site Investigation and Remediation
DRO	diesel range organics
DOC	dissolved organic carbon
DUSR	Data Usability Summary Report
EC	engineering control
ESA	Environmental Site Assessment
EZ	exclusion zone
FB	field blanks
FER	Final Engineering Report
ft-bs	feet below building slab
ft-bg	feet below sidewalk grade
ft-msl	feet above mean sea level
GPM	Gallons per minute
HASP	Health and Safety Plan
HSA	Hollow Stem Auger
HSO	Health and Safety Officer
IC	institutional control
ISCO	in-situ chemical oxidation
IRM	Interim Remedial Measure
MW	monitoring well
NAVD	North American Vertical Datum of 1988
NGVD	National Geodetic Vertical Datum of 1929
NIOSH	National Institute for Occupational Safety and Health
NYCDEP	New York City Department of Environmental Protection
NYCDEP Limits	NYCDEP Limitations for Effluent to Sanitary or Combined Sewers

NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOH-ELAP	NYSDOH Environmental Laboratory Approval Program
O&M Plan	Operations and Maintenance Plan
OSHA	Occupational Safety and Health Association
PCB	polychlorinated biphenyl
PCE	perchloroethylene, aka tetrachloroethylene
PID	photoionization detector
PGWSCOs	6 NYCRR 375-6.8(b) and CP-51 Protection of Groundwater Soil Cleanup Objectives
PP Metals	Priority Pollutant Metals
PPE	personal protective equipment
QA/QC	quality assurance / quality control
QAPP	Quality Assurance Project Plan
RAWP	Remedial Action Plan
RCNY	Rules of the City of New York
RAO	Remedial Action Objective
RE	Remedial Engineer
RI	remedial investigation
RSCOs	Recommended Soil Cleanup Objectives
RUSCOs	6 NYCRR 375-6.8(b) and CP-51 Track 4 – Residential Use Soil Cleanup Objectives
SB	soil boring
SCGs	Standards, Criteria and Guidance
SV	soil vapor
SMP	Site Management Plan
SMMP	Soil/Material Management Plan
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TAGM 4046	NYSDEC Technical and Administrative Guidance Memorandum #4046
TB	trip blanks
TCE	trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCLP Limits	USEPA Maximum Concentrations of Contaminants for the Toxicity Characteristic
TOC	total organic carbon
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

UST	underground storage tank
UUSCOs	6 NYCRR 375-6.8(a) Track 1 Unrestricted Use Soil Cleanup Objectives
VOC	volatile organic compound

EXECUTIVE SUMMARY

SITE DESCRIPTION/PHYSICAL SETTING/SITE HISTORY

On February 5, 2015, Rochdale Village, Inc. (the Participant) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate the property located at 165-50 Baisley Boulevard in the Jamaica neighborhood of Queens, New York (the "Site"). The New York State Brownfield Cleanup Agreement Index Number is C241165-10-14 and the Site Number is C241165.

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2. A Site location map is provided as Figure 1. A map of the current Site layout is included as Figure 2.

SUMMARY OF THE REMEDIAL INVESTIGATION

A Remedial Investigation Report (RIR) dated October 2018, was prepared by Tenen Environmental, LLC (Tenen).

The investigation consisted of installation of soil borings and collection of soil samples, installation and sampling of groundwater monitoring wells, installation and sampling of sub-slab vapor points, soil vapor points and sampling of indoor and ambient air. Based on the results of the RI and previous investigations, the following summary has been prepared:

Site History

- A dry-cleaning facility has occupied the Site property for a period of approximately 19 years.
- A UST was identified at the Site with no associated closure documentation. Records indicate a fuel oil release in 1995; Spill Number 9510922 was assigned in November 1995. Reportedly, only one gallon of product was spilled during a fuel oil delivery, and the NY Spills case was closed the same day.

Geology/Hydrogeology

- Based on boring logs, the Site is underlain by historic fill material (silty sands mixed with anthropogenic materials) and fine to medium sand and silts to a depth of approximately ten feet below grade (ft-bg), above medium to coarse grain sand and gravel to depths of up to 50 ft-bg. Soil boring JS-SB-2D was advanced to a depth of 50 ft-bg to investigate the presence of a confining layer; no clay layer was encountered. The approximate depth to bedrock (Ravenswood Granodiorite) is 800 ft-bg.
- Groundwater was encountered between 12.9 to 14.97 feet below grade. The groundwater flow direction is toward the east.

Chlorinated Solvents

- PCE was detected in soil above the Unrestricted Use SCO of 1.3 mg/kg at two locations adjacent to the former dry cleaning equipment. PCE was detected a maximum concentration of 6.13 mg/kg (GRS Group, Phase II, 2010) in one soil sample at 3-3.5 ft-bg. Within the same general area, PCE was also detected at a concentration of 1.6 mg/kg at 13-14 ft-bg (Tenen, RI, 2015). The PCE impact at this location was vertically delineated at 19 ft-bg.
- PCE was detected in groundwater at a maximum concentration of 860 ug/L, above the Class GA Standard, in the shallow on-site well adjacent to the dry cleaning equipment. PCE was also detected in an off-site, downgradient well at a concentration of 5.6 ug/L, slightly above the Class GA Standard and in one temporary upgradient well, installed in 2010 by GRS Group. PCE was detected below the Class GA Standard in three other shallow wells and two deep wells.
- PCE was the only volatile organic compound (VOC) detected in groundwater and soil above regulatory levels.
- PCE was detected in sub-slab, soil vapor and indoor air at concentrations above the non-detect ambient air concentration. PCE was detected in the sub-slab soil vapor at concentrations up to 8,610 micrograms per cubic meter (ug/m^3).
- PCE was detected at lower concentrations outside of Mall #1's footprint and within the surrounding area, specifically at locations adjacent to the neighboring public school and residential buildings.
- TCE was detected at three sub-slab locations, including one on-site and two within the adjacent commercial space, at a maximum concentration of 37.2 ug/m^3.

Historic Fill-Related Impacts

- One metal, lead, was detected in shallow fill material above the Unrestricted Use SCO but below the Restricted Commercial Use SCO, in the shallow fill material.
- One PCB isomer was detected above the Unrestricted Use SCO but below the Restricted Commercial Use SCO, in the shallow fill material.

Qualitative Environmental Assessment

- Redevelopment and residential use of the Site are not anticipated.
- The following potential exposure routes were identified: direct contact with surface soils, inhalation and incidental ingestion; ingestion of groundwater; direct contact with groundwater and inhalation of vapors.
- Potential impacts from these exposure routes can be mitigated through the implementation

of a HASP and CAMP during ground-intrusive sampling and remedial activities and installation of an SSDS.

SUMMARY OF THE PLANNED INTERIM REMEDIAL MEASURES

Based on the elevated off-Site indoor air and sub-slab soil vapor concentrations, the Participant will depressurize beneath the entire footprint of Mall #1 outside of the Site footprint by installing an active sub-slab depressurization system (SSDS) as an Interim Remedial Measure (IRM). The IRM Work Plan was approved by NYSDEC on August 17, 2017. Implementation of the IRM Work Plan commenced in August 2018.

A blower test will be completed after installation of the SSDS suction pits to adequately size the fans. The blower test has not been completed as of the date of this Remedial Action Work Plan (RAWP). The installation of the SSDS components within Mall #1 is being completed in conjunction with the installation of the on-site SSDS components as described in this RAWP.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The results of the remedial investigations provided sufficient data to complete a Qualitative Human Health Exposure Assessment, which identified several complete exposure pathways that include:

- direct contact with subsurface soils (and incidental ingestion);
- direct contact with groundwater;
- inhalation of volatile groundwater constituents; and,
- inhalation of vapors.

The potential exposure pathways associated with the remediation phase of the renovation are temporary and of limited duration. Worker exposure to impacted groundwater, soil vapor and particulates will be addressed by adherence to health and safety protocols. Potential exposure of neighborhood residents and other off-site populations during the remediation will be addressed through compliance with the Community Air Monitoring Plan (CAMP). A summary of the CAMP is included in Appendix A.

Based on the measured sub-slab and indoor air concentrations at off-site locations, the potential for exposure exists within the footprint of Mall #1. Off-site locations within Mall #1 will be depressurized under adherence to the approved IRM Work Plan, dated August 2017.

SUMMARY OF THE REMEDIAL ACTIONS

The proposed Track 4 remedy, intended to address all environmental issues associated with the Site, consists of the following:

- Complete installation of an active sub-slab depressurization system (SSDS) and soil vapor extraction (SVE) system to minimize vapor intrusion at the Site and remaining tetrachloroethylene (PCE) contamination in the soil;
- Maintenance of the existing composite cover system at the Site;
- Completion of in-situ chemical oxidation (ISCO) treatment via injection. A pilot study will be completed to determine design considerations including the chemical to be used, and final number and locations of the injection points. An ISCO Design Document will be submitted under separate cover to NYSDEC for approval;
- Post-remedial groundwater monitoring;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions; and,
- Development of a Site Management Plan (SMP) for long term management of residual contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. Any deviations from the RAWP will be promptly reported to NYSDEC for approval and detailed in the FER.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Rochdale Village, Inc. has entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on February 5, 2015 to investigate and remediate an approximately 3,160 square feet (SF) (0.0725-acre) property located at 165-50 Baisley Boulevard in the Jamaica neighborhood of Queens, New York (the "Site"). Rochdale Village, Inc. is a Participant in the Brownfield Cleanup Program.

The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination, as determined from data gathered during the Remedial Investigation (RI), Supplemental RI (SRI) and sampling completed for emerging contaminants activities performed between November 2015 and August 2018. An Interim Remedial Measures Work Plan (IRMWP) was accepted by NYSDEC on August 17, 2017 to address off-site remediation within Mall #1.

The RAWP provides an evaluation of Track 1 and 2 remedies and other applicable remedial measure alternatives, their associated costs, and the recommended and preferred remedy to address on-Site contamination. The remedy described in this document is consistent with the procedures defined in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements.

1.1 Site Location and Description

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2. A Site location map is provided as Figure 1. A map of the current Site layout is included as Figure 2.

1.2 Proposed Site Plan

The Remedial Actions being performed under the RAWP are intended to make the Site protective of human health and the environment consistent with the New York State Department of Health (NYSDOH) Soil Vapor Intrusion Decision Matrices and the contemplated end use of the Site. At this time, the Participant is not proposing to change the future use of the Site and is not contemplating redevelopment of the Site.

1.3 Description of Surrounding Property

The surrounding properties include commercial properties within the Rochdale Village Mall and associated parking and truck loading spaces. The Site is located less than 300 feet from two residential housing complexes to the east-southeast and south. The adjacent areas are predominantly residential and commercial areas within Rochdale Village. The properties across Baisley Boulevard to the north are commercial (restaurants, gas station) and religious (New Jerusalem Baptist Church). Properties across Guy R. Brewer Boulevard to the west are commercial (Walgreens) and residential. Residential buildings are present to the north and west of the Site in the surrounding area.

The Site is located in an R6 zoning district; a designation which denotes a built-up, medium density area; however, the zoning district has a C2-2 overlay, allowing for commercial uses to meet local retail needs and allows for commercial and residential uses in the same building.

Based on a review of the New York City Office of Environmental Remediation (OER) Searchable Property Environmental E-Database (SPEED), no hospitals or day care centers are present within 500 feet of the Site. One public school, PS 030, is located at 126-10 Bedell Street, approximately 450 feet to the north of the Site. Soil vapor sampling was completed adjacent to the above-mentioned public school as part of the SRI.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work described in the September 2015 Remedial Investigation Work Plan (RIWP) and September 2016 Supplemental Remedial Investigation Work Plan (SRIWP), which were reviewed by NYSDEC. Subsequent email communication confirmed that groundwater sampling was required for emerging contaminants, which was completed in August 2018. An RIR dated October 2018 has been submitted to NYSDEC for review.

2.1 Site History

In 2010, a Phase I Environmental Site Assessment (ESA) for the Site was performed in accordance with ASTM E-1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Based on a review of historic information sources, the historic and current, use of the Site for dry cleaning was identified as a recognized environmental condition (REC) based upon information provided during the Site reconnaissance and records included in the database report. The ESA addresses the entire village community, of which the Site is only a portion. Based on the information included in the ESA, the duration of the dry cleaning activities was approximately 19 years, however, the Site had historically been occupied by Rochdale Village Cleaners prior to 1996. JS Rochdale Cleaners was identified as a hazardous waste generator. A fuel oil tank located to the rear of JS Rochdale Cleaners was identified as a REC for the property. Records indicate a fuel oil release in 1995; Spill Number 9510922 was assigned in November 1995. Reportedly, only one gallon of product was spilled during fuel oil delivery, and the NY Spills listing was closed the same day. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017.

Several environmental investigations have been conducted at the Rochdale Village Community, including the Site, and are summarized in the following reports:

- *Phase II Environmental Assessment Limited Subsurface Investigation, Rochdale Village, 169-55 137th Avenue, Queens, NY 11434, Redacted September 17, 2010, GRS Group (2010 Phase II)*
- *Soil Vapor Investigation, JS Rochdale Cleaners, 165-50 Baisley Boulevard, Queens, NY, 11434, December 2013, Jet Environmental (2013 SVI)*
- *Remedial Investigation Report, JS Cleaners, 165-50 Baisley Boulevard, Queens, NY, 11434, October 2018, Tenen Environmental*

2.2 Geology / Hydrogeology

<u>*Site Topography*</u>

The surface topography slopes down to the southeast towards Jamaica Bay and the Atlantic Ocean. Based on the U.S. Geological Survey (Brooklyn-NY and Coney Island-NY Quadrangles) topographic map, the property lies at an elevation of approximately 21 feet above the National Geodetic Vertical Datum of 1929 (an approximation of mean sea level).

Site Geology and Hydrogeology
Based on the 2015 RI sampling, the Site is underlain by shallow soils including historic fill material (silty sands mixed with anthropogenic materials) and fine to medium sand and silts to a depth of approximately ten feet below grade (ft-bg). The lithology below the shallow soils consists of medium to coarse grain sand and gravel to depths of up to 50 ft-bg. One soil boring was advanced to 50 ft-bg to investigate the potential presence of a confining layer; no clay layer was encountered. The approximate depth to bedrock (Ravenswood Granodiorite) is 800 ft-bg.

Groundwater was encountered at approximately 14 ft-bg. The groundwater flow direction measured in the most recent rounds of gauging is generally toward the southeast.

Investigations at the Site have documented contaminants levels above the NYSDEC Technical and Operation Guidance Series for NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Water Quality Standards and Guidance Values (Class GA Standard). There are no known wellhead protection areas or specifically designated groundwater recharge areas in the vicinity of the site. Groundwater in this area is not used as a source of potable water.

2.3 Identification of Standards, Criteria and Guidance

The following standards, criteria, and guidance were used during the evaluation of Site data for the purpose of remedy selection.

Soil
6 NYCRR Part 375-6(a) Unrestricted Use SCOs for a Track 1 remedy, as presented in Table 1.

6 NYCRR Part 375-6(b) Commercial Use and Protection of Groundwater SCOs for a Track 4 remedy, as presented in Table 2. The Commercial Use SCOs are appropriate given the proposed future use of the Site.

Groundwater
Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations – Class GA (Class GA Standards). The Class GA Standards are presented in Table 3.

Soil Vapor
Ambient air concentrations as measured during the Remedial Investigation and the NYSDOH Guidance for Evaluating Soil Vapor Intrusions in the State of New York.

Sub-slab Soil Vapor and Co-Located Indoor Air Samples
NYSDOH Decision Matrices (May 2017).

2.4 Soil/Fill Contamination

This section summarizes the analytical results for soil samples collected between 2010 and 2016 for the Site. Historic soil concentrations are included in Tables 4 through 7 and a summary of analyte detections with a comparison to Unrestricted Use and Commercial and Protection of Groundwater, Restricted Use SCOs is included as Figure 3.

2.4.1 Summary of Soil/Fill Data and Comparison with SCGs

2010 Phase II, GRS Group
The investigation included the advancement of five borings advanced to depths of up to 16 ft-bg. Two borings, SB1 and SB2, were advanced on-Site near the containment room for the dry cleaning equipment. Boring SB3 was installed off-site to the east of the underground storage tank (UST) to a depth of 16 ft-bg, and was converted to temporary well TW1. Two additional borings were completed off-site; one to the south and one to the northwest of the Site.

The results of the soil sampling were compared to the NYSDEC Unrestricted SCO provided in 6 NYCRR Part 375. PCE was detected in SB1 at a concentration of 6.13 milligrams per kilogram (mg/kg), above the NYSDEC Unrestricted Use SCO of 1.3 mg/kg, at a depth of 3-3.5 ft-bg.

2015 RI and 2016 SRI, Tenen
As part of the RI, a total of a total of five soil borings (two interior and three exterior) were advanced at the Site. Soil samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs) and target analyte list (TAL) metals. One additional off-Site interior soil boring (JS-SB-6) was advanced during the SRI and a sample analyzed for TCL VOCs plus 10 tentatively identified compounds (TICs) to evaluate horizontal contamination of chlorinated volatile organic compounds (cVOCs).

PCE was detected in one sample, JS-SB-1 (13-14), at a concentration of 1.6 mg/kg, above the Unrestricted Use and Protection of Groundwater SCOs of 1.3 mg/kg, but below the Restricted Commercial Use SCO of 150 mg/kg. During field observations, this interval of highest suspected contamination was sampled and yielded a maximum photoionization detector (PID) reading of 29 parts per million (ppm). A subsequent sample was collected at JS-SB-1 (19-20) within the first apparent clean interval; PCE was detected in this sample at a low concentration of 0.0012 mg/kg and was not detected in the sample from the terminal depth. PCE was not detected at any other soil boring locations except at low concentrations within the shallow interval (1-5 ft-bg) in boring JS-SB-5, located northeast of the Site, and at a depth of 13.5 ft-bg in JS-SB-6.

No other VOCs were detected above the Unrestricted Use SCOs.

One PCB isomer was detected above the Unrestricted Use SCO. Aroclor 1242 was detected in sample JS-SB-2D (0-2) at a concentration of 0.124 mg/kg, above the Unrestricted Use SCO of 0.1 mg/kg, but below the Protection of Groundwater SCO of 3.2 mg/kg and the Restricted Commercial Use SCO of 1.0 mg/kg.

Total lead was detected at a concentration of 67 mg/kg in the shallow interval of JS-SB-3D, above the Unrestricted Use SCO of 63 mg/kg, but below the Protection of Groundwater SCO of 450 mg/kg and the Restricted Commercial Use SCO of 1,000 mg/kg. No other metals were detected above their corresponding SCOs.

No SVOCs or pesticides were detected above the Unrestricted Use SCOs.

Soil boring JS-SB-6 was advanced as part of the SRI to evaluate the horizontal contamination of site chlorinated volatile organic (cVOC) impacts with respect to the offsite adjacent area to the north. No VOCs above the Unrestricted, Protection of Groundwater or Restricted Commercial Use SCOs were detected in samples collected at this location. The results of the RI and SRI adequately delineated the vertical and horizontal extent of PCE contamination in soil to concentrations below the Unrestricted Use SCO for PCE.

2.5 Groundwater Contamination

This section summarizes the groundwater analytical results for samples collected between 2010 and 2018 for the Site. Historic groundwater concentrations are included in Tables 8 through 11 and a summary of compounds detected above the Class GA Standards is included as Figure 4.

2.5.1 Summary of Groundwater Data and Comparison with SCGs

2010 Phase II, GRS Group

The investigation involved the collection of one groundwater sample from a temporary groundwater monitoring well. Boring SB2 was installed off-site to the east of the UST to a depth of 16 ft-bg, and subsequently converted to temporary well TW1. PCE was detected in TW1 at a concentration of 12.3 micrograms per liter (ug/L) exceeding the NYSDEC Class GA Standard of 5.0 ug/L.

2015 RI and 2016 SRI, Tenen

Groundwater samples were collected from the six monitoring wells, including two cluster wells. One interior shallow groundwater well (JS-GW-1) was advanced at soil boring location JS-SB-1. Cluster wells at locations JS-SB-2 and JS-SB-3 included co-located shallow and deep wells to evaluate the horizontal and vertical extent of contamination in groundwater. As part of the SRI, one off-Site interior soil boring (JS-GW-6) was converted to a monitoring well. Sample JS-GW-6 was analyzed for TCL VOCs plus 10 TICs to evaluate the horizontal extent of cVOC contamination in the downgradient location within the interior service corridor of Mall #1.

PCE was the only VOC detected above the Class GA Standard. PCE was detected at 620 ug/L, above the Class GA Standard of 5 ug/L, in the shallow on-site well, JS-GW-1, located adjacent to the dry cleaning equipment. This location corresponds with the location of the highest PCE concentrations in soil. PCE was detected at off-Site locations below the Class GA Standard at a maximum concentration of 1.3 ug/L at location JS-GW-6, the shallow interior well installed as part of the SRI. This location, JS-GW-6, contained a headspace PID reading of 441 ppm during field sampling.

PCE was detected below the Class GA standard in both deep wells. No other VOCs were detected above Class GA Standards in groundwater.

No SVOCs, pesticides or PCBs were detected above Class GA Standards.

Iron and manganese, naturally-occurring metals, were detected in the on-site shallow groundwater well (JS-GW-1). Total iron (2,060 ug/L), total manganese (1,237 ug/L), dissolved iron (1,040 ug/L) and dissolved manganese (1,389 ug/L) were detected above their corresponding Class GA Standard, which is 600 ug/L for each compound. No other metals were detected above Class GA Standard.

The results of the RI and SRI adequately delineated the horizontal and vertical extent of PCE contamination in groundwater to concentrations below the Class GA Standards.

2018 Confirmatory VOC and Initial Emerging Contaminant Sampling Event, Tenen
As part of emerging contaminant sampling event, one off-site exterior permanent groundwater monitoring well was installed (JS-GW-7). Sample JS-GW-7 was analyzed for TCL VOCs and JS-GW-1 and JS-GW-2S were resampled for VOCs during this event. PCE was detected at 860 ug/L in the shallow on-site well, JS-GW-1. PCE was also detected marginally above the Class GA Standard in the newly installed JS-GW-7 at a concentration of 5.6 ug/L.

As of January 1, 2017 NYSDEC requires that emerging contaminant sampling be performed on sites participating in State remedial programs. This sampling protocol includes sampling groundwater for 1,4-dioxane, perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA) and other associated perfluorinated compounds (PFCs). One round of groundwater sampling for emerging contaminants was completed on August 16, 2018. Monitoring wells JS-GW-1, JS-GW-2S and JS-GW-7 were sampled for emerging contaminants. 1,4-dioxane was detected in one groundwater well, JS-GW-2S, at a concentration of 0.32 ug/l. Various PFCs were detected at very low concentrations in all three samples collected.

2.6 Soil Vapor, Sub-Slab Soil Vapor and Indoor Air Samples Contamination

This section summarizes the soil vapor, sub-slab soil vapor, indoor and ambient air analytical results collected between 2013 and 2016 for the Site. A summary of soil vapor concentrations compared to ambient air is included as Figure 5A. A summary of soil vapor concentrations compared to NYSDOH Air Guidance Values (AGVs) is included as Figure 5B.

2.6.1 Summary of Sub-Slab Soil Vapor, Co-Located Indoor Air and Ambient Air Data

<u>2013 SVI, Jet Environmental</u>
The investigation included the collection of two sub-slab soil vapor samples, and one ambient indoor air sample. The soil vapor investigation report has not been provided to Tenen; the laboratory analytical results from the investigation were provided. As such, these sample locations are not shown on Figure 5B.

PCE was detected in the ambient indoor air sample at a concentration of 19,900 micrograms per cubic meter (ug/m^3), which exceeds the NYSDOH AGV of 30 ug/m^3. Trichloroethene (TCE) was also detected in the ambient indoor air sample at a concentration of 21.6 ug/m^3, above the NYSDOH AGV of 2 ug/m^3.

PCE was detected in both sub-slab soil vapor samples at concentrations of 747 ug/m^3 and 1,880 ug/m^3. TCE was detected in one sub-slab soil vapor sample at a concentration of 3.87 ug/m^3.

2015 RI and 2016 SRI, Tenen

Sub-slab samples were collected at five locations within the footprint of Mall #1, including one location on-site adjacent to the dry cleaning machine (JS-SS-1). Seven exterior and off-Site soil vapor sample points were installed to confirm and delineate previously identified impacts. One indoor air sample was collected as part of the SRI in the lobby space of Mall #1 and co-located with sub-slab soil vapor point JS-SS-5. One ambient air sample (IA-JS) was collected from breathing height at an upwind location, based on field observations. All samples were analyzed for VOCs using United States Environmental Protection Agency (USEPA) method Toxics Organics-15 (TO-15), and the results compared to the ambient air concentrations in the sample collected on November 24, 2015.

Elevated levels of PCE were detected at all sub-slab sample locations with concentrations ranging from 2,780 ug/m^3 at JS-SS-4 to 8,610 ug/m^3 at JS-SS-5. PCE was detected at the on-site sub-slab location with a concentration of 5,280 ug/m^3. TCE was detected in three sub-slab locations, including one On-Site (JS-SS-1) and two within the adjacent commercial space (JS-SS-2 and JS-SS-3). TCE concentrations ranged between 16.10 ug/m^3 (JS-SS-2) to 37.20 ug/m^3 (JS-SS-1) above the non-detect ambient air readings and above the NYSDOH AGV of 2 ug/m3.

One indoor air sample (IA-JS) was collected as part of the SRI, and co-located with sub-slab vapor point JS-SS-5. PCE was detected in this sample at a concentration of 2.39 ug/m^3 above the non-detect ambient air concentration.

2.6.2 Summary of Off-Site Exterior Soil Vapor

2015 RI and 2016 SRI, Tenen

Four soil vapor points were installed as part of the RI to delineate contamination within the adjacent area outside of the building (Mall #1) footprint. Elevated levels of PCE were detected at all four soil vapor sample locations, ranging from 509 ug/m^3 (JS-SV-3) to 1,830 ug/m^3 (JS-SV-2).

Three soil vapor points were installed during the SRI to evaluate contamination toward the surrounding residential building and public school. Soil vapor point JS-SV-6 was advanced to delineate contamination adjacent to the residential building located approximately 210-feet to the south. PCE was detected at this location at 2.45 ug/m^3 above the non-detect ambient air concentration. Toluene was also detected at this location with a concentration of 6.93 ug/m^3 above the ambient air concentration of 2.26 ug/m^3. Soil vapor point JS-SV-7 was advanced to delineate contamination adjacent to the residential building approximately 160 feet to the east. PCE was detected at this location with a concentration of 4.55 ug/m^3 above the non-detect ambient air concentration. Soil vapor point JS-SV-6 was advanced to delineate contamination adjacent to the public school located approximately 450 feet to the north. PCE was detected at a concentration of 3.04 ug/m^3 above the non-detect ambient air concentration.

The following VOCs were also detected in samples above their respective ambient concentrations: dichlorodifluoromethane, ethanol, acetone, trichlorofluoromethane, isopropanol, tertiary butyl alcohol, trans-1,2-dichloroethene, 2-butanone, n-hexane, cyclohexane, 2,2,4-trimethylpentane, heptane, 4-methyl-2-pentanone, toluene, ethylbenzene, p/m-xylene, o-xylene, and 1,2,4-trimethylbenzene.

2.7 Summary of Remedial Investigations

This section presents the findings of the previous investigations conducted on-Site and the findings of the 2015 RI and 2016 SRI performed by Tenen.

Site History

- A dry-cleaning facility has occupied the Site property for a period of approximately 19 years.
- A UST was identified at the Site with no associated closure documentation. Records indicate a fuel oil release in 1995; Spill Number 9510922 was assigned in November 1995. Reportedly, only one gallon of product was spilled during a fuel oil delivery, and the NY Spills case was closed the same day.

Geology/Hydrogeology

- Based on boring logs, the Site is underlain by historic fill material (silty sands mixed with anthropogenic materials) and fine to medium sand and silts to a depth of approximately ten feet below grade (ft-bg), above medium to coarse grain sand and gravel to depths of up to 50 ft-bg. Soil boring JS-SB-2D was advanced to a depth of 50 ft-bg to investigate the presence of a confining layer; no clay layer was encountered. The approximate depth to bedrock (Ravenswood Granodiorite) is 800 ft-bg.
- Groundwater was encountered between 12.9 to 14.97 feet below grade. The groundwater flow direction is toward the east.

Chlorinated Solvents

- PCE was detected in soil above the Unrestricted Use SCO of 1.3 mg/kg at two locations adjacent to the former dry cleaning equipment. PCE was detected a maximum concentration of 6.13 mg/kg (GRS Group, Phase II, 2010) in one soil sample at 3-3.5 ft-bg. Within the same general area, PCE was also detected at a concentration of 1.6 mg/kg at 13-14 ft-bg (Tenen, RI, 2015). The PCE impact at this location was vertically delineated at 19 ft-bg.
- PCE was detected in groundwater at a maximum concentration of 860 ug/L, above the Class GA Standard, in the shallow on-site well adjacent to the dry cleaning equipment. PCE was also detected in an off-site, downgradient well at a concentration of 5.6 ug/L, slightly above the Class GA Standard and in one temporary upgradient well, installed in 2010 by GRS Group. PCE was detected below the Class GA Standard in three other shallow wells and two deep wells.
- PCE was the only VOC detected in groundwater and soil above regulatory levels.

- PCE was detected in sub-slab, soil vapor and indoor air at concentrations above the non-detect ambient air concentration. PCE was detected in the sub-slab soil vapor at concentrations up to 8,610 ug/m^3.
- PCE was detected at lower concentrations outside of Mall #1's footprint and within the surrounding area, specifically at locations adjacent to the neighboring public school and residential buildings.
- TCE was detected at three sub-slab locations, including one on-site and two within the adjacent commercial space, at a maximum concentration of 37.2 ug/m^3.

Historic Fill-Related Impacts

- One metal, lead, was detected in shallow fill material above the Unrestricted Use SCO but below the Protection of Groundwater and Restricted Commercial Use SCO.
- One PCB isomer was detected above the Unrestricted Use SCO, but below the Protection of Groundwater and the Restricted Commercial Use SCOs, in the shallow fill material.

Qualitative Environmental Assessment

- Redevelopment and residential use of the Site are not anticipated.
- The following potential exposure routes were identified: direct contact with surface soils, inhalation and incidental ingestion; ingestion of groundwater; direct contact with groundwater and inhalation of vapors.
- Potential impacts from these exposure routes can be mitigated through the implementation of a Health and Safety Plan (HASP) and Community Air Monitoring Program (CAMP) during ground-intrusive sampling and remedial activities and installation of an active sub-slab depressurization system (SSDS).

2.8 Significant Threat

The NYSDEC and NYSDOH have determined that this Site [does/does not] pose a significant threat to human health and the environment. Notice of that determination has been provided for public review. A copy of the notice is included in Appendix B.

3.0 DESCRIPTION OF THE INTERIM REMEDIAL MEASURES

The Interim Remedial Measures Work Plan (IRM Work Plan) includes depressurization beneath the entire footprint of Mall #1 outside of the Site footprint by installing an active SSDS. The IRM Work Plan was approved by NYSDEC on August 17, 2017. Implementation of the IRM commenced in August 2018.

The approved interim remedial measures consist of the following:

- Installation of an active SSDS to depressurize below the entire footprint of Mall #1, outside of the Site footprint; and,
- Preparation of an IRM Construction Completion Report (IRMCCR) to document the implemented interim remedial measures.

4.0 CONTAMINATION CONDITIONS

4.1 Conceptual Model of Site Contamination

A conceptual site model is used to develop "a general understanding of the site and to evaluate potential human exposure pathways and impacts to the environment. This will assist in identifying and setting priorities for the activities to be conducted."[1] The model will continue to be updated as additional information is generated.

The Site is currently vacant; however, historic dry cleaning operations were conducted at the Site for a period of at least 19 years. Based upon the location and distribution of elevated PCE concentrations, these impacts are attributable to the dry cleaning operations involving the use, storage and disposal of PCE. The distribution of PCE in groundwater, soil and soil vapor supports JS Cleaners as the source of the identified PCE impacts.

PCE impacts have been vertically and horizontally delineated to below regulatory levels and the NYSDOH AGV based on the findings of the 2015 RI and 2016 SRI.

Chlorinated solvents and their breakdown products were detected at elevated levels in sub-slab and exterior soil vapor samples and indoor air. PCE was detected above the Class GA Standard in two shallow monitoring wells. One pre-BCP sampling event documented PCE in soil above the Unrestricted Use SCO. Sampling identified PCE at elevated (above ambient level) soil vapor concentrations on- and off-site below the sub-slab of Mall #1 and at lower concentrations at exterior off-Site locations. PCE was also detected in on- and off-site groundwater wells, with a concentration above the Class GA Standard at one well adjacent to the dry cleaning equipment, one upgradient temporary well (2010), and one permanent downgradient well (installed August 2018). Several petroleum-related compounds, including xylenes, ethanol and trimethylbenzenes, were detected in soil vapor at concentrations above the ambient concentrations. One PCB isomer was detected above applicable regulatory levels in one soil sample. Two naturally occurring metals, iron and manganese, were identified in groundwater at total and dissolved concentrations above the Class GA Standard. Lead and one PCB isomer were each detected slightly above the Unrestricted Use SCO in one sample.

[1] DER-10, 3.2.2, Remedial Investigation

5.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

5.1 Qualitative Human Health Exposure Assessment

A qualitative human health exposure assessment (QHHEA) has been completed in accordance with Section 3.3(c)4 of DER-10 and the NYSDOH guidance for performing a qualitative EA (NYSDEC DER-10; Technical Guidance for Site Investigation and Remediation; Appendix 3 B). The QHHEA evaluates the potential for populations to be exposed to Site contaminants. The QHHEA is included in Appendix C and summarized below.

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 to an exposed population; (3) a receptor population; (4) a route of exposure; and (5) a point of exposure to a receptor population. Potential contaminant receptors include the following populations:

- Site workers (primarily environmental professionals and contractors)
- Construction workers, visitors or trespassers
- Future on-Site workers and utility workers
- On- and Off-Site residents/building occupants
- Off-Site maintenance workers

The following potential exposure routes are considered incomplete:

Groundwater Ingestion

New York City code prohibits the use of groundwater for potable purposes. Groundwater is not used for potable purposes in the vicinity of the Site and this pathway is incomplete.

Inhalation of Vapors by Future Building Employees and Maintenance Workers

Elevated indoor air concentrations were documented at the Site and may be related to ambient air concentrations and/or soil vapor intrusion. Remediation will include the installation of an active SSDS and vapor sealant to eliminate this pathway. A Site Management Plan (SMP) will include requirements for the active SSDS maintenance and upkeep.

The following potential exposure routes are considered potentially complete:

Inhalation of Vapors and Particulates by On-Site Environmental and Construction Workers (and incidental ingestion).

During slab penetrations, mainly as part of the RAWP implementation, on-Site personnel and construction workers may be exposed to dust and vapors via inhalation.

Dermal Contact with Soil by On-Site Environmental and Construction Workers, and Visitors

During slab penetrations, mainly as part of the RAWP implementation, on-Site personnel and construction workers may be exposed to contaminants in soil via dermal contact.

Dermal Contact with Groundwater by On-Site Environmental and Construction Workers

Dermal exposure to contaminants in the groundwater should be limited to environmental professionals collection groundwater samples for environmental analysis, as excavation to depth and dewatering are not contemplated. This exposure would be mitigated by adherence to a HASP, included in Appendix C, during sampling activities.

Inhalation of Vapors and Particulates by Off-Site Residents/Building Occupants

Work during slab penetrations, mainly as part of the RAWP implementation, may generate dust and vapors that could be inhaled by off-Site residents/building occupants/Mall #1 visitors and maintenance personnel. The IRM is being implemented throughout the entirety of Mall #1 and the Site to be protective of human health and the environment; and, mitigate the potential further migration of contaminants in soil, groundwater and soil vapor at off-site spaces.

The above potential exposures are limited to the remediation/construction phase of the proposed remedial action. Adherence to health and safety protocols will address environmental and construction worker exposure to contaminated soil vapors, particulates and groundwater. Potential exposure of off-Site residents and building occupants will be addressed by implementation of the CAMP referenced in Section 7.4 of this RAWP and included as Appendix A.

5.2 Remedial Action Objectives

The goals of remediation are to remove the on-Site sources of chlorinated solvent impacts so as to allow for the Site's intended current and future commercial use, and reduce the concentrations of contaminants in soil vapor and groundwater to levels below applicable SCGs. Based on the results of the remedial investigations conducted at the Site, the following Remedial Action Objectives (RAOs) have been identified:

5.2.1 Soil

The cVOC PCE was detected above the Unrestricted Use SCO in one sample at a depth of 13 to 14 ft-bg. One PCB (Aroclor 1242) and lead were detected within the shallow interval at one location above Unrestricted Use and Protection of Groundwater SCOs. No concentrations were detected above Commercial Use SCOs.

RAOs for Public Health Protection

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

RAOs for Environmental Protection

Prevent migration of contaminants that would result in groundwater or surface water contamination.

5.2.2 Groundwater

The cVOC PCE was detected in the groundwater at the highest concentration at a location adjacent to the dry cleaning equipment, above relevant SCGs. Naturally-occurring metals, iron and manganese, were detected above relevant SCGs.

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore the groundwater aquifer to pre-release conditions, to the extent practicable.

5.2.3 Soil Vapor

Chlorinated solvents have been detected at elevated concentrations in the soil vapor at the Site.

RAOs for Public Health Protection

- Mitigate and reduce impacts to public health resulting from existing, or the potential for, soil vapor intrusion into the Site building.

6.0 DESCRIPTION OF REMEDIAL ACTION WORK PLAN

6.1 Evaluation of Remedial Alternatives

The alternatives considered to address contamination in soil, soil vapor and groundwater are discussed below:

6.1.1 Soil

Two remedial alternatives were considered to address cVOC- and fill-related impacts in the soil.

Alternative 1 –Track 1 Excavation. Excavation of all soil with concentrations above the Unrestricted Use or Protection of Groundwater SCOs. Based on previous investigations completed at the Site, this alternative would include the removal of soil to at least 15 ft-bg in the area of boring JS-SB-1 and 2010 boring SB-1, as well as the shallow soil at locations JS-SB-2D and JS-SB-3D.

Concrete and soil removal and subsequent disposal would occur within the excavated area. The area would be backfilled with soil and capped with concrete. End-point samples would confirm the removal of soil to concentrations below applicable Unrestricted Use and Protection of Groundwater SCOs.

Due to the limited equipment access and low overhead space in the Site area, this alternative is not recommended.

Alternative 2 – Track 4 with Soil Vapor Extraction.

The historic fill and soil at the Site, which meets the Commercial Use SCOs, would remain left in-place and capped as part of a Track 4 remedy. The Commercial Use SCOs are appropriate given the intended future use of the Site. Redevelopment is not contemplated for the Site. A use-specific remedy does not require the installation of a cover system; however, one is already in place at the Site and will be maintained as part of the SSDS. Some impacts above Unrestricted Use or Protection of Groundwater SCOs will remain in place. PCE, detected at a maximum concentration of 6.13 mg/kg, which is above the Protection of Groundwater SCO, would be treated through a soil vapor extraction (SVE) system.

One vertical SVE well would be installed on Site in the area adjacent to the former dry cleaning equipment. Concentrations of PCE above the Protection of Groundwater SCOs, but below the Commercial Use SCO, would be treated with SVE.

This alternative would not remove the entire contaminant mass and would rely on long-term institutional and engineering controls.

6.1.2 Groundwater

Two remedial alternatives for groundwater have been considered and are described below.

Alternative 1 – In-Situ Chemical Oxidation (ISCO) Treatment. Implementation of ISCO involves introducing oxidants into the subsurface via injection in order to break down contaminants into less toxic compounds. The type and dosing of the oxidant will be determined through a pilot test. Typical oxidants used to treat PCE are sodium and/or potassium permanganate. ISCO is a viable alternative for remediation of cVOCs in groundwater. Long term engineering controls would include groundwater monitoring.

Alternative 2 – Air Sparging. Chlorinated impacts would be treated with an air sparging (AS) system. The long-term institutional and engineering controls would include groundwater monitoring and other site management activities.

6.1.3 Soil Vapor

Three remedial alternatives were considered to address the elevated levels of cVOCs present in the sub-slab soil vapor at the Site.

Alternative 1 – Active Sub-Slab Depressurization System. An active SSDS is being installed off-Site within Mall #1 in accordance with the approved IRM Work Plan. Based on the elevated soil vapor concentrations at the Site, the active SSDS has been extended to include the Site footprint to minimize the potential for vapor intrusion. The system will be operated on a continuous basis.

The SSDS was designed in general accordance with the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor intrusion in the State of New York dated October 2006. The performance goal of the sub-slab vapor mitigation system is to depressurize below the current slab to at least -0.02 inches of water column (in-wc); however, differential pressure readings above -0.004 in-wc will be considered acceptable.

The proposed SSDS layouts and details are included on drawings X-101 through X-103, included in Appendix F. The SSDS will consist of one suction pit installed beneath the at-grade slab that will be connected to a fan on the roof via cast iron (interior) and PVC (exterior) piping. The SSDS has been designed as an extension of the approved SSDS discussed in the IRM WP for off-Site commercial spaces. The SSDS will depressurize beneath the entire footprint of Mall #1, including the Site. Further design considerations are discussed in Section 8.0 of this RAWP.

In this alternative, long-term institutional and engineering controls would include an active SSDS as part of site management activities.

Alternative 2 – Active SSDS and Vapor Sealant. An active SSDS would be installed at the Site consistent with Soil Vapor Alternative 1. A vapor sealant will be installed over the entire current concrete slab and will consist of a chemically resistant barrier with a minimum thickness of 20-mil.

In this alternative, long-term institutional and engineering controls would include a vapor barrier and an active SSDS as part of site management activities.

6.2 Standards, Criteria and Guidance (SCGs)

The Remedial Action SCGs are listed below.

SCG	Scope / Application
NYSDEC Brownfield Cleanup Program Guide (draft 2004)	General program guidance
NYSDEC CP-51 / Soil Cleanup Guidance (2010)	Restricted Use SCOs for soil, if Track 1 is not achieved
NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (2010)	End-point sampling methodology; underground storage tank (UST) closure
NYSDEC DER-31 Green Remediation (2011)	Green remediation components
NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998)	Class GA Standards for groundwater
NYSDOH Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006)	Soil vapor guidance
NYSDOH Generic Community Air Monitoring Plan	Plan for monitoring dust and volatile organics resulting from construction activities
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 360 – Solid Waste Management Facilities	Off-site disposal of waste for facilities in NYC
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 364 – Waste Transporter Permits	Transporter requirements for off-site disposal of waste
6 NYCRR Part 370 – Hazardous Waste Management System	Disposal of hazardous waste, if encountered
6 NYCRR Part 375 – Environmental Remediation Programs (December 2006)	General administrative guidance
6 NYCRR Part 376 – Land Disposal Restrictions	Disposal of hazardous waste, if encountered
6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Regulations	Discharge of wastewater and stormwater
Code of Federal Regulations (CFR) Title 29 Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard	Worker safety
29 CFR Title 29 Part 1926 - Safety and Health Regulations for Construction	Worker safety
40 CFR Parts 144 and 146 – Underground Injection Control Program	Injection of chemicals into the groundwater
Title 15, Rules of the City of New York (RCNY), Chapter 19 - Use of the Public Sewers	Discharge of groundwater to the municipal sewer system
NYCDEP Limitations for Effluent to Sanitary or Combined Sewers	Discharge of groundwater to the municipal sewer system

6.3 Evaluation of Alternatives

The remedial alternatives for soil, groundwater and soil vapor are discussed below. Each alternative was evaluated based on the following remedy selection factors (as defined in DER-10, Section 4.2):

- Protection of human health and the environment
- Conformance with standards, criteria and guidelines
- Short-term effectiveness and performance
- Long-term effectiveness and performance
- Reduction in toxicity, mobility or volume
- Implementability
- Cost effectiveness
- Community acceptance
- Land use

6.3.1 Protection of Human Health and the Environment

Each alternative would be protective of human health and the environment. Soil is not required to be excavated to meet Commercial Use SCOs, consistent with the proposed use. Groundwater in this area is not used as a source of drinking water. Potential soil vapor impacts from an on-site source would be managed by installing long-term engineering controls.

A Health and Safety Plan (HASP), including monitoring/management for particulates and volatiles. will be implemented during remedial activities

6.3.2 Conformance with Standards, Criteria and Guidelines

Each alternative would conform to the SCGs. Both soil alternatives maintain levels consistent with the proposed Site use. Groundwater impacts would be treated and monitored.

On-site construction safety will conform to the HASP requirements, which incorporate OSHA requirements.

6.3.3 Short-Term Effectiveness and Performance

Each alternative would be effective over a short-term time horizon. The soil alternatives are consistent with the proposed use. Soil Alternative 1 (Track 1 SCOs) is associated with the most significant short-term impacts, related to the increased duration associated with more extensive and deeper soil removal. These impacts include the potential for particulate and volatile impacts and additional truck traffic. These potential impacts are addressed in the various control plans included in this RAWP.

6.3.4 Long-Term Effectiveness and Performance

Each alternative would be effective over a long-term time horizon. The two soil alternatives would be consistent with the proposed use, given long-term engineering controls, and would treat concentrations of PCE above the Protection of Groundwater SCO. Groundwater impacts would be treated and monitored. Groundwater is not used as a source of drinking water in this area. Potential for residual impacts in soil vapor would remain and would be managed by the installation of an active SSDS.

6.3.5 Reduction in Toxicity, Mobility or Volume

Each alternative would reduce the toxicity, mobility and volume of the contaminants present on-site. The bulk of the impacts present at the Site would be removed by Groundwater Alternatives 1 and 2, Soil Alternative 1, as well as Soil Vapor Alternatives 1 and 2.

6.3.6 Implementability

Each alternative would be implementable. Due to the excavation depth required on-Site to meet Track 1 SCOs within the existing building, Soil Alternative 1 (Track 1 SCOs) would be considerably more difficult to implement given the difficult drilling conditions encountered during the Site investigation and the required depth of excavation. Soil Alternative 2 (SVE) would be implementable given the successful advancements of soil borings to the groundwater interface during the remedial investigation. Groundwater Alternatives 1 (ISCO treatment) and 2 (Air Sparging), and Soil Vapor Alternatives 1 (active SSDS) and 2 (active SSDS and vapor barrier) can be implemented as part of the Site remedial action and the SSDS is being installed in conjunction with the approved IRM Work Plan SSDS design for Mall #1.

6.3.7 Cost Effectiveness

The implementation of Soil Alternative 2 (SVE), Groundwater Alternative 1 (ISCO treatment) and Soil Vapor Alternative 1 (active SSDS) is estimated at approximately $275,000, as shown in Table 14. The costs to implement Soil Alternative 1 (Track 1 SCOs), Groundwater Alternative 2 (AS system) would be higher. The costs to implement Soil Vapor Alternative 2 (active SSDS and vapor sealant) would be slightly higher.

6.3.8 Community Acceptance

Each alternative appropriately addresses potential exposure pathways (see Sections 6.3.3 and 6.3.4). Soil Alternative 2 (SVE) and Groundwater Alternative 1 (in-situ chemical treatment) will result in a decrease in toxicity, mobility and volume (see Section 6.3.5). Implementation of these alternatives along with Site renovation to bring the existing commercial use back to productive use, should result in acceptance by the community.

The on-site portion of Soil Vapor Alternatives 1 (active SSDS) and 2 (active SSDS and vapor sealant) will implemented as an extension of the SSDS to be installed at the off-Site commercial spaces within Mall #1. Any short-term impacts (see Section 6.3.3) will be addressed by the various control plans described in this RAWP.

6.3.9 Land Use

Each of the proposed alternatives is compatible with the proposed land use at the Site.

The following findings, based on a review of previous environmental and public documents, support the compatibility of the proposed Site land use with that of the surrounding area:

1. The use proposed for the Site conforms to applicable zoning laws or maps or the reasonably anticipated future use of the Site.
2. The proposed use conforms to historical and/or recent development patterns in the area.
3. The Site does not fall within the boundaries of an existing Brownfield Opportunity Area (BOA).
4. The Site is located in an R6 zoning district; a designation which denotes a built-up, medium density area; however, the zoning district has a C2-2 overlay, allowing for commercial uses to meet local retail needs and allows for commercial and residential uses in the same building.
5. The Site is located in an urban setting characterized by residential and commercial uses. There are no areas zoned for agricultural use in the proximity of the Site.
6. According to the NYSDEC database for environmental justice concerns, the Site is part of a Potential Environmental Justice Area (PEJAs); however, no environmental justice concerns have been identified.
7. There are no federal or state land designations.
8. The population growth patterns and projections support the proposed land use.
9. The Site is accessible to existing infrastructure.
10. The Site is not located in close proximity to important federal, state or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species.
11. Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site cannot affect municipal water supply wells or recharge areas. The Federal Emergency Management Agency (FEMA) flood insurance rate map for the Site (Map Number 3604970242F) indicates that the Site is located outside Zone X, the 0.2% annual chance (or 500 year) floodplain.

6.4 Selection of the Preferred Remedial Actions

The preferred Track 4 remedy, intended to address all environmental issues associated with the Site, consists of the following:

- Installation of an active SSDS at the Site to minimize vapor intrusion at the Site;
- Installation of a vertical SVE well in the area of the former dry cleaning equipment;
- Maintenance of the existing composite cover system at the Site;
- Completion of ISCO treatment via injection. A pilot study will be completed to determine design considerations including the chemical to be used, and final number and locations of the injection points. An ISCO Design Document will be submitted under separate cover to NYSDEC for approval;
- Post-remedial groundwater monitoring;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions; and,

- Development of a Site Management Plan (SMP) for long term management of residual contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, and (3) reporting.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the Department-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER. No elevated levels of chlorinated solvents were detected within the shallow soil at the Site; PCE was, however, detected above the groundwater interface. Groundwater beneath the Site will be chemically treated due to elevated PCE levels. Groundwater beneath the Site will be monitored to confirm the effectiveness of the chemical treatment. Soil vapor impacts will be mitigated by installing an active SSDS and vapor sealant on the existing composite cover system beneath the building and continued operation of the active SSDS to be installed as part of the IRM Work Plan within Mall #1.

The following land-use factors were considered in selecting these remedial measures. Land Use Factor	Remedy Evaluation Result
Zoning	Remedy is consistent
Applicable comprehensive community master plans or land use plans	Remedy is consistent (not within a Brownfield Opportunity Area)
Surrounding property uses	Remedy is consistent
Citizen participation	Remedy is consistent; CPP requirements implemented regardless of selected remedy
Environmental justice concerns	None identified (Site is in a PEJA)
Land use designations	Remedy is consistent
Populations growth patterns	Remedy is consistent
Accessibility to existing infrastructure	Remedy is consistent
Proximity to cultural resources	None identified
Proximity to natural resources	None identified
Off-Site groundwater impacts	Groundwater will be monitored on-Site and at the downgradient borders following implementation of the remedy.
Proximity to floodplains	Site is not within the 500-year flood zone.
Geography and geology of the Site	Remedy is consistent
Current Institutional Controls	None currently present

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

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;

- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and,
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

7.0 REMEDIAL ACTION PROGRAM

7.1 Governing Documents

7.1.1 Site Specific Health and Safety Plan

A Site Specific Health and Safety Plan (HASP) has been created for the Site and is included in Appendix C. All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. An emergency contact sheet with names and phone numbers is included in Table 1 of the HASP and defines the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency. The HASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

7.1.2 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) has been created for the site to address quality control and quality assurance procedures for all site sampling, including continued groundwater sampling, and is included in Appendix E.

7.1.3 Soil/Materials Management Plan

The Soil/Materials Management Plan (SMMP) includes plans for managing any soils/materials that are disturbed at the Site. The soil disturbances are limited to the installation of SSDSs. The development is less than one acre in area and a Stormwater Pollution Prevention Plan (SWPPP) is not required.

The SMMP, which describes procedures for excavation, handling, storage, and transport and disposal, is included in Appendix D.

7.1.4 Community Air Monitoring Plan

The purpose of the Community Air Monitoring Plan (CAMP) is to protect downwind receptors (e.g., residences, businesses, schools, nearby workers, and the public) from potential airborne contaminants released as a direct result of the Remedial Action being performed at the Site. Airborne contaminants will be monitored during the installation of SSDSs and completion of groundwater chemical injection. The CAMP is included in Appendix A.

7.1.5 Citizen Participation Plan

The Citizen Participation Plan (CPP) enables citizens to participate more fully in decisions that affect their health, environment, and social well-being. The CPP will be updated throughout the Remedial Action in response to any community feedback.

7.1.6 Site Operations Plan

The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

7.2 General Remedial Construction Information

7.2.1 Project Organization and Emergency Contacts

The following are the principal personnel who will be assist in the management, oversight and completion of this project:

Tenen Environmental, LLC
121 West 27th Street, Suite 702, New York, NY 10001
(646) 606-2332

- Mary Manto, Technical Director: responsible for overall coordination and management of the project.
- Mohamed Ahmed, Senior Geologist: responsible for quality assurance of sampling procedures and laboratory data.
- Kristen Meisner, Project Engineer: responsible for the day-to-day field monitoring activities, including soil excavation and load-out, dust monitoring and PID monitoring. Post-remedial sampling activities and report preparation will be the function of a Project Engineer from Tenen.

Subcontractors
Laboratory:
Alpha Analytical, Inc., 8 Walkup Drive in Westborough, MA
(800) 624-9220
NYSDOH Environmental Laboratory Approval Program (ELAP) Certification No. 11148 for solid and hazardous waste

Driller:
Cascade, 30 N. Prospect Avenue, Lynbrook NY 11563
(516) 596-6300

Data Validation:
L.A.B Validation Corp., 14 West Point Drive, East Northport, NY 11731
(516) 523-7891

Remedial Party:
Rochdale Village, Inc.
169-55 137th Avenue
Queens, New York 11434

Resumes of key personnel involved in the Remedial Action are presented in the QAPP, included as Appendix E.

7.2.2 Remedial Engineer

The Remedial Engineer (RE) for this project will be Matthew M. Carroll, P.E. The RE is a registered professional engineer (PE) licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program for the JS Cleaners Site (NYSDEC BCA Index No. C241165-10-14; Site No. C241165). The RE will certify in the Final Engineering Report (FER) that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in conformance with that Plan. Other RE certification requirements are listed later in this RAWP.

The RE will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal, air monitoring, emergency spill response, import of back fill material (if any), and management of waste transport and disposal. The RE will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The RE will review all pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the FER.

7.2.3 Remedial Action Construction Schedule

A general Remedial Action construction schedule is included in Table 15.

7.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Participant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

7.2.5 Mobilization

Mobilization includes field personnel orientation, equipment mobilization (including CAMP equipment), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

7.2.6 Erosion and Sedimentation Controls

Erosion and sediment controls are not required for the implementation of the Remedial Action.

7.2.7 Equipment and Material Staging

All equipment and materials will be stored at the Site in accordance with the requirements of this RAWP, manufacturer's recommendations, and in conformity to applicable statutes, ordinances, regulations and rulings of the public authority having jurisdiction. The Contractor shall maintain accurate records documenting the measures taken to protect each equipment item. The Contractor shall not store materials or encroach upon private property without the written consent of the owners of such private property. No work shall commence until Notice To Commence work is provided by the Remedial Engineer.

7.2.8 Demobilization

Disturbed areas resulting from remediation activities will be restored or addressed during construction activities.

All remediation and construction materials will be disposed of in accordance with the applicable rules and regulations. General refuse will be handled in accordance with the rules and regulations of the New York City Department of Sanitation.

7.2.9 Utility Markout and Easement Layout

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

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

7.2.10 Required Permits

A complete list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is included as Table 16. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the FER. In particular, an EPA Underground Injection Control (UIC) Permit, consistent with 40 CFR 144-147, will be required if injections are implemented.

7.2.11 Site Security and Signage

The Site building is currently secured with locking doors and 24/7 security within Rochdale Village. A project sign will be erected at the entrance to the Site.

7.2.12 Pre-Remedy Meeting with NYSDEC

Prior to contractor mobilization to the Site, a meeting will be held with the NYSDEC, the Remedial Engineer and the selected contractor.

7.2.13 Estimated Remedial Action Costs

The estimated cost to implement the Remedial Action is approximately $275,000. An itemized summary of estimated costs is included as Table 14.

7.2.14 Deviations from the Remedial Action Plan

During the implementation of the RAWP, any material deviation from the RAWP will be noted and immediately brought to the attention of the RE. The RE or his/her representative will contact the NYSDEC Project Manager and determine if the deviation necessitates a formal RAWP modification and NYSDEC approval. If no formal RAWP modification is required, the deviation will be noted in the Site reports and explained in the FER.

7.3 Reporting

7.3.1 Daily Reporting

Daily reports will be submitted to the NYSDEC and NYSDOH Project Managers by the end of each day following the reporting period and will include:

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

Daily reporting will be conducted during active Site remediation periods including SSDS installation and groundwater chemical injection.

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

Daily reports will include a description of weekly activities keyed to an alphanumeric map for the Site that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and any complaints received from the public.

A Site map that shows a predefined alphanumeric grid for use in identifying locations described in reports submitted to NYSDEC is provided as Figure 7.

The NYSDEC assigned project number will appear on all reports.

7.3.2 Monthly Reporting

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of the following month and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e., tons of material exported and imported, etc.);
- Photographs of the work completed during the reporting period;
- Description of approved activity modifications, including changes to work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

7.3.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the Final Engineering Report.

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

7.3.4 Complaint Management Plan

All complaints received will be logged in by the Site Superintendent and reported in the daily report. Each complaint will be investigated as to its validity, the source determined, and a resolution adopted. Once a remedy has been put in place it will be recorded with the original complaint and reported in the daily report.

8.0 REMEDIAL ACTION IMPLEMENTATION: INSTALL SSDS

An active SSDS will be installed to depressurize beneath the building slab beneath the Site.

8.1 Sub-slab Depressurization System

An active SSDS will be installed to minimize the potential for vapor intrusion. The system will be operated on a continuous basis. The active SSDS will be installed in conjunction with the active SSDS installed throughout Mall #1 as part of the approved IRM WP.

Active Depressurization/Venting System
The layouts and details are included on drawings X-100 through X-104, included in Appendix F. The active SSDS is a permanent Engineering Control (EC) for the Site.

The SSDS will depressurize below the current building slab as compared to the building environment. The SSDS has been designed to create a pressure differential of approximately -0.02 in-wc beneath the building slab, as compared to the building air pressure; however, differential pressure readings above -0.004 in-wc will be considered acceptable.

Suction Pits
The SSDS will consist of one suction pit installed beneath the Site building slab that will be connected to a fan on the roof via cast iron (interior) and PVC (exterior) piping. To create the suction pit, the existing slab will be saw cut and the underlying soil will be removed to a depth of at least 18 inches. The void space will be lined with geotextile fabric and a layer of ¾" clean stone aggregate (or similar material).

The layout of the proposed suction pits is included on drawing X-101 and the details are shown on drawing X-104, both in Appendix F.

Crack Sealing
The existing building slab will be inspected for cracks. If any are identified, they will be filled with non-VOC sealant (e.g., Retro-Coat™ caulk by Land Science Technologies).

Piping and Exhaust Location
A cast iron pipe (6" nominal size) will be inserted into the suction pit. The slab penetration points will be sealed with a chemically-resistant sealant (e.g., bituthene liquid membrane). The riser pipes will connect to exterior common PVC header pipes that will run outside the building to the roof. All horizontal piping runs will be slightly pitched back towards the pressure relief point to allow for drainage of any moisture. The final location of all vertical riser piping, header piping, and roof mounts will be determined by a Professional Engineer in consultation with the building owner.

A blower capable of creating the required flow will be mounted on the roof. In order to size the fan, a blower test (described below) will be performed after the sub-grade components are installed under the building slab.

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust will be:

1. at least twelve inches above the surface of the highest roof level;
2. at least ten feet above ground level;
3. at least ten feet away from any opening that is less than two feet below the exhaust point; and
4. at least ten feet from any adjoining or adjacent buildings, or HVAC intakes or supply registers.

The exhaust location, labeling, alarms and system components have been designed in general accordance with the NYSDOH *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (2006).

The proposed piping network layout is shown on drawing X-101, the roof layout is shown on drawing X-102, and details are shown on drawing X-103, in Appendix F.

Pressure Monitoring Points
Several pressure monitoring points will be installed through the slab to confirm the resulting pressure field.

The proposed pressure monitoring point locations are shown on drawing X-100 and the details are shown on drawing X-103, both in Appendix F.

Blower Test
Following the installation of the suction pits, a blower test will be completed in order to size the blower. A regenerative blower will be mobilized to the Site and a step-test will be completed to determine the flows from each suction pit to depressurize below the slab at least -0.02 in-wc. The above-grade head losses will be modeled using the Darcy-Weisbach equation.

If the blower test shows that the pressure field extension is not attainable with commercially-available fans, additional suction pits may be installed.

Pressure Testing and Alarm System
An alarm system will be installed that will notify the building management if a drop in pressure indicates that the system is not operating as designed. In general, a pressure switch will be placed on the main riser with a field-set switch point. The alarm will be a horn-strobe mounted in the commercial space.

The locations of the pressure switches and alarms are shown on drawings X-101 and X-102 in Appendix F.

Initial Start-Up
After the depressurization and venting systems have been installed, the following will be completed:

1. visual inspection of building slabs for any cracks or holes. If any are identified, they will be sealed using caulk;
2. measurement of the sub-slab pressure at the monitoring point to ensure that the remedial goal of -0.02 in-wc has been achieved. If the start-up is not conducted during heating season, the pressure differential will also be measured during heating season to ensure that the remedial goal of -0.02 in-wc has been achieved. While -0.02 in-wc is the design goal, differential pressure readings above -0.004 in-wc will be considered acceptable.
3. if appliances that rely on natural draft for exhaust of carbon monoxide and other combustion gases are identified, the potential for back draft will be tested. The potential for back draft will be determined using a carbon monoxide meter. If any back draft is identified, it will be corrected.

Operations, Maintenance and Monitoring (OM&M) Plan
A draft Operations, Maintenance and Monitoring (OM&M) Plan is included in Appendix G. The OM&M Plan includes the currently specified items and will be updated following the completion of the SSDS.

Shut-down
A proposal to discontinue the SSDS may be made based on confirmatory sampling. The SSDS will not be shut-down unless written approval is obtained from NYSDEC and NYSDOH.

8.2 Materials Transport Off-Site

Soil/fill will be excavated during the installation of suction pits. The material will be drummed and staged for disposal. All transport of materials will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6NYCRR Part 364.

Trucks removing drums from the Site will be loaded within the loading dock of Key Food, located adjacent to the Site within Mall #1. Trucks will exit Rochdale Village on 166th Street and make a right on Baisley Boulevard, followed by a right on Rockaway Boulevard. Trucks will head west on Rockaway Boulevard to the Van Wyck Expressway.

Materials transport is further discussed in the Site-specific SMMP, included in Appendix D.

8.3 Community Air Monitoring Plan (CAMP)

The main goal of the CAMP is to keep objectionable odors, VOCs and/or particulates from reaching the surrounding community. The NYSDOH Generic CAMP, which includes monitoring for VOCs and particulates, will be implemented.

Should objectionable odors be produced during excavation, the area to be disturbed at any one time will be limited and, if necessary, foam cover will be utilized (Rusmar Incorporated AC-645 Long Duration Foam or approved equivalent), following the manufacturer’s recommended application rate.

The CAMP is included as Appendix A.

9.0 REMEDIAL ACTION IMPLEMENTATION: INSTALL SVE

In order to address concentrations of PCE in soil, an SVE system has been designed and will be installed as detailed below. In coordination with the active SSDS, one vertical SVE extraction well will be installed in the area adjacent to the former dry cleaning equipment.

9.1 Soil Vapor Extraction

The goals of the permanent SVE for the Site are to remove VOCs from the soil and soil vapor, and prevent off-Site migration of soil vapors. One, two-inch diameter vertical SVE well will be constructed of slotted (0.020 inch) schedule 40 PVC screen and advanced from grade to a depth of three feet above the water table. The total length of the screen will be determined at the time of installation to account for the water table fluctuation.

The SVE extraction well piping will be plumbed in to the adjacent SSDS suction pit piping, and connected to a regenerative blower on the roof. The extraction well will be fitted with a valve tying in to the SSDS piping to regulate flow. Cast-iron piping and valves will be utilized for all above grade interior piping. The discharge location for the blower will be located on the building roof consistent with the NYSDEC DAR-1 guidance. A blower test will be completed to size the blower in accordance with Section 8.1 of this RAWP. The placement of the SVE system is shown in Figure 9.

The on-site SSDS suction pits will be installed during implementation of the IRM. The overall design goal of the SSDS is to create a pressure differential of approximately -0.02 in-wc beneath the building slab, as compared to the building air pressure; however, differential pressure readings above -0.004 in-wc will be considered acceptable. The design goal of the SVE is to create a pressure differential of approximately -0.1 in-wc beneath the building slab in the area surrounding the vertical extraction well. The pressure monitoring point is located within a 20-foot radius of the proposed extraction well and will be utilized to ensure design goals are met. Communication results will be included in the Final Engineering Report (FER).

In accordance with the regulatory requirements of the Air Toxics Control Program 6 NYCRR Part 212, the degree of air cleaning required for sources of toxic air contaminants is based on an Environmental Rating assigned by a DEC permit engineer. Ratings are based on a contaminant's toxicity (high, moderate or low), predicted offsite air concentrations, the proximity of ambient impacts to neighboring communities, existing background concentrations and the potential future growth of the impacted area. One effluent sample will be collected at start up of the SVE system from the blower associated with the SVE extraction well. The effluent sample will be collected from the discharge stack and analyzed for VOCs by EPA Method TO-15 by and ELAP-certified laboratory. The system will then be shut down pending analytical results. Once results are received, calculations will be completed to identify the mass emission rate in pounds per day (lb/day) of PCE within the blower effluent based on a system test subsequent to installation. These calculations will be used to determine if air cleaning is required for the on-site source of PCE-contamination within the effluent. If air cleaning is required based upon by those calculations, appropriate equipment will be installed prior to start-up of the SVE system. Calculations will be included in the FER and NYSDEC will be notified prior to system start-up.

The SVE well will be operated and maintained into the future under a Site Management Plan (SMP). Any plan to suspend or terminate SVE operations will require NYSDEC approval. Following termination of the SVE well, the active SSDS will be operated as a long-term engineering control, as described in Section 7.1.

Operations, Maintenance and Monitoring (OM&M) Plan
A draft Operations, Maintenance and Monitoring (OM&M) Plan for the SVE is included in Appendix G. The OM&M Plan includes the currently specified items and will be updated following the completion of the SVE. The SVE layout is shown on Figure 9. Specifications are included in Appendix F.

10.0 REMEDIAL ACTION IMPLEMENTATION: IN-SITU CHEMICAL TREATMENT

As discussed in Section 6.1.2, the components of the remedial action to address groundwater impacts include in-situ chemical oxidation (ISCO) and continued groundwater monitoring.

10.1 Pilot Test

The ISCO pilot test will be conducted to evaluate the potential full scale use of the ISCO technology to treat cVOCs in groundwater at the Site. The pilot test will include one round of sampling at the Site. One groundwater sample will be collected from the previously installed permanent groundwater monitoring well JS-GW-1 and analyzed for oxidant demand. This location is adjacent to the dry cleaning equipment room and contained the highest PCE concentration (620 ug/l) during Tenen's RI. One soil boring will be advanced in the area adjacent to JS-GW-1 and a soil sample will be collected and analyzed for soil oxidant demand. Also, a permanent shallow groundwater well will be installed at the Site at the southern border of the proposed injection area, and analyzed for VOCs. This well, JS-GW-7, will also be sampled as part of post-remedial groundwater monitoring, discussed in Section 9.3 of this RAWP. The proposed sampling locations for the ISCO pilot test are shown on Figure 6.

The objective of the pilot test is to gain information sufficient to define the conditions needed to support an evaluation of the feasibility and long-term effectiveness of cVOC treatment using the ISCO remedial approach. The type and dosing of the oxidant will be determined after the completion of the ISCO pilot test.

Site-specific data will be collected in order to determine the following:

- Lateral spacing for injection points;
- The volume and concentration of chemical oxidant to be injected;
- Field soil oxidant demand; and,
- The potential for rebound of chemical concentrations following one injection of chemical oxidant in order to evaluate the solution strength and frequency of additional injections (if needed) during the full-scale ISCO implementation.

The ISCO pilot test design was developed based on Tenen's understanding of the contaminant mass in the groundwater at the Site. The proposed injection area was selected to target the area of highest cVOC concentrations and is shown on Figure 6.

10.2 ISCO Implementation

The goal of the in-situ chemical oxidation treatment for the Site is to break down contaminant cVOCs into less toxic compounds through the introduction of oxidants into the subsurface via injection. A Design Document, to be provided following implementation of the ISCO pilot test, will describe the type of treatment chemical and dosing of the proposed injection points. The Design Document will be submitted to NYSDEC for review and approval.

In general, the ISCO treatment will include the advancement of several injection points within an approximately 30 by 30 foot area surrounding JS-GW-1. The boundary of the injection area is limited along the eastern border of the Site due to a boiler room and the former PCE equipment room. The application of chemical injection, regardless of the method, is considered a Class V Well under the EPA Underground Injection Control (UIC) Program. Class V Wells are "used to inject non-hazardous fluids underground". A UIC Permit will be obtained prior to application of either compound.

10.3 Post-Remedial Groundwater Monitoring

Elevated levels of PCE have been detected in the groundwater at the Site. Groundwater will be treated via ISCO to destroy the bulk of any remaining contaminants; however, residual contaminants may remain at low concentrations following the chemical treatment. Groundwater will be monitored by sampling several previously-installed permanent monitoring wells. Samples will be collected in accordance with the QAPP and results will be reported in the Annual Report required by the SMP, as detailed in Section 12.2.

Post-remedial groundwater sampling will be completed in accordance with a Site Management Plan (SMP). It is anticipated that groundwater samples will be collected quarterly for two years (i.e., eight quarters).

Permanent groundwater wells proposed for post-remedial groundwater sampling include the following: JS-GW-1, JS-GW-3S and JS-GW-7. Proposed post-remedial groundwater monitoring well locations are shown on Figure 8.

Groundwater samples will be analyzed for VOCs.

10.4 Monitoring Well Decommissioning

Existing monitoring wells that will not be part of the long-term monitoring will be decommissioned in accordance with NYSDEC Groundwater Monitoring Well Decommissioning Policy (CP-43), dated November 3, 2009.

11.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

The successful implementation of the Remedial Action will result in the following:

- All soil left on-site meets the applicable Commercial Use SCOs for cVOCs. All soil left on-site that does not meet the Track 1 Unrestricted Use and Protection of Groundwater SCOs will be capped. A SVE vertical well will be installed and tied into the SSDS system with the goal of removing cVOC contamination in soil.
- In-situ chemical oxidation (ISCO) treatment via injection points is proposed to address the cVOC contamination within the groundwater. Residual groundwater contamination following implementation of ISCO treatment is possible and post-remedial groundwater monitoring is proposed.
- Residual contamination may remain in the sub-slab soil vapor with the potential for indoor air impacts. An active SSDS will address any residual soil vapor impacts.

Since residual contaminated soil, groundwater and soil vapor will or may remain after the remedy is complete, Engineering and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described below. Long-term management of EC/ICs and of residual contamination will be executed under a Site-specific Site Management Plan (SMP) that will be developed and included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have three primary EC systems. These are:

- Active Sub-slab Depressurization System;
- Soil Vapor Extraction System
- Composite Cover System; and,
- Post-Remedial Groundwater Monitoring.

The SSDS, SVE and composite cover system would be long-term ECs. While post-remedial groundwater monitoring is part of the selected remedy, it is presented as an EC because it will continue after the FER and SMP are submitted. The FER will report residual contamination on the Site in tabular and map form, including any exceedances.

12.0 ENGINEERING CONTROLS

12.1 Engineering Control Systems – On-Site

As discussed above, four engineering controls (ECs) will be utilized at the Site: an active SSDS, an SVE system, a composite cover system and continued groundwater monitoring. The ECs will be established in an Environmental Easement assigned to the property by the titleholder and will be implemented under a SMP. The post-remedial groundwater monitoring is considered an EC only because it will be continued following submittal of the FER. The conceptual approach, general system design, maintenance and monitoring (OM&M) requirements and criteria for termination of each of these systems are described below.

12.1.1 Description of Engineering Controls

12.1.1.1 Sub-Slab Depressurization and Soil Vapor Extraction System

The active SSDS and SVE will be completed and started-up as described in Sections 8.0 and 9.0 of this RAWP.

12.1.1.2 Composite Cover System

Exposure to soil, groundwater, and soil vapor would be prevented by the existing composite cover system that will be maintained the Site.

The SMP will outline the procedures required in the event the composite cover system and underlying residual contamination are disturbed and planned inspections of the composite cover system.

12.1.1.3 *Post-Remedial Groundwater Monitoring*

Long-term monitoring (planned for eight quarterly events) of the groundwater will be conducted to confirm groundwater concentrations. All quarterly monitoring samples will be analyzed for VOCs. Groundwater sampling is further described in Section 9.3 of this RAWP. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the SMP.

12.1.2 Criteria for Termination of Remedial Systems

12.1.2.1 *Sub-Slab Depressurization System*

The operation of the SSDS will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the SSDS may be made based on confirmatory sampling.

12.1.2.2 *Composite Cover System*

The composite cover system are long-term ECs and will be maintained throughout the life of the building. Any breaches of the composite cover will be repaired in accordance with the SMP.

12.1.2.3 *Post-Remedial Groundwater Monitoring*

Groundwater monitoring to confirm the groundwater concentrations is planned for eight quarters.

Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the SMP.

12.1.2.4 *Soil Vapor Extraction*

The operation of the SVE will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the SSDS may be made based on confirmatory sampling.

13.0 INSTITUTIONAL CONTROLS

An Institutional Control (IC) will be required to manage residual contamination on Site and off-site and to ensure that the ECs remain protective of public health and the environment. The ICs consist of two elements designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan.

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, will be recorded with Queens County for the Site and any off-site property requiring mitigation to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

13.1 Environmental Easement

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

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

- On-Site environmental monitoring devices, including but not limited to, [groundwater monitor wells and soil vapor probes], must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site and off-site properties requiring mitigation is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

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

The Environmental Easement will incorporate the ICs required to implement, maintain and monitor the ECs, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restrict the use of the Site to commercial uses only, unless discontinued or modified with the approval of NYSDEC.

The Environmental Easement for the controlled property will include the following requirements:

- requires the remedial party or Site owner to complete and submit to NYSDEC a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health (NYCDOH); and

- requires compliance with the NYSDEC-approved SMP.

13.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The SMP is submitted as part of the FER, but will be written as a complete and independent document. Site management requirements continue in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site and off-site management responsibilities defined in the Environmental Easement and SMP are performed.

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

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of site monitoring; (3) an Operation and Maintenance (O&M) Plan for implementation of remedial containment systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Periodic Review Report (PRR) submitted under the SMP will be based on a calendar year. The first PRR will be submitted to the NYSDEC within 15 months after the date of COC issuance. Any lapses in the engineering or institutional controls noted in the PRR will be required to be corrected expeditiously and the NYSDEC notified of the correction. The SMP will include the following:

1. Introduction with purpose, summary of remediation and site conditions;
2. Institutional and Engineering Control Plan;
3. O&M Plan;
4. Site Monitoring Plan;
5. Site maintenance requirements;
6. Citizen Participation Plan;
7. Personnel organization and responsibilities;
8. Health and Safety Plan;
9. Records and forms;
10. Emergency Contingency Plan; and
11. Copies of Environmental Easement and applicable Site plans, including electronic versions.

The Institutional and Engineering Control Plan will include, but is not 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 buildings developed on the site, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls; and,
- maintaining site access controls and NYSDEC notification; and the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

The OM&M Plan will include, but is not limited to:

- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining access controls and Department notification; and
- providing NYSDEC access to the site and O&M records.

The Site Monitoring Plan will include, but is not limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to NYSDEC; and,
- monitoring for soil vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

The Site Management Reporting Plan will include, but is not limited to:

- Details regarding post-COC reporting requirements, including a schedule
- The contents of the annual report, including:
    - an evaluation of the EC/ICs, EC/IC certifications, results of period Site inspections and deliverables to be generated;
    - frequency and type of the EC/IC and Site inspections;
    - inspection forms, sampling data and maintenance reports;
    - an evaluation of records and reporting; and,
    - corrective measure plans.

14.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to the NYSDEC Project Manager within 90 days of completing the remedial action. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site and off-site properties requiring mitigation. The Final Engineering Report will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

The Final Engineering Report will include written and photographic documentation of all remedial work performed under this remedy. Photographs will be taken of all remedial activities and submitted to NYSDEC in digital format after completion of active Site remediation. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site and off-site properties requiring mitigation after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted Use SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

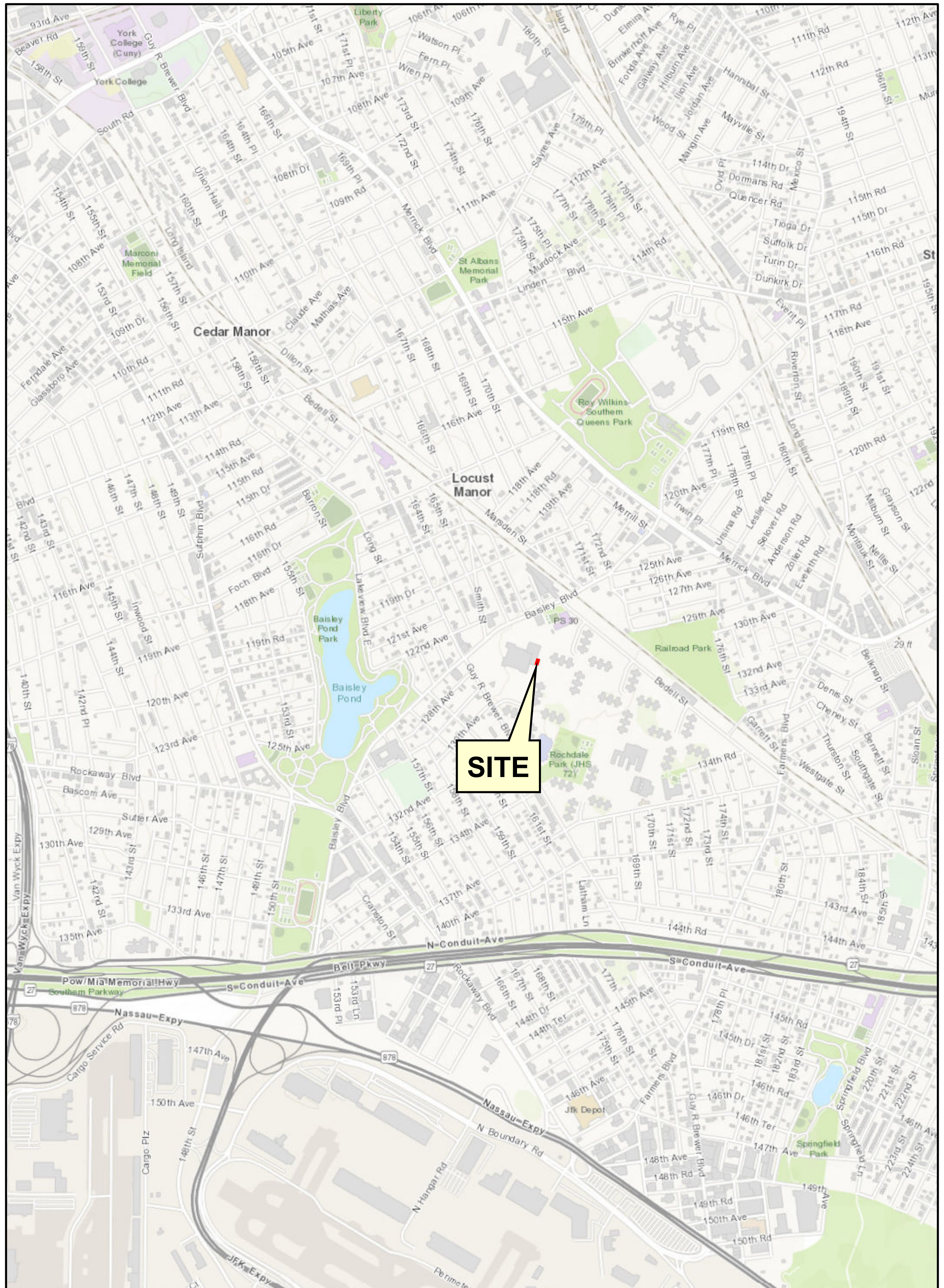
The Final Engineering Report will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

This FER will include the following:

1. Certification by the RE that the data generated is useable and meets the remedial requirements;
2. Certification by the RE that any financial assurance mechanisms required by the NYSDEC have been executed;
3. Certification by the RE that the remedial work conformed to the RAWP;
4. Certification by the RE that dust, odor, and vapor control measures were implemented during invasive work and conformed with the RAWP;
5. Certification by the RE that all the remedial waste was transported and disposed in accordance with the RAWP;
6. Certification by the RE that the source approval and sampling of imported acceptable fill was completed in a manner consistent with the methodology of the RAWP;
7. Summary of the remedy and all remedial actions completed;
8. Description of any problems encountered and their resolutions;
9. Description of the deviations from the approved RAWP;
10. Listing of waste streams, quantity of materials disposed, and where they were disposed;
11. Analytical QA/QC completed for the environmental media sampling during the remedial activities, including DUSR or other data validation;
12. List of the remediation standards applied to the remedial actions;
13. List of all applicable local, regional, and national governmental permits, certificates, or other approvals required for the remedial and development work;
14. Tables and figures containing all pre- and post-remedial data, including volumes of soil removed (as applicable);
15. Description of source and quality of fill (as applicable);
16. “As-built” drawings including remediation areas, waterproofing and permanent composite cover structures;
17. Air quality and dust monitoring data, including any supporting documentation on the decisions made based on the data;
18. Copies of all the submitted periodic reports; and
19. Copies of all manifests of off-site transport of waste material.

The FER will meet the requirements of DER-10 5.8(b) and (c). All documents and reports submitted to the NYSDEC in an electronic format that complies with NYSDEC’s Electronic Document Standards (EDS) or as otherwise directed by DER. All data generated will be submitted in an electronic data deliverable (EDD) that complies with the DEC's Electronic Data Warehouse Standards (EDWS) or as otherwise directed by DER. These digital documents shall be in PDF form and, where appropriate, supplemented by photos and Microsoft Excel files.

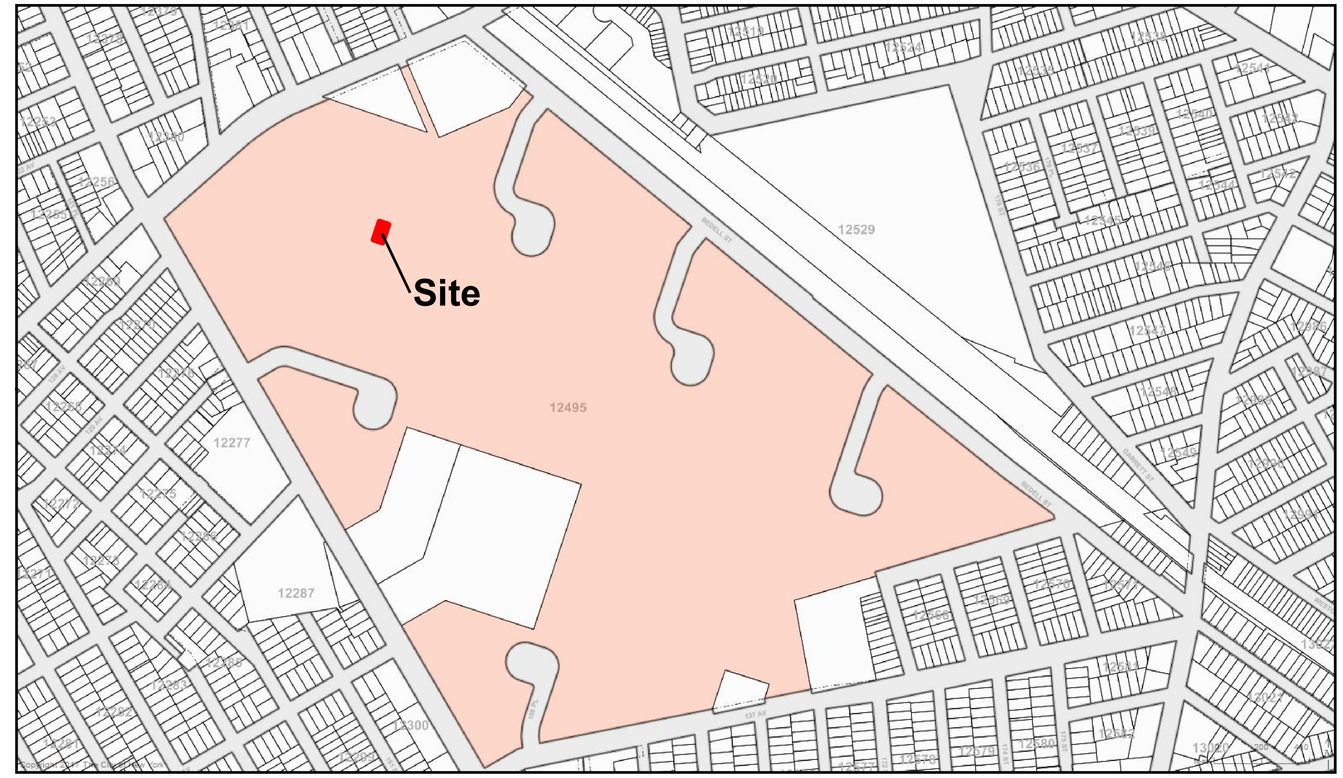
Figures



Basemap: ESRI, World Topo Map
USGS Jamaica, NY Quadrangle

Site Location

Feet: 0, 1,000, 2,000, 4,000



http://gis.nyc.gov/taxmap/map.htm

Department of Finance Digital Tax Map

Feet: 0, 400, 800, 1,600

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2016 v2

Feet: 0, 400, 800, 1,600

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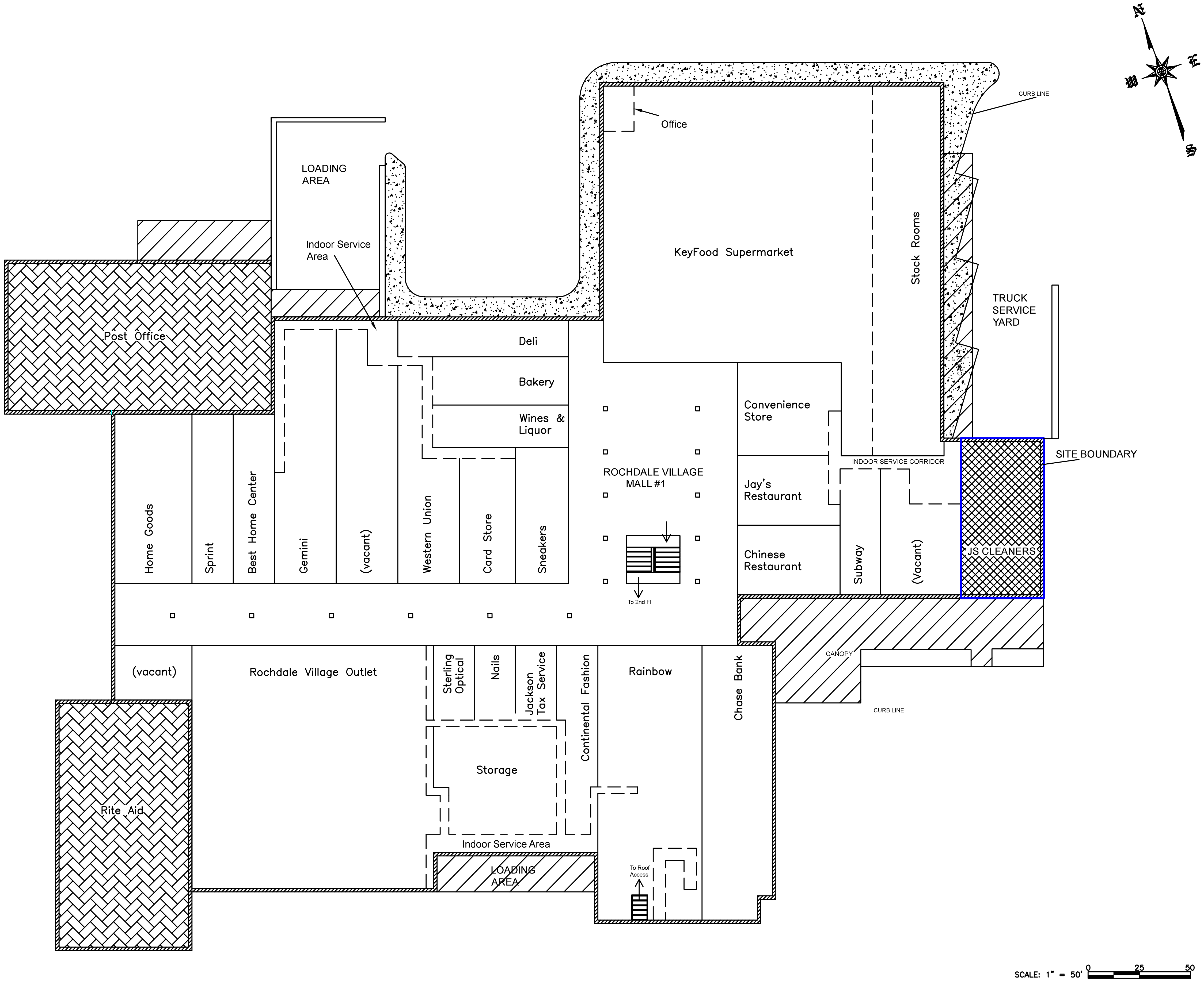
Drawn By	Checked By	Date	Scale
LM	KM	November 2017	As Noted

Drawing Title: **Site Location Map**

Drawing No: **Figure 1**



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DRAWN BY: KM

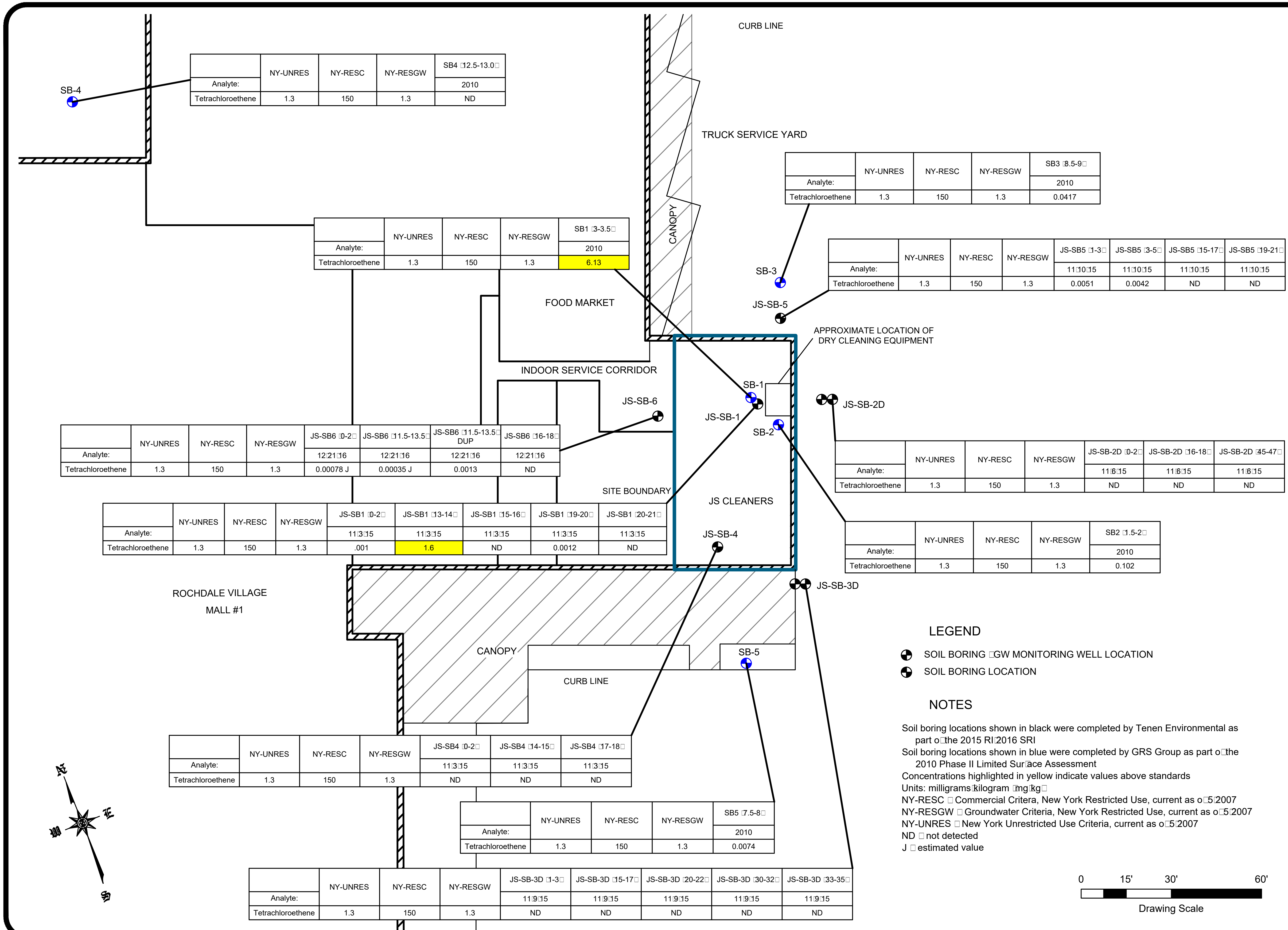
CHECKED BY: MC

DATE: MARCH 2016

SCALE: AS NOTED

DRAWING TITLE: SITE LAYOUT

DRAWING NO.: FIGURE 2



Analyte:	NY-UNRES	NY-RESC	NY-RESGW	SB4 (12.5-13.0) 2010
Tetrachloroethene	1.3	150	1.3	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	SB3 (8.5-9) 2010
Tetrachloroethene	1.3	150	1.3	0.0417

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	SB1 (3-3.5) 2010
Tetrachloroethene	1.3	150	1.3	6.13

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB5 (1-3) 11/10/15	JS-SB5 (3-5) 11/10/15	JS-SB5 (15-17) 11/10/15	JS-SB5 (19-21) 11/10/15
Tetrachloroethene	1.3	150	1.3	0.0051	0.0042	ND	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB6 (0-2) 12/21/16	JS-SB6 (11.5-13.5) 12/21/16	JS-SB6 (11.5-13.5) DUP 12/21/16	JS-SB6 (16-18) 12/21/16
Tetrachloroethene	1.3	150	1.3	0.00078 J	0.00035 J	0.0013	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB-2D (0-2) 11/6/15	JS-SB-2D (16-18) 11/6/15	JS-SB-2D (45-47) 11/6/15
Tetrachloroethene	1.3	150	1.3	ND	ND	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB1 (0-2) 11/3/15	JS-SB1 (13-14) 11/3/15	JS-SB1 (15-16) 11/3/15	JS-SB1 (19-20) 11/3/15	JS-SB1 (20-21) 11/3/15
Tetrachloroethene	1.3	150	1.3	.001	1.6	ND	0.0012	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	SB2 (1.5-2) 2010
Tetrachloroethene	1.3	150	1.3	0.102

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB4 (0-2) 11/3/15	JS-SB4 (14-15) 11/3/15	JS-SB4 (17-18) 11/3/15
Tetrachloroethene	1.3	150	1.3	ND	ND	ND

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	SB5 (7.5-8) 2010
Tetrachloroethene	1.3	150	1.3	0.0074

Analyte:	NY-UNRES	NY-RESC	NY-RESGW	JS-SB-3D (1-3) 11/9/15	JS-SB-3D (15-17) 11/9/15	JS-SB-3D (20-22) 11/9/15	JS-SB-3D (30-32) 11/9/15	JS-SB-3D (33-35) 11/9/15
Tetrachloroethene	1.3	150	1.3	ND	ND	ND	ND	ND

LEGEND

- SOIL BORING / GW MONITORING WELL LOCATION
- SOIL BORING LOCATION

NOTES

Soil boring locations shown in black were completed by Tenen Environmental as part of the 2015 RI/2016 SRI
Soil boring locations shown in blue were completed by GRS Group as part of the 2010 Phase II Limited Surface Assessment
Concentrations highlighted in yellow indicate values above standards
Units: milligrams/kilogram (mg/kg)
NY-RESC = Commercial Critera, New York Restricted Use, current as of 5/2007
NY-RESGW = Groundwater Criteria, New York Restricted Use, current as of 5/2007
NY-UNRES = New York Unrestricted Use Criteria, current as of 5/2007
ND = not detected
J = estimated value

0 15' 30' 60'
Drawing Scale

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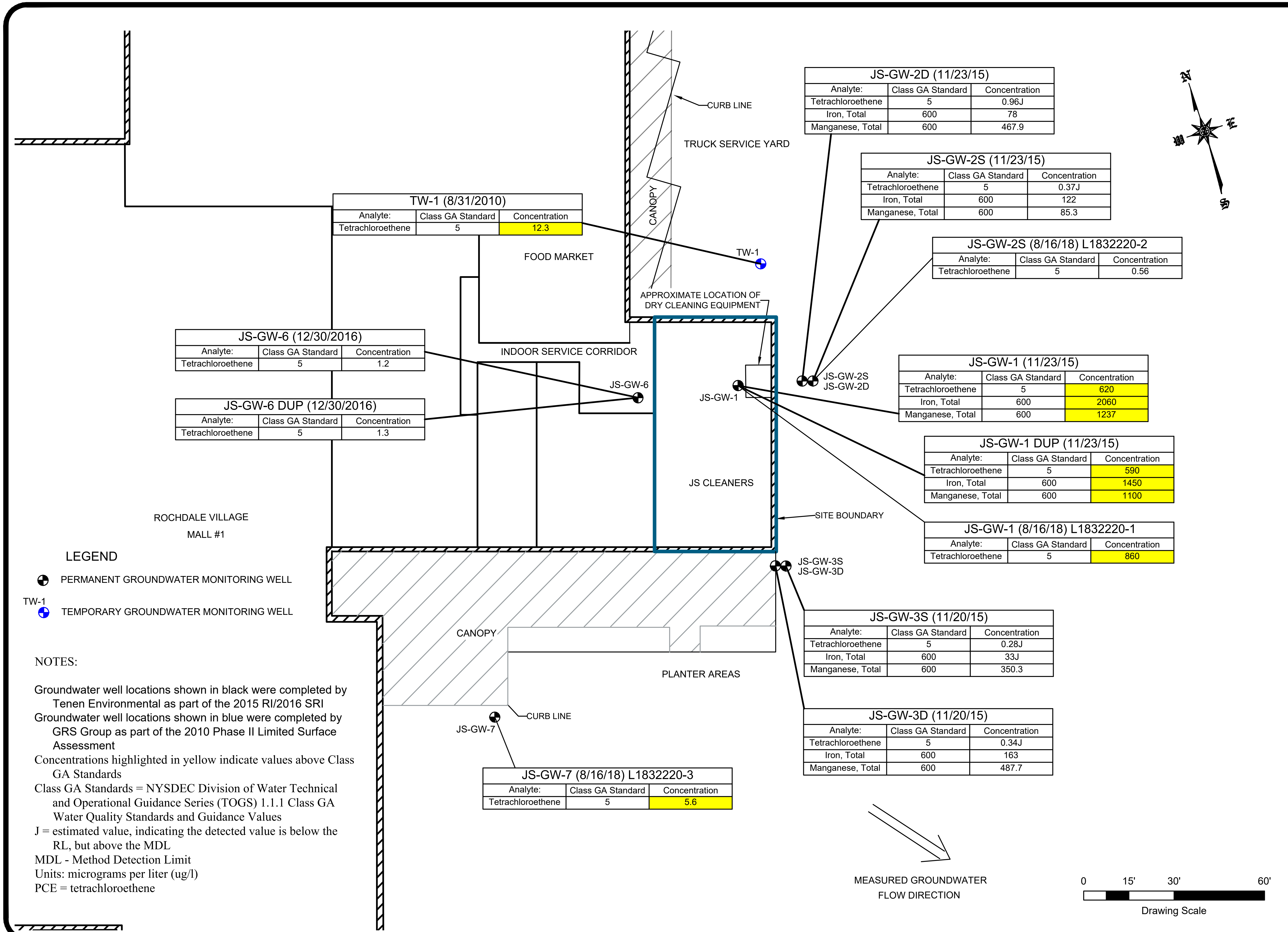
DRAWN BY: LM
CHECKED BY: KM
DATE: September 2017
SCALE: As Noted

DRAWING TITLE: Summary of PCE in Soil
DRAWING NO.: Figure 3



JS-GW-2D (11/23/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	0.96J
Iron, Total	600	78
Manganese, Total	600	467.9

JS-GW-2S (11/23/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	0.37J
Iron, Total	600	122
Manganese, Total	600	85.3

TW-1 (8/31/2010)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	12.3

JS-GW-2S (8/16/18) L1832220-2		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	0.56

JS-GW-6 (12/30/2016)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	1.2

JS-GW-1 (11/23/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	620
Iron, Total	600	2060
Manganese, Total	600	1237

JS-GW-6 DUP (12/30/2016)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	1.3

JS-GW-1 DUP (11/23/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	590
Iron, Total	600	1450
Manganese, Total	600	1100

JS-GW-1 (8/16/18) L1832220-1		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	860

JS-GW-3S (11/20/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	0.28J
Iron, Total	600	33J
Manganese, Total	600	350.3

JS-GW-3D (11/20/15)		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	0.34J
Iron, Total	600	163
Manganese, Total	600	487.7

JS-GW-7 (8/16/18) L1832220-3		
Analyte:	Class GA Standard	Concentration
Tetrachloroethene	5	5.6

LEGEND

PERMANENT GROUNDWATER MONITORING WELL

TW-1 TEMPORARY GROUNDWATER MONITORING WELL

NOTES:

Groundwater well locations shown in black were completed by Tenen Environmental as part of the 2015 RI/2016 SRI

Groundwater well locations shown in blue were completed by GRS Group as part of the 2010 Phase II Limited Surface Assessment

Concentrations highlighted in yellow indicate values above Class GA Standards

Class GA Standards = NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Water Quality Standards and Guidance Values

J = estimated value, indicating the detected value is below the RL, but above the MDL

MDL - Method Detection Limit

Units: micrograms per liter (ug/l)

PCE = tetrachloroethene

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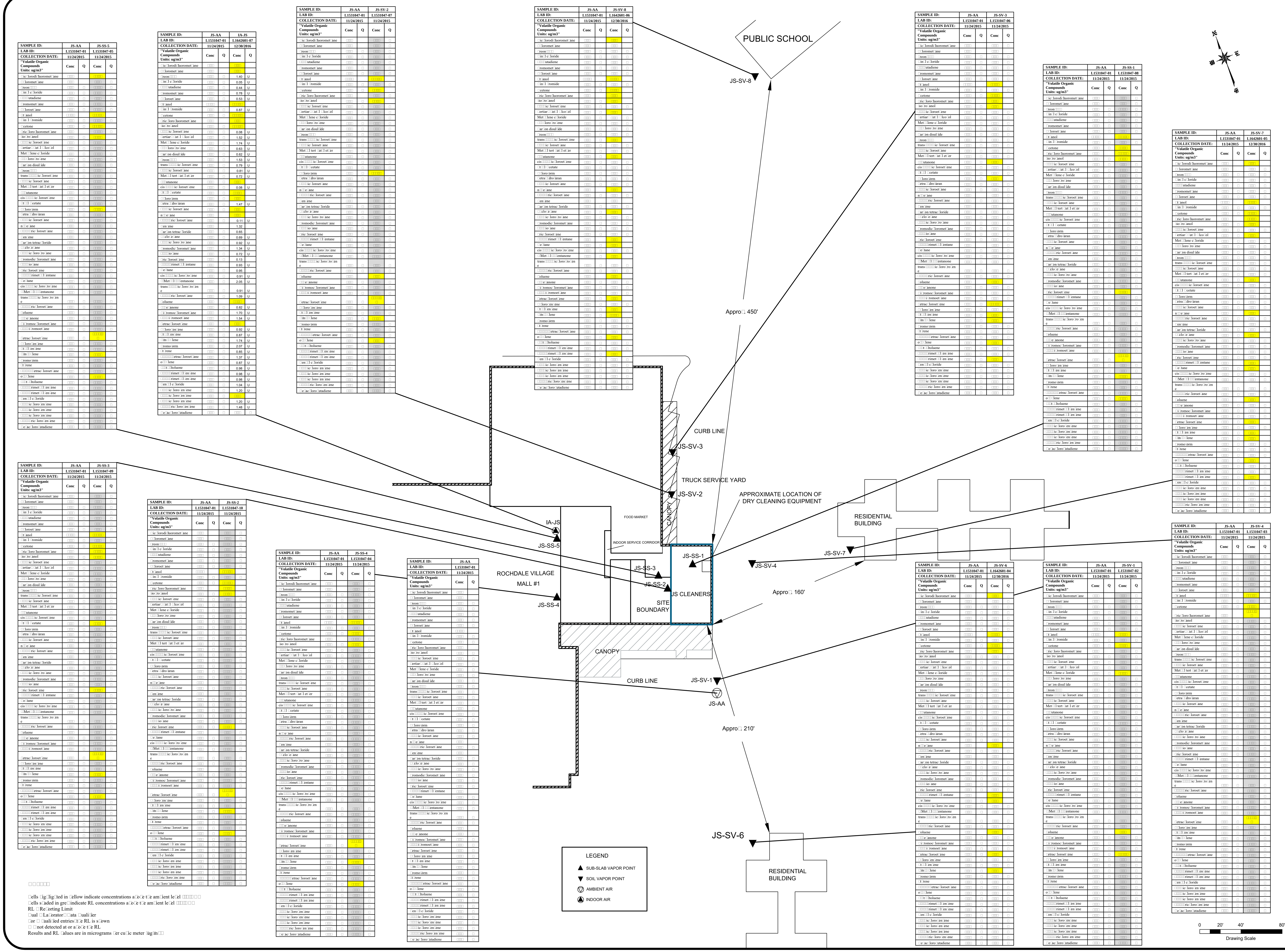
DRAWN BY	CHECKED BY	DATE	SCALE:
LM	KM	September 2018	As Noted

DRAWING TITLE:

Summary of Groundwater Concentrations above Class GA Standards

DRAWING NO.

Figure 4



SITE

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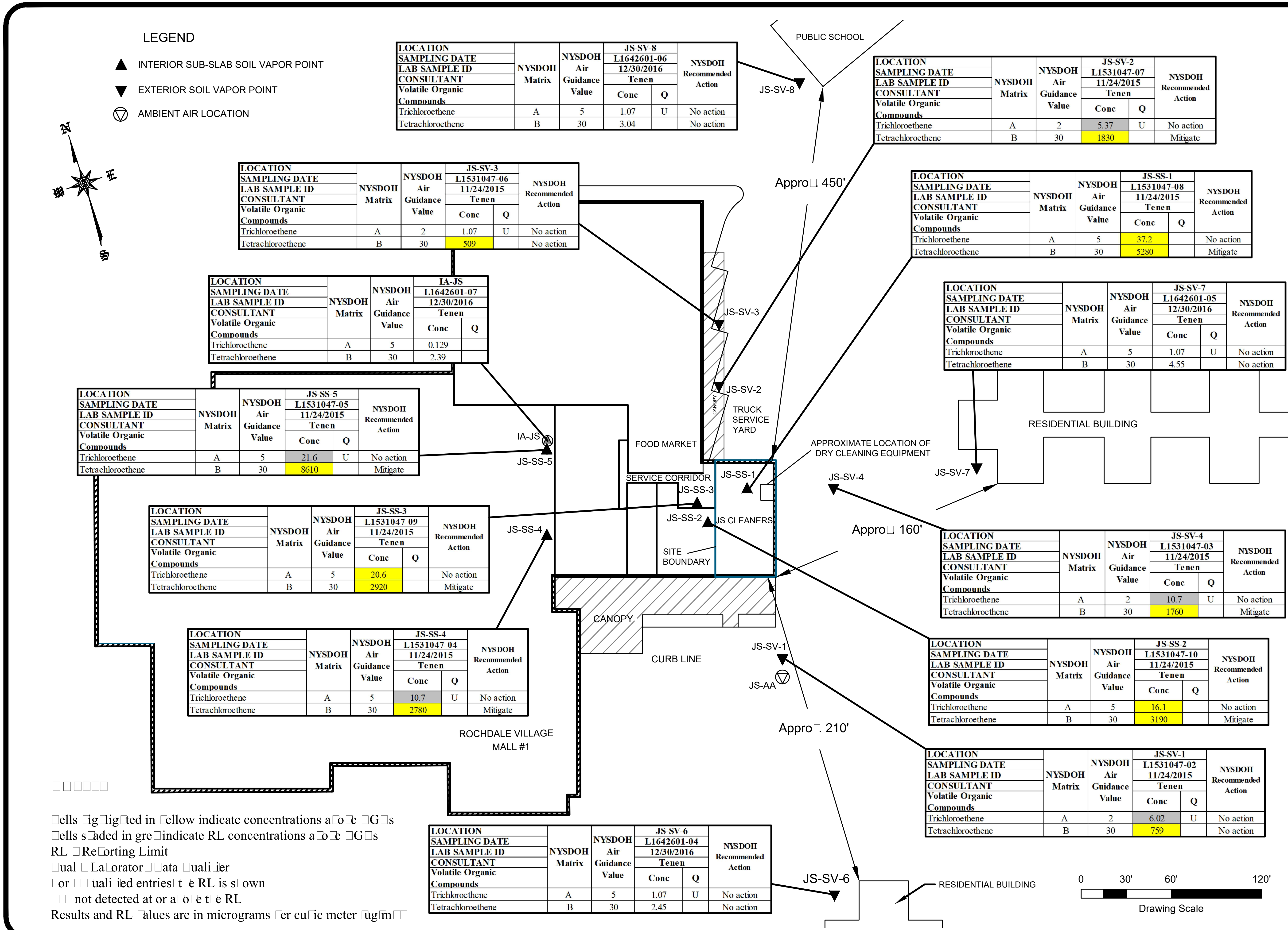
CHECKED BY: KM

DATE: September 2017

SCALE: As Noted

DRAWING TITLE:
Summary of Soil Vapor, Sub-slab Indoor Air Concentrations Compared to Ambient Air Concentrations

DRAWING NO.
Figure 5A



LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-8		NYSDOH Recommended Action
SAMPLING DATE			L1642601-06		
LAB SAMPLE ID			12/30/2016		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	1.07	U	No action
Tetrachloroethene	B	30	3.04		No action

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-2		NYSDOH Recommended Action
SAMPLING DATE			L1531047-07		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	2	5.37	U	No action
Tetrachloroethene	B	30	1830		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-3		NYSDOH Recommended Action
SAMPLING DATE			L1531047-06		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	2	1.07	U	No action
Tetrachloroethene	B	30	509		No action

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SS-1		NYSDOH Recommended Action
SAMPLING DATE			L1531047-08		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	37.2		No action
Tetrachloroethene	B	30	5280		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	IA-JS	
SAMPLING DATE			L1642601-07	
LAB SAMPLE ID			12/30/2016	
CONSULTANT			Tenen	
Volatile Organic Compounds			Conc	Q
Trichloroethene	A	5	0.129	
Tetrachloroethene	B	30	2.39	

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-7		NYSDOH Recommended Action
SAMPLING DATE			L1642601-05		
LAB SAMPLE ID			12/30/2016		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	1.07	U	No action
Tetrachloroethene	B	30	4.55		No action

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SS-5		NYSDOH Recommended Action
SAMPLING DATE			L1531047-05		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	21.6	U	No action
Tetrachloroethene	B	30	8610		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SS-3		NYSDOH Recommended Action
SAMPLING DATE			L1531047-09		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	20.6		No action
Tetrachloroethene	B	30	2920		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-4		NYSDOH Recommended Action
SAMPLING DATE			L1531047-03		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	2	10.7	U	No action
Tetrachloroethene	B	30	1760		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SS-4		NYSDOH Recommended Action
SAMPLING DATE			L1531047-04		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	10.7	U	No action
Tetrachloroethene	B	30	2780		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SS-2		NYSDOH Recommended Action
SAMPLING DATE			L1531047-10		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	16.1		No action
Tetrachloroethene	B	30	3190		Mitigate

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-1		NYSDOH Recommended Action
SAMPLING DATE			L1531047-02		
LAB SAMPLE ID			11/24/2015		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	2	6.02	U	No action
Tetrachloroethene	B	30	759		No action

LOCATION	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-6		NYSDOH Recommended Action
SAMPLING DATE			L1642601-04		
LAB SAMPLE ID			12/30/2016		
CONSULTANT			Tenen		
Volatile Organic Compounds			Conc	Q	
Trichloroethene	A	5	1.07	U	No action
Tetrachloroethene	B	30	2.45		No action

□□□□□□

□ells □ig□lig□ted in □ellow indicate concentrations a□o□e □G□s
□ells s□aded in gre□indicate RL concentrations a□o□e □G□s
RL □Re□orting Limit
□ual □La□orator□□ata □uali□ier
□or □ □uali□ied entries□t□e RL is s□own
□ □not detected at or a□o□e t□e RL
Results and RL □alues are in micrograms □er cu□ic meter □ug□m□□

SITE
JS Cleaners
Rochdale Village
165-50 Baisley Boulevard
Jamaica, Queens

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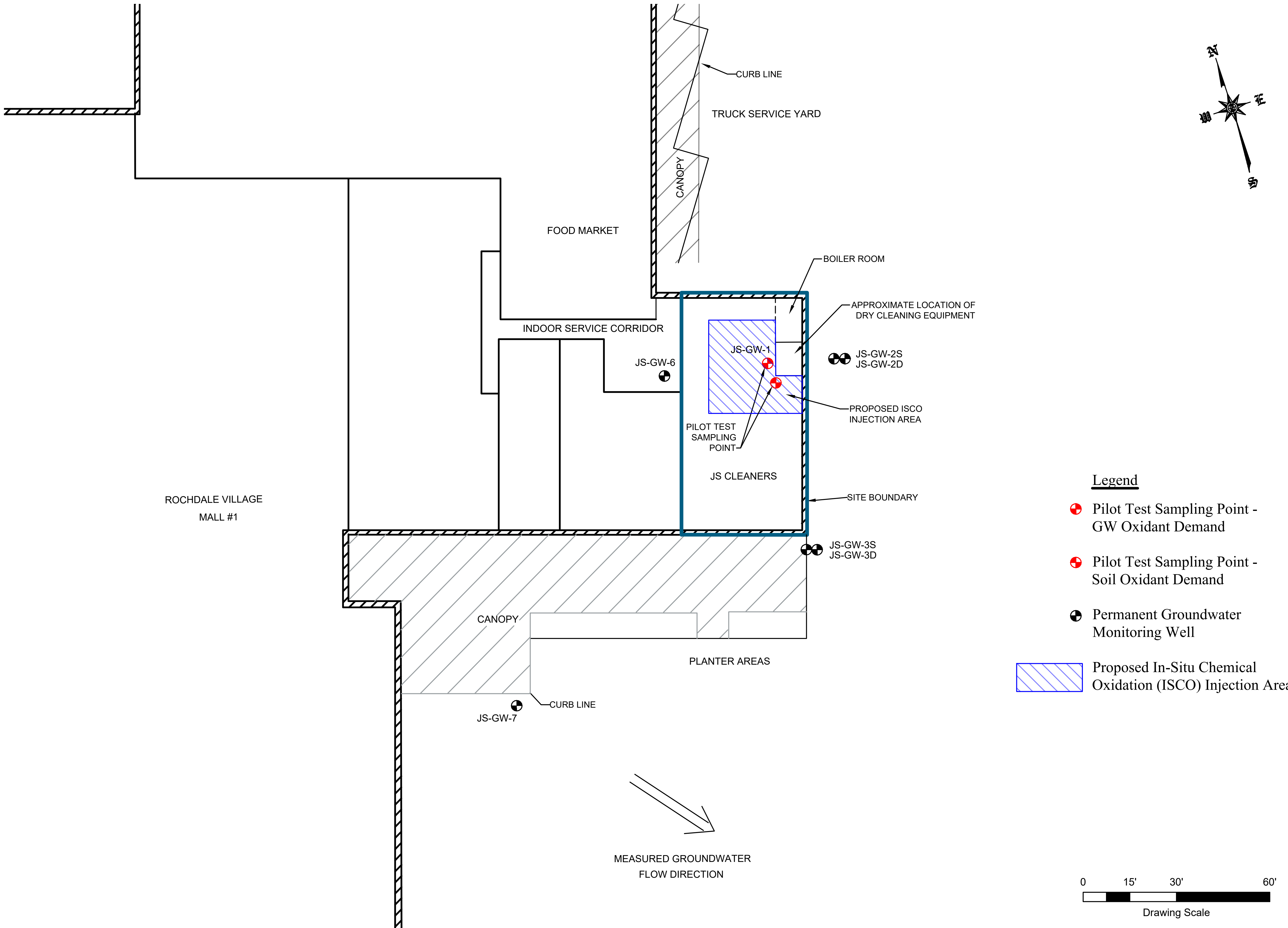
DRAWN BY: LM
CHECKED BY: KM
DATE: September 2017
SCALE: As Noted

DRAWING TITLE: Summary o□Soil Vapor Concentrations Compared to AGVs
DRAWING NO.: Figure 5B



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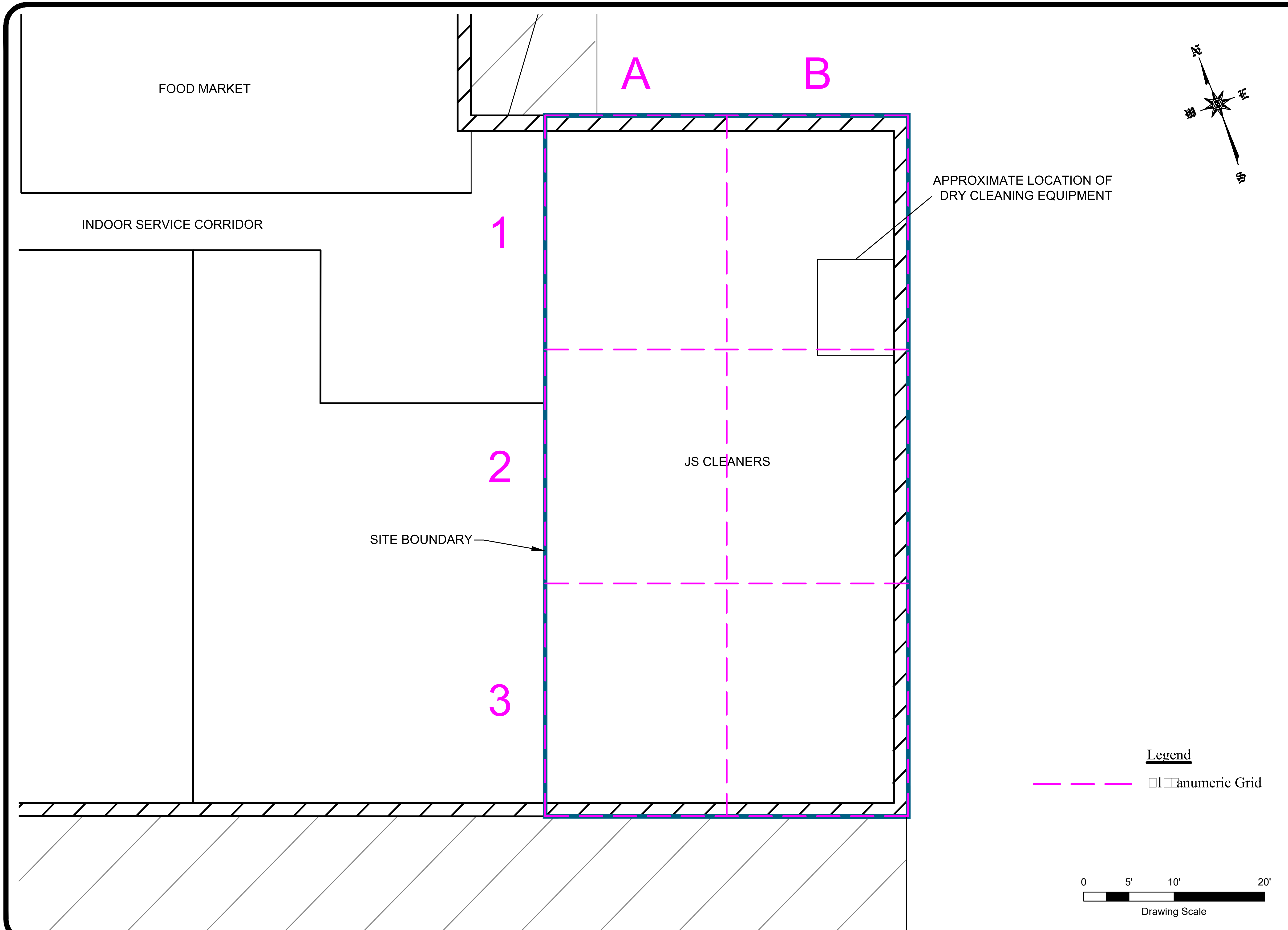
DRAWING TITLE: ISCO Pilot Test & Injection Area
DRAWING NO.: Figure 6



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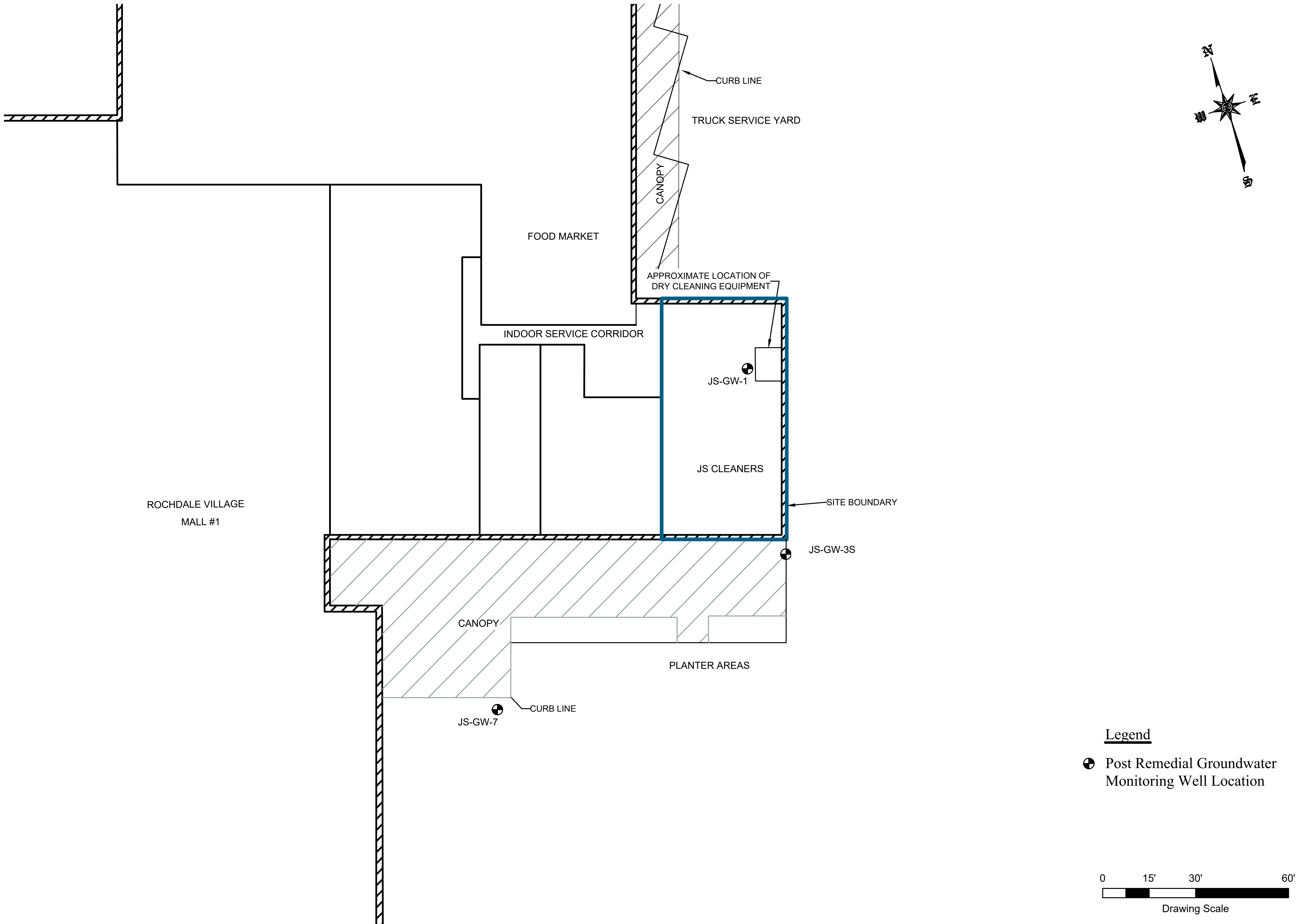
DATE: September 2017
SCALE: As Noted

DRAWING TITLE: Alphanumeric Grid
DRAWING NO.: Figure 7



SITE

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DRAWN BY: LM

CHECKED BY: KM

DATE: September 2018

SCALE: As Noted

DRAWING TITLE: Post-Remedial Groundwater Monitoring Wells

DRAWING NO.: Figure 8

Tables

JS Cleaners- Rochdale Village - Queens, NY
BCP Site C241165
Table 1
Unrestricted Use Soil Cleanup Objectives (SCOs)

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

Contaminant	CAS Number	SCO
Metals		
Arsenic	7440-38-2	13[c]
Barium	7440-39-3	350[c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5[c]
Chromium, hexavalent[e]	18540-29-9	1[b]
Chromium, trivalent[e]	16065-83-1	30[c]
Copper	7440-50-8	50
Total Cyanide[e,f]		27
Lead	7439-92-1	63[c]
Manganese	7439-96-5	1,600[c]
Total Mercury		0.18[c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9[c]
Silver	7440-22-4	2
Zinc	7440-66-6	109[c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)[f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033[b]
4,4'-DDT	50-29-3	0.0033[b]
4,4'-DDD	72-54-8	0.0033[b]
Aldrin	309-00-2	0.005[c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC[g]	319-86-8	0.04
Dibenzofuran[f]	132-64-9	7
Dieldrin	60-57-1	0.005[c]
Endosulfan I[d,f]	959-98-8	2.4
Endosulfan Ii[d,f]	33213-65-9	2.4
Endosulfan sulfate[d,f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1

Contaminant	CAS Number	SCO
Semivolatiles		
Acenaphthene	83-32-9	20
Acenapthylene[f]	208-96-8	100[a]
Anthracene[f]	120-12-7	100[a]
Benz(a)anthracene[f]	56-55-3	1[c]
Benzo(a)pyrene	50-32-8	1[c]
Benzo(b)fluoranthene[f]	205-99-2	1[c]
Benzo(g,h,i)perylene[f]	191-24-2	100
Benzo(k)fluoranthene[f]	207-08-9	0.8[c]
Chrysene[f]	218-01-9	1[c]
Dibenz(a,h)anthracene[f]	53-70-3	0.33[b]
Fluoranthene[f]	206-44-0	100[a]
Fluorene[f]	86-73-7	30
Indeno(1,2,3-cd)pyrene[f]	193-39-5	0.5[c]
m-Cresol[f]	108-39-4	0.33[b]
Naphthalene[f]	91-20-3	12
o-Cresol[f]	95-48-7	0.33[b]
p-Cresol[f]	106-44-5	0.33[b]
Pentachlorophenol	87-86-5	0.8[b]
Phenanthrene[f]	85-01-8	100
Phenol	108-95-2	0.33[b]
Pyrene[f]	129-00-0	100
Volatiles		
1,1,1-Trichloroethane[f]	71-55-6	0.68
1,1-Dichloroethane[f]	75-34-3	0.27
1,1-Dichloroethene[f]	75-35-4	0.33
1,2-Dichlorobenzene[f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.2[c]
cis-1,2-Dichloroethene[f]	156-59-2	0.25
trans-1,2-Dichloroethene[f]	156-60-5	0.19
1,3-Dichlorobenzene[f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1[b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene[f]	104-51-8	12
Carbon tetrachloride[f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene[f]	100-41-4	1
Hexachlorobenzene[f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether[f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene[f]	103-65-1	3.9
sec-Butylbenzene[f]	135-98-8	11
tert-Butylbenzene[f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.07
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene[f]	95-63-6	3.6
1,3,5- Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

Notes:
All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.
Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).
a The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See TSD section 9.3.
b For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.
c For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.
d SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.
e The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.
f Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

Table 2 - Part 375 Commercial Use SCOs		
JS Cleaners- Rochdale Village- Queens, NY		
BCP Site #C241165		
Contaminant	**CAS Number**	**Commercial**
Metals		
Arsenic	7440-38-2	16f
Barium	7440-39-3	400
Beryllium	7440-41-7	590
Cadmium	7440-43-9	9.3
Chromium, hexavalent h	18540-29-9	400
Chromium, trivalenth	16065-83-1	1,500
Copper	7440-50-8	270
Total Cyanide h		27
Lead	7439-92-1	1,000
Manganese	7439-96-5	10,000 d
Total Mercury		2.8j
Nickel	7440-02-0	310
Selenium	7782-49-2	1,500
Silver	7440-22-4	1,500
Zinc	7440-66-6	10,000 d
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	500b
4,4'-DDE	72-55-9	62
4,4'-DDT	50-29-3	47
4,4'-DDD	72-54-8	92
Aldrin	309-00-2	0.68
alpha-BHC	319-84-6	3.4
beta-BHC	319-85-7	3
Chlordane (alpha)	5103-71-9	24
delta-BHC	319-86-8	500b
Dibenzofuran	132-64-9	350
Dieldrin	60-57-1	1.4
Endosulfan I	959-98-8	200i
Endosulfan II	33213-65-9	200i
Endosulfan sulfate	1031-07-8	200i
Endrin	72-20-8	89
Heptachlor	76-44-8	15
Lindane	58-89-9	9.2
Polychlorinated biphenyls	1336-36-3	1
Semivolatiles		
Acenaphthene	83-32-9	500b
Acenapthylene	208-96-8	500b
Anthracene	120-12-7	500b
Benz(a)anthracene	56-55-3	5.6
Benzo(a)pyrene	50-32-8	1f
Benzo(b)fluoranthene	205-99-2	5.6
Benzo(g,h,i)perylene	191-24-2	500b
Benzo(k)fluoranthene	207-08-9	56
Chrysene	218-01-9	56
Dibenz(a,h)anthracene	53-70-3	0.56
Fluoranthene	206-44-0	500b
Fluorene	86-73-7	500b
Indeno(1,2,3-cd)pyrene	193-39-5	5.6
m-Cresol	108-39-4	500b
Naphthalene	91-20-3	500b
o-Cresol	95-48-7	500b
p-Cresol	106-44-5	500b
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	500b
Phenol	108-95-2	500b
Pyrene	129-00-0	500b
Volatiles		
1,1,1-Trichloroethane	71-55-6	500b
1,1-Dichloroethane	75-34-3	240
1,1-Dichloroethene	75-35-4	500b
1,2-Dichlorobenzene	95-50-1	500b
1,2-Dichloroethane	107-06-2	30
cis-1,2-Dichloroethene	156-59-2	500b
trans-1,2-Dichloroethene	156-60-5	500b
1,3-Dichlorobenzene	541-73-1	280
1,4-Dichlorobenzene	106-46-7	130
1,4-Dioxane	123-91-1	130
Acetone	67-64-1	500b
Benzene	71-43-2	44
Butylbenzene	104-51-8	500b
Carbon tetrachloride	56-23-5	22
Chlorobenzene	108-90-7	500b
Chloroform	67-66-3	350
Ethylbenzene	100-41-4	390
Hexachlorobenzene	118-74-1	6
Methyl ethyl ketone	78-93-3	500b
Methyl tert-butyl ether	1634-04-4	500b
Methylene chloride	75-09-2	500b
n-Propylbenzene	103-65-1	500b
sec-Butylbenzene	135-98-8	500b
tert-Butylbenzene	98-06-6	500b
Tetrachloroethene	127-18-4	150
Toluene	108-88-3	500b
Trichloroethene	79-01-6	200
1,2,4-Trimethylbenzene	95-63-6	190
1,3,5- Trimethylbenzene	108-67-8	190
Vinyl chloride	75-01-4	13
Xylene (mixed)	1330-20-7	500b

Notes:

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

NS = Not specified. See Technical Support Document (TSD).

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

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

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

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

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

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

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

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

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

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

JS Cleaners- Rochdale Village, Queens, NY
BCP Site C241165
Table 3
NYSDEC Division of Water TOGS 1.1.1 Class GA Standards

From Table 1: New York State Ambient Water Quality Standards and Guidance Values
(Division of Water Technical and Operational Guidance Series (1.1.1), June 1998)

Contaminant	CAS Number	Class GA Standard
Volatiles		
1,1,1,2-Tetrachloroethane	630-20-6	5*
1,1,1-Trichloroethane	71-55-6	5*
1,1,2,2-Tetrachloroethane	79-34-5	5*
1,1,2-Trichloroethane	79-00-5	1
1,1-Dichloroethane	75-34-3	5*
1,1-Dichloroethene	75-35-4	5*
1,1-Dichloropropene	563-58-6	5*
1,2,3-Trichloropropane	96-18-4	0.04
1,2,4,5-Tetramethylbenzene	95-93-2	5*
1,2,4-Trimethylbenzene	95-63-6	5*
1,2-Dibromo-3-chloropropane	96-12-8	0.04
1,2-Dichlorobenzene	95-50-1	3
1,2-Dichloroethane	107-06-2	0.6
1,2-Dichloropropane	78-87-5	1
1,3,5-Trimethylbenzene	108-67-8	5*
1,3-Dichlorobenzene	541-73-1	3
1,3-Dichloropropane	142-28-9	5*
1,4-Dichlorobenzene	106-46-7	3
2,2-Dichloropropane	594-20-7	5*
2-Hexanone	591-78-6	50**
Acetone	67-64-1	50**
Acrylonitrile	107-13-1	5*
Benzene	71-43-2	1
Bromobenzene	108-86-1	5*
Bromochloromethane	74-97-5	5*
Bromodichloromethane	75-27-4	50**
Bromoform	75-25-2	50**
Bromomethane	74-83-9	5*
Butylbenzene	104-51-8	5*
Carbon tetrachloride	56-23-5	5
Chlorobenzene	108-90-7	5*
Chloroethane	75-00-3	5*
Chloroform	75-34-3	7
Chloromethane (Methyl Chloride)	74-87-3	5*
cis-1,2-Dichloroethene	156-59-2	5*
Dibromochloromethane	124-48-1	50**
Dibromomethane	74-95-3	5*
Dichlorodifluoromethane	75-71-8	5*
Ethylbenzene	100-41-4	5*
Hexachlorobenzene	87-68-3	0.04
Hexachlorobutadiene	87-68-3	0.5
Isopropylbenzene	98-82-8	5*
Methylene chloride	75-09-2	5*
m-Xylene (1,3-Xylene)	108-38-3	5*
Naphthalene	91-20-3	10**
n-Propylbenzene	103-65-1	5*
o-Chlorotoluene	95-49-8	5*
o-Xylene (1,2-Xylene)	95-47-6	5*
p-Chlorotoluene	106-43-4	5*
p-Isopropyltoluene	99-87-6	5*
p-Xylene (1,4-Xylene)	106-42-3	5*
sec-Butylbenzene	135-98-8	5*
Styrene	100-42-5	5*
tert-Butylbenzene	98-06-6	5*
Tetrachloroethene	127-18-4	5*
Toluene	108-88-3	5*

Contaminant	CAS Number	Class GA Standard
Volatiles		
Total 1,3-Dichloropropene	542-75-6	0.4 (1)
trans-1,2-Dichloroethene	156-60-5	5*
trans-1,4-Dichloro-2-butene	110-57-6	5*
Trichloroethene	79-01-6	5*
Trichlorofluoromethane	75-69-4	5*
Vinyl chloride	75-01-4	2

Semivolatiles		
1,2,4,5-Tetrachlorobenzene	95-94-3	5*
1,2-Dichlorobenzene	95-50-1	3
1,3-Dichlorobenzene	541-73-1	3
1,4-Dichlorobenzene	106-46-7	3
3,3'-Dichlorobenzidine	91-94-1	5*
2,4-Dichlorophenol	120-83-2	5*
2,4-Dimethylphenol	105-67-9	50**
2,4-dinitrophenol	51-28-5	10**
2,4-Dinitrotoluene	121-14-2	5*
2,6-Dinitrotoluene	606-20-2	5*
2-Chloronaphthalene	91-58-7	10**
2-Nitroaniline	88-74-4	5*
3-Nitroaniline	99-09-2	5*
4-Chloroaniline	106-47-8	5*
4-Nitroaniline	100-01-6	5*
Acenaphthene	83-32-9	20**
Aniline	62-53-3	5*
Anthracene	120-12-7	50**
Benzo(a)anthracene	56-55-3	0.002**
Benzo(a)pyrene	50-32-8	0
Benzo(b)fluoranthene	205-99-2	0.002**
Benzo(k)fluoranthene	207-08-9	0.002**
Biphenyl	92-52-4	5*
Bis(2-chloroethoxy)methane	111-91-1	5*
Bis(2-chloroethyl)ether	111-44-4	1.0
Bis(2-Ethylhexyl)phthalate	117-81-7	5
Butyl benzyl phthalate	85-68- 7	50**
Chrysene	218-01-9	0.002
Diethyl phthalate	84-66-2	50**
Dimethyl phthalate	131-11-3	50**
Di-n-butylphthalate	84-74-2	50
Di-n-octylphthalate	117-84-0	50**
Fluoranthene	206-44-0	50**
Fluorene	86-73-7	50**
Hexachlorobenzene	118-74-1	0.04
Hexachlorobutadiene	87-68-3	0.5
Hexachlorocyclopentadiene	77-47-4	5*
Hexachloroethane	67-72-1	5*
Indeno(1,2,3-cd)Pyrene	193-39-5	0.002
Isophorone	78-59-1	50**
Naphthalene	91-20-3	10**
Nitrobenzene	98-95-3	0.4
NitrosoDiPhenylAmine(NDPA	86-30-6	50**
Pentachlorophenol	87-86-5	1(2)
Phenanthrene	85-01-8	50**
Phenol	108-95-2	1 (2)
Pyrene	129-00-0	50**

Notes:
All Class GA Standards are in micrograms per liter (ug/l). Compounds without standards or guideline values are not shown.
*The principal organic contaminant standard for groundwater of 5 ug/l applies to this substance.
** The value shown is a Guidance Value
(1) refers to sum of cis- and trans-1,3-dichloropropene.
(2) refers to the sum of Total Phenols (phenolic compounds)

Table 4: Volatile Organic Compounds in Soil
JS Cleaners -Rochdale Village

LOCATION LAB SAMPLE ID COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	JS/SB1 (0-2) L1528466-01 11/3/2015		JS/SB1 (13-14) L1528466-02 11/3/2015		JS/SB1 (15-16) L1528466-03 11/3/2015		JS/SB1 (19-20) L1528466-05 11/3/2015		JS/SB1 (20-21) L1528466-04 11/3/2015		JS-SB-2D (0-2) L1528960-01 11/6/2015		JS-SB-2D (16-18) L1528960-02 11/6/2015	
Volatile Organic Compounds Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Methylene chloride	500	0.05	0.05	0.0011	U	0.0012	U	0.0013	U	0.0012	U	0.0014	U	0.0014	U	0.0014	U
1,1-Dichloroethane	240	0.27	0.27	0.00009	U	0.00009	U	0.0001	U	0.0001	U	0.00011	U	0.00011	U	0.00011	U
Chloroform	350	0.37	0.37	0.00038	U	0.00039	U	0.00042	U	0.00042	U	0.00046	U	0.00047	U	0.00046	U
Carbon tetrachloride	22	0.76	0.76	0.00022	U	0.00022	U	0.00024	U	0.00024	U	0.00026	U	0.00027	U	0.00026	U
1,2-Dichloropropane	--	--	--	0.00024	U	0.00024	U	0.00026	U	0.00026	U	0.00029	U	0.00029	U	0.00028	U
Dibromochloromethane	--	--	--	0.00016	U	0.00016	U	0.00018	U	0.00017	U	0.00019	U	0.0002	U	0.00019	U
1,1,2-Trichloroethane	--	--	--	0.00031	U	0.00032	U	0.00035	U	0.00034	U	0.00038	U	0.00039	U	0.00038	U
Tetrachloroethene	150	1.3	1.3	0.001	J	1.6		0.00016	U	0.0012		0.00018	U	0.00018	U	0.00017	U
Chlorobenzene	500	1.1	1.1	0.00036	U	0.00037	U	0.0004	U	0.00039	U	0.00044	U	0.00044	U	0.00043	U
Trichlorofluoromethane	--	--	--	0.0004	U	0.00041	U	0.00044	U	0.00044	U	0.00049	U	0.0005	U	0.00048	U
1,2-Dichloroethane	30	0.02	0.02	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00014	U
1,1,1-Trichloroethane	500	0.68	0.68	0.00011	U	0.00012	U	0.00013	U	0.00012	U	0.00014	U	0.00014	U	0.00014	U
Bromodichloromethane	--	--	--	0.00018	U	0.00018	U	0.0002	U	0.00019	U	0.00022	U	0.00022	U	0.00022	U
trans-1,3-Dichloropropene	--	--	--	0.00012	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00015	U	0.00015	U
cis-1,3-Dichloropropene	--	--	--	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00015	U	0.00015	U	0.00015	U
1,3-Dichloropropene, Total	--	--	--	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00015	U	0.00015	U	0.00015	U
1,1-Dichloropropene	--	--	--	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
Bromoform	--	--	--	0.00024	U	0.00025	U	0.00027	U	0.00026	U	0.0003	U	0.0003	U	0.00029	U
1,1,2,2-Tetrachloroethane	--	0.6	--	0.0001	U	0.00011	U	0.00012	U	0.00011	U	0.00013	U	0.00013	U	0.00012	U
Benzene	44	0.06	0.06	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00015	U	0.00015	U	0.00015	U
Toluene	500	0.7	0.7	0.0002	U	0.0002	U	0.00022	U	0.00022	U	0.00024	U	0.00025	U	0.00024	U
Ethylbenzene	390	1	1	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00016	U	0.00016	U	0.00016	U
Chloromethane	--	--	--	0.0003	U	0.00031	U	0.00034	U	0.00033	U	0.00037	U	0.00038	U	0.00037	U
Bromomethane	--	--	--	0.00035	U	0.00036	U	0.00039	U	0.00038	U	0.00042	U	0.00043	U	0.00042	U
Vinyl chloride	13	0.02	0.02	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00015	U	0.00015	U	0.00015	U
Chloroethane	--	1.9	--	0.00033	U	0.00033	U	0.00036	U	0.00036	U	0.0004	U	0.0004	U	0.00039	U
1,1-Dichloroethene	500	0.33	0.33	0.00027	U	0.00028	U	0.0003	U	0.00029	U	0.00033	U	0.00034	U	0.00033	U
trans-1,2-Dichloroethene	500	0.19	0.19	0.00022	U	0.00022	U	0.00024	U	0.00024	U	0.00027	U	0.00027	U	0.00026	U
Trichloroethene	200	0.47	0.47	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00016	U	0.00016	U	0.00016	U
1,2-Dichlorobenzene	500	1.1	1.1	0.00016	U	0.00016	U	0.00018	U	0.00017	U	0.00019	U	0.0002	U	0.00019	U
1,3-Dichlorobenzene	280	2.4	2.4	0.00014	U	0.00014	U	0.00015	U	0.00015	U	0.00017	U	0.00017	U	0.00017	U
1,4-Dichlorobenzene	130	1.8	1.8	0.00014	U	0.00015	U	0.00016	U	0.00016	U	0.00017	U	0.00018	U	0.00017	U
Methyl tert butyl ether	500	0.93	0.93	0.00009	U	0.00009	U	0.0001	U	0.0001	U	0.00011	U	0.00011	U	0.0001	U
p/m-Xylene	--	--	--	0.0002	U	0.00021	U	0.00023	U	0.00022	U	0.00025	U	0.00025	U	0.00025	U
o-Xylene	--	--	--	0.00018	U	0.00018	U	0.0002	U	0.00019	U	0.00022	U	0.00022	U	0.00021	U
Xylenes, Total	500	1.6	0.26	0.00018	U	0.00018	U	0.0002	U	0.00019	U	0.00022	U	0.00022	U	0.00021	U
cis-1,2-Dichloroethene	500	0.25	0.25	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
1,2-Dichloroethene, Total	--	--	--	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
Dibromomethane	--	--	--	0.00017	U	0.00017	U	0.00019	U	0.00018	U	0.0002	U	0.00021	U	0.0002	U
Styrene	--	--	--	0.00042	U	0.00042	U	0.00046	U	0.00045	U	0.0005	U	0.00051	U	0.0005	U
Dichlorodifluoromethane	--	--	--	0.0002	U	0.0002	U	0.00022	U	0.00021	U	0.00024	U	0.00024	U	0.00024	U
Acetone	500	0.05	0.05	0.0011	U	0.0011	U	0.0069	J	0.0012	U	0.0013	U	0.0019	J	0.0072	J
Carbon disulfide	--	2.7	--	0.0011	U	0.0012	U	0.0012	U	0.0012	U	0.0014	U	0.0014	U	0.0014	U
2-Butanone	500	0.12	0.12	0.00028	U	0.00029	U	0.00031	U	0.0003	U	0.00034	U	0.00035	U	0.00034	U
Vinyl acetate	--	--	--	0.00014	U	0.00014	U	0.00015	U	0.00015	U	0.00017	U	0.00017	U	0.00016	U
4-Methyl-2-pentanone	--	1	--	0.00025	U	0.00026	U	0.00028	U	0.00027	U	0.00031	U	0.00031	U	0.0003	U
1,2,3-Trichloropropane	--	0.34	--	0.00017	U	0.00017	U	0.00018	U	0.00018	U	0.0002	U	0.00021	U	0.0002	U
2-Hexanone	--	--	--	0.00069	U	0.0007	U	0.00076	U	0.00075	U	0.00084	U	0.00085	U	0.00083	U
Bromochloromethane	--	--	--	0.00028	U	0.00029	U	0.00032	U	0.00031	U	0.00035	U	0.00035	U	0.00034	U
2,2-Dichloropropane	--	--	--	0.00023	U	0.00024	U	0.00026	U	0.00025	U	0.00028	U	0.00029	U	0.00028	U
1,2-Dibromoethane	--	--	--	0.00018	U	0.00018	U	0.0002	U	0.0002	U	0.00022	U	0.00022	U	0.00022	U
1,3-Dichloropropane	--	0.3	--	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
1,1,1,2-Tetrachloroethane	--	--	--	0.00033	U	0.00034	U	0.00036	U	0.00036	U	0.0004	U	0.00041	U	0.0004	U
Bromobenzene	--	--	--	0.00021	U	0.00022	U	0.00024	U	0.00023	U	0.00026	U	0.00027	U	0.00026	U
n-Butylbenzene	500	12	12	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.00014	U
sec-Butylbenzene	500	11	11	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.00015	U
tert-Butylbenzene	500	5.9	5.9	0.00014	U	0.00014	U	0.00015	U	0.00015	U	0.00017	U	0.00017	U	0.00017	U
o-Chlorotoluene	--	--	--	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.0002	U	0.0002	U	0.0002	U
p-Chlorotoluene	--	--	--	0.00014	U	0.00014	U	0.00015	U	0.00015	U	0.00017	U	0.00017	U	0.00016	U
1,2-Dibromo-3-chloropropane	--	--	--	0.00041	U	0.00042	U	0.00045	U	0.00044	U	0.0005	U	0.00051	U	0.00049	U
Hexachlorobutadiene	--	--	--	0.00024	U	0.00024	U	0.00026	U	0.00026	U	0.00029	U	0.00029	U	0.00028	U
Isopropylbenzene	--	2.3	--	0.00011	U	0.00011	U	0.00012	U	0.00012	U	0.00013	U	0.00013	U	0.00013	U
p-Isopropyltoluene	--	10	--	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00016	U	0.00016	U	0.00016	U
Naphthalene	500	12	12	0.00014	U	0.00015	U	0.00016	U	0.00016	U	0.00017	U	0.00018	U	0.00017	U
Acrylonitrile	--	--	--	0.00053	U	0.00054	U	0.00059	U	0.00058	U	0.00065	U	0.00066	U	0.00064	U
n-Propylbenzene	500	3.9	3.9	0.00011	U	0.00012	U	0.00012	U	0.00012	U	0.00014	U	0.00014	U	0.00014	U
1,2,3-Trichlorobenzene	--	--	--	0.00015	U	0.00016	U	0.00017	U	0.00017	U	0.00018	U	0.00019	U	0.00018	U
1,2,4-Trichlorobenzene	--	3.4	--	0.00019	U	0.00019	U	0.00021	U	0.0002	U	0.00023	U	0.00023	U	0.00023	U
1,3,5-Trimethylbenzene	190	8.4	8.4	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
1,2,4-Trimethylbenzene	190	3.6	3.6	0.00015	U	0.00015	U	0.00016	U	0.00016	U	0.00018	U	0.00018	U	0.00018	U
1,4-Dioxane	130	0.1	0.1	0.015	U	0.015	U	0.016	U	0.016	U	0.018	U	0.018	U	0.018	U
p-Diethylbenzene	--	--	--	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.0002	U	0.0002	U	0.0002	U
p-Ethyltoluene	--	--	--	0.00013	U	0.00013	U	0.00014	U	0.00014	U	0.00016	U	0.00016	U	0.00015	U
1,2,4,5-Tetramethylbenzene	--	--	--	0.00013	U	0.00014	U	0.00015	U	0.00015	U	0.00016	U	0.00017	U	0.00016	U
Ethyl ether	--	--	--	0.00027	U	0.00027	U	0.0003	U	0.00029	U	0.00033	U	0.00033	U	0.00032	U
trans-1,4-Dichloro-2-butene	--	--	--	0.0004	U	0.00041	U	0.00045	U	0.00044	U	0.00049	U	0.0005	U	0.00049	U
Total VOCs	--	--	--	0.001		1.6		0.0069	-	0.0012	-	-		0.0019	-	0.0072	-
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	0.0024		-	-	0.0035		0.004		-	-	-	-	-	-
No Tentatively Identified Compo	--	--	--	-	-	0		-	-	-	-	0	U	0	U	0	U
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, pentamethyl-	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetradecane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds	--	--	--	0.0024		-	-	0.0035	0	0.004		-	-	-	-	-	-

Notes:
NY-UNRES = New York Unrestricted Use Criteria
NY-RESC = Commercial Criteria, New York Restricted Use
NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 1: Volatile Organic Compounds in Soil
JS Cleaners -Rochdale Village

LOCATION				JS-SB-2D (45-47)		JS/SB3D (1-3)		JS/SB3D (15-17)		JS/SB3D (30-32)		JS/SB3D (20-22)		JS/SB3D (33-35)		JS/SB4 (0-2)		JS/SB4 (14-15)		JS/SB4 (17-18)	
LAB SAMPLE ID				L1528960-03		L1529459-01		L1529459-02		L1529459-03		L1529459-04		L1529459-05		L1528466-06		L1528466-07		L1528466-08	
COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	11/6/2015		11/9/2015		11/9/2015		11/9/2015		11/9/2015		11/9/2015		11/3/2015		11/3/2015		11/3/2015	
Volatile Organic Compounds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	500	0.05	0.05	0.0014	U	0.0012	U	0.0013	U	0.0014	U	0.0014	U	0.0013	U	0.0012	U	0.0014	U	0.0013	U
1,1-Dichloroethane	240	0.27	0.27	0.00011	U	0.00009	U	0.0001	U	0.0001	U	0.00011	U	0.0001	U	0.00009	U	0.00011	U	0.0001	U
Chloroform	350	0.37	0.37	0.00048	U	0.0004	U	0.00043	U	0.00046	U	0.00046	U	0.00044	U	0.0004	U	0.00048	U	0.00044	U
Carbon tetrachloride	22	0.76	0.76	0.00027	U	0.00023	U	0.00024	U	0.00026	U	0.00026	U	0.00025	U	0.00023	U	0.00027	U	0.00025	U
1,2-Dichloropropane	--	--	--	0.0003	U	0.00025	U	0.00027	U	0.00028	U	0.00028	U	0.00027	U	0.00025	U	0.00029	U	0.00027	U
Dibromochloromethane	--	--	--	0.0002	U	0.00017	U	0.00018	U	0.00019	U	0.00019	U	0.00018	U	0.00017	U	0.0002	U	0.00018	U
1,1,2-Trichloroethane	--	--	--	0.0004	U	0.00033	U	0.00035	U	0.00037	U	0.00038	U	0.00036	U	0.00033	U	0.00039	U	0.00036	U
Tetrachloroethene	150	1.3	1.3	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00018	U	0.00016	U	0.00015	U	0.00018	U	0.00016	U
Chlorobenzene	500	1.1	1.1	0.00045	U	0.00038	U	0.00041	U	0.00043	U	0.00044	U	0.00041	U	0.00038	U	0.00045	U	0.00041	U
Trichlorofluoromethane	--	--	--	0.0005	U	0.00042	U	0.00045	U	0.00048	U	0.00048	U	0.00046	U	0.00042	U	0.0005	U	0.00046	U
1,2-Dichloroethane	30	0.02	0.02	0.00015	U	0.00012	U	0.00013	U	0.00014	U	0.00014	U	0.00013	U	0.00012	U	0.00015	U	0.00013	U
1,1,1-Trichloroethane	500	0.68	0.68	0.00014	U	0.00012	U	0.00013	U	0.00014	U	0.00014	U	0.00013	U	0.00012	U	0.00014	U	0.00013	U
Bromodichloromethane	--	--	--	0.00022	U	0.00019	U	0.0002	U	0.00021	U	0.00022	U	0.0002	U	0.00019	U	0.00022	U	0.0002	U
trans-1,3-Dichloropropene	--	--	--	0.00016	U	0.00013	U	0.00014	U	0.00015	U	0.00015	U	0.00014	U	0.00013	U	0.00016	U	0.00014	U
cis-1,3-Dichloropropene	--	--	--	0.00015	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00014	U	0.00013	U	0.00015	U	0.00014	U
1,3-Dichloropropene, Total	--	--	--	0.00015	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00014	U	0.00013	U	0.00015	U	0.00014	U
1,1-Dichloropropene	--	--	--	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00018	U	0.00017	U	0.00015	U	0.00018	U	0.00017	U
Bromoform	--	--	--	0.00031	U	0.00026	U	0.00028	U	0.00029	U	0.0003	U	0.00028	U	0.00026	U	0.0003	U	0.00028	U
1,1,2,2-Tetrachloroethane	--	0.6	--	0.00013	U	0.00011	U	0.00012	U	0.00012	U	0.00013	U	0.00012	U	0.00011	U	0.00013	U	0.00012	U
Benzene	44	0.06	0.06	0.00015	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00014	U	0.00013	U	0.00015	U	0.00014	U
Toluene	500	0.7	0.7	0.00025	U	0.00021	U	0.00023	U	0.00024	U	0.00024	U	0.00023	U	0.00021	U	0.00025	U	0.00023	U
Ethylbenzene	390	1	1	0.00016	U	0.00014	U	0.00015	U	0.00016	U	0.00016	U	0.00015	U	0.00014	U	0.00016	U	0.00015	U
Chloromethane	--	--	--	0.00038	U	0.00032	U	0.00034	U	0.00036	U	0.00037	U	0.00035	U	0.00032	U	0.00038	U	0.00035	U
Bromomethane	--	--	--	0.00044	U	0.00037	U	0.00039	U	0.00042	U	0.00042	U	0.0004	U	0.00037	U	0.00044	U	0.0004	U
Vinyl chloride	13	0.02	0.02	0.00015	U	0.00013	U	0.00014	U	0.00014	U	0.00015	U	0.00014	U	0.00013	U	0.00015	U	0.00014	U
Chloroethane	--	1.9	--	0.00041	U	0.00034	U	0.00037	U	0.00039	U	0.0004	U	0.00037	U	0.00034	U	0.00041	U	0.00037	U
1,1-Dichloroethene	500	0.33	0.33	0.00034	U	0.00028	U	0.0003	U	0.00032	U	0.00033	U	0.00031	U	0.00029	U	0.00034	U	0.00031	U
trans-1,2-Dichloroethene	500	0.19	0.19	0.00028	U	0.00023	U	0.00025	U	0.00026	U	0.00026	U	0.00025	U	0.00023	U	0.00027	U	0.00025	U
Trichloroethene	200	0.47	0.47	0.00016	U	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.00015	U	0.00014	U	0.00016	U	0.00015	U
1,2-Dichlorobenzene	500	1.1	1.1	0.0002	U	0.00017	U	0.00018	U	0.00019	U	0.00019	U	0.00018	U	0.00017	U	0.0002	U	0.00018	U
1,3-Dichlorobenzene	280	2.4	2.4	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.00015	U	0.00017	U	0.00016	U
1,4-Dichlorobenzene	130	1.8	1.8	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.00015	U	0.00018	U	0.00016	U
Methyl tert butyl ether	500	0.93	0.93	0.00011	U	0.00009	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.00009	U	0.00011	U	0.0001	U
p/m-Xylene	--	--	--	0.00026	U	0.00022	U	0.00023	U	0.00024	U	0.00025	U	0.00023	U	0.00022	U	0.00026	U	0.00023	U
o-Xylene	--	--	--	0.00022	U	0.00019	U	0.0002	U	0.00021	U	0.00021	U	0.0002	U	0.00019	U	0.00022	U	0.0002	U
Xylenes, Total	500	1.6	0.26	0.00022	U	0.00019	U	0.0002	U	0.00021	U	0.00021	U	0.0002	U	0.00019	U	0.00022	U	0.0002	U
cis-1,2-Dichloroethene	500	0.25	0.25	0.00018	U	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.00017	U	0.00016	U	0.00018	U	0.00017	U
1,2-Dichloroethene, Total	--	--	--	0.00018	U	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.00017	U	0.00016	U	0.00018	U	0.00017	U
Dibromomethane	--	--	--	0.00021	U	0.00018	U	0.00019	U	0.0002	U	0.0002	U	0.00019	U	0.00018	U	0.00021	U	0.00019	U
Styrene	--	--	--	0.00052	U	0.00044	U	0.00047	U	0.0005	U	0.0005	U	0.00048	U	0.00044	U	0.00052	U	0.00047	U
Dichlorodifluoromethane	--	--	--	0.00025	U	0.00021	U	0.00022	U	0.00023	U	0.00024	U	0.00022	U	0.00021	U	0.00025	U	0.00022	U
Acetone	500	0.05	0.05	0.015		0.0011	U	0.0059	J	0.004	J	0.0056	J	0.0071	J	0.0011	U	0.0013	U	0.0012	U
Carbon disulfide	--	2.7	--	0.0014	U	0.0012	U	0.0013	U	0.0014	U	0.0014	U	0.0013	U	0.0012	U	0.0014	U	0.0013	U
2-Butanone	500	0.12	0.12	0.00035	U	0.0003	U	0.00032	U	0.00033	U	0.00034	U	0.00032	U	0.0003	U	0.00035	U	0.00032	U
Vinyl acetate	--	--	--	0.00017	U	0.00014	U	0.00015	U	0.00016	U	0.00016	U	0.00016	U	0.00014	U	0.00017	U	0.00016	U
4-Methyl-2-pentanone	--	1	--	0.00032	U	0.00027	U	0.00028	U	0.0003	U	0.0003	U	0.00029	U	0.00027	U	0.00032	U	0.00029	U
1,2,3-Trichloropropane	--	0.34	--	0.00021	U	0.00018	U	0.00019	U	0.0002	U	0.0002	U	0.00019	U	0.00018	U	0.00021	U	0.00019	U
2-Hexanone	--	--	--	0.00087	U	0.00073	U	0.00078	U	0.00082	U	0.00083	U	0.00079	U	0.00073	U	0.00086	U	0.00078	U
Bromochloromethane	--	--	--	0.00036	U	0.0003	U	0.00032	U	0.00034	U	0.00034	U	0.00033	U	0.0003	U	0.00036	U	0.00032	U
2,2-Dichloropropane	--	--	--	0.00029	U	0.00025	U	0.00026	U	0.00028	U	0.00028	U	0.00027	U	0.00025	U	0.00029	U	0.00027	U
1,2-Dibromoethane	--	--	--	0.00023	U	0.00019	U	0.0002	U	0.00021	U	0.00022	U	0.00021	U	0.00019	U	0.00022	U	0.0002	U
1,3-Dichloropropane	--	0.3	--	0.00019	U	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.00017	U	0.00016	U	0.00019	U	0.00017	U
1,1,1,2-Tetrachloroethane	--	--	--	0.00041	U	0.00035	U	0.00037	U	0.00039	U	0.0004	U	0.00038	U	0.00035	U	0.00041	U	0.00038	U
Bromobenzene	--	--	--	0.00027	U	0.00023	U	0.00024	U	0.00026	U	0.00026	U	0.00025	U	0.00023	U	0.00027	U	0.00024	U
n-Butylbenzene	500	12	12	0.00015	U	0.00012	U	0.00013	U	0.00014	U	0.00014	U	0.00014	U	0.00012	U	0.00015	U	0.00014	U
sec-Butylbenzene	500	11	11	0.00016	U	0.00013	U	0.00014	U	0.00015	U	0.00015	U	0.00014	U	0.00013	U	0.00016	U	0.00014	U
tert-Butylbenzene	500	5.9	5.9	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.00015	U	0.00018	U	0.00016	U
o-Chlorotoluene	--	--	--	0.00021	U	0.00017	U	0.00019	U	0.0002	U	0.0002	U	0.00019	U	0.00017	U	0.00021	U	0.00019	U
p-Chlorotoluene	--	--	--	0.00017	U	0.00014	U	0.00015	U	0.00016	U	0.00017	U	0.00016	U	0.00014	U	0.00017	U	0.00016	U
1,2-Dibromo-3-chloropropane	--	--	--	0.00052	U	0.00043	U	0.00046	U	0.00049	U	0.0005	U	0.00047	U	0.00043	U	0.00051	U	0.00047	U
Hexachlorobutadiene	--	--	--	0.0003	U	0.00025	U	0.00027	U	0.00028	U	0.00028	U	0.00027	U	0.00025	U	0.00029	U	0.00027	U
Isopropylbenzene	--	2.3	--	0.00014	U	0.00011	U	0.00012	U	0.00013	U	0.00013	U	0.00012	U	0.00011	U	0.00013	U	0.00012	U
p-Isopropyltoluene	--	10	--	0.00016	U	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.00015	U	0.00014	U	0.00016	U	0.00015	U
Naphthalene	500	12	12	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00017	U	0.00016	U	0.00015	U	0.00018	U	0.00016	U
Acrylonitrile	--	--	--	0.00067	U	0.00056	U	0.0006	U	0.00063	U	0.00064	U	0.00061	U	0.00056	U	0.00066	U	0.00061	U
n-Propylbenzene	500	3.9	3.9	0.00014	U	0.00012	U	0.00013	U	0.00013	U	0.00014	U	0.00013	U	0.00012	U	0.00014	U	0.00013	U
1,2,3-Trichlorobenzene	--	--	--	0.00019	U	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.00017	U	0.00016	U	0.00019	U	0.00017	U
1,2,4-Trichlorobenzene	--	3.4	--	0.00024	U	0.0002	U	0.00021	U	0.00022	U	0.00023	U	0.00022	U	0.0002	U	0.00024	U	0.00021	U
1,3,5-Trimethylbenzene	190	8.4	8.4	0.00019	U	0.00016	U	0.00017	U	0.00018	U	0.00018	U	0.00017	U	0.00016	U	0.00018	U	0.00017	U
1,2,4-Trimethylbenzene	190	3.6	3.6	0.00018	U	0.00015	U	0.00016	U	0.00017	U	0.00018	U	0.00017	U	0.00015	U	0.00018	U	0.00017	U
1,4-Dioxane	130	0.1	0.1	0.019	U	0.016	U	0.017	U	0.018	U	0.018	U	0.017	U	0.016	U	0.019	U	0.017	U
p-Diethylbenzene	--	--	--	0.00021	U	0.00017	U	0.00019	U	0.0002	U	0.0002	U	0.00019	U	0.00017	U	0.00021	U	0.00019	U
p-Ethyltoluene	--	--	--	0.00016	U	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.00015	U	0.00014	U	0.00016	U	0.00015	U
1,2,4,5-Tetramethylbenzene	--	--	--	0.00017	U	0.00014	U	0.00015	U	0.0021	J	0.0028	J	0.0014	J	0.00014	U	0.00017	U	0.00015	U
Ethyl ether	--	--	--	0.00034	U	0.00028	U	0.0003	U	0.00032	U	0.00032	U	0.00031	0.00031	0.00028	U	0.00034	U	0.00031	U
trans-1,4-Dichloro-2-butene	--	--	--	0.00051	U	0.00043	U	0.00046	U	0.00048	U	0.00049	U	0.00046	0.00046	0.00043	U	0.00051	U	0.00046	U
Total VOCs	--	--	--	0.015	-	-	-	0.0059	-	0.0061	-	0.0084	-	0.0085	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	0.0035		0.0093		0.0033		-	-	-	-	-	-
Unknown	--	--	--	0.0046		-	-	-	-	-	-	-	-	-	-	-	-	0.0029		-	-
No Tentatively Identified Compo	--	--	--	-	-	0	U	0	U	-	-	-	-	-	-	0	U	-	-	0	U
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	0.011		0.015		0.0057		-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	0.005		-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	0.0044		-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	0.0042		-	-	-	-	-	-	-	-	-	-
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	0.007		0.0032		-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	0.0054		0.0082		0.0031		-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	0.0051		0.0089		0.003		-	-	-	-	-	-
Benzene, pentamethyl-	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	0.0038		-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	0.0062		-	-	-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	0.0036		-	-	-	-	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	0.0048		0.007		0.0032		-	-	-	-	-	-
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	0.0069		-	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	0.0053		0.0057		0.0034		-	-	-	-	-	-
Tetradecane	--	--	--	-	-	-	-	-	-	-	-	0.01		0.003		-	-	-	-	-	-
Total TIC Compounds	--	--	--	0.0046	0	-	-	-	-	0.0487		0.0842		0.0353		-	-	0.0029		-	-

Notes:
NY-UNRES = New York Unrestricted Use Criteria
NY-RESC = Commercial Criteria, New York Restricted Use
NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 1: Volatile Organic Compounds in Soil
JS Cleaners -Rochdale Village

LOCATION	NY-RESC	NY-RESGW	NY-UNRES	JS/SB5 (1-3)		JS/SB5 (1-3) DUP		JS/SB5 (3-5)		JS/SB5 (15-17)		JS/SB5 (19-21)		JS-SB6 (0-2)		JS-SB6 (11.5-13.5)		JS-SB6 (11.5-13.5) DUP		JS-SB6 (16-18)	
LAB SAMPLE ID				L1529459-06		L1529459-07		L1529459-08		L1529459-09		L1529459-10		L1641668-01		L1641668-02		L1641668-03		L1641668-04	
COLLECTION DATE				11/10/2015		11/10/2015		11/10/2015		11/10/2015		11/10/2015		12/21/2016		12/21/2016		12/21/2016		12/21/2016	
Volatile Organic Compounds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	500	0.05	0.05	0.0012	U	0.0012	U	0.0012	U	0.0013	U	0.0014	U	0.012	U	0.01	U	0.012	U	0.012	U
1,1-Dichloroethane	240	0.27	0.27	0.00009	U	0.00009	U	0.00009	U	0.0001	U	0.00011	U	0.0018	U	0.0016	U	0.0018	U	0.0018	U
Chloroform	350	0.37	0.37	0.0004	U	0.0004	U	0.0004	U	0.00043	U	0.00047	U	0.0018	U	0.0016	U	0.0018	U	0.0018	U
Carbon tetrachloride	22	0.76	0.76	0.00023	U	0.00023	U	0.00023	U	0.00024	U	0.00026	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,2-Dichloropropane	--	--	--	0.00025	U	0.00025	U	0.00025	U	0.00026	U	0.00029	U	0.0041	U	0.0036	U	0.0041	U	0.0043	U
Dibromochloromethane	--	--	--	0.00017	U	0.00017	U	0.00017	U	0.00018	U	0.00019	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,1,2-Trichloroethane	--	--	--	0.00033	U	0.00033	U	0.00033	U	0.00035	U	0.00038	U	0.0018	U	0.0016	U	0.0018	U	0.0018	U
Tetrachloroethene	150	1.3	1.3	0.0028		0.0051		0.0042		0.00016	U	0.00018	U	0.00078	J	0.00035	J	0.0013		0.0012	U
Chlorobenzene	500	1.1	1.1	0.00038	U	0.00038	U	0.00038	U	0.0004	U	0.00044	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Trichlorofluoromethane	--	--	--	0.00042	U	0.00042	U	0.00042	U	0.00045	U	0.00049	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,2-Dichloroethane	30	0.02	0.02	0.00012	U	0.00012	U	0.00012	U	0.00013	U	0.00014	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,1,1-Trichloroethane	500	0.68	0.68	0.00012	U	0.00012	U	0.00012	U	0.00013	U	0.00014	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Bromodichloromethane	--	--	--	0.00019	U	0.00019	U	0.00019	U	0.0002	U	0.00022	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
trans-1,3-Dichloropropene	--	--	--	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
cis-1,3-Dichloropropene	--	--	--	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,3-Dichloropropene, Total	--	--	--	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,1-Dichloropropene	--	--	--	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00018	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Bromoform	--	--	--	0.00026	U	0.00026	U	0.00026	U	0.00027	U	0.0003	U	0.0047	U	0.0041	U	0.0047	U	0.0049	U
1,1,2,2-Tetrachloroethane	--	0.6	--	0.00011	U	0.00011	U	0.00011	U	0.00012	U	0.00013	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Benzene	44	0.06	0.06	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Toluene	500	0.7	0.7	0.00021	U	0.00021	U	0.00021	U	0.00022	U	0.00025	U	0.0018	U	0.0016	U	0.0018	U	0.0018	U
Ethylbenzene	390	1	1	0.00014	U	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Chloromethane	--	--	--	0.00032	U	0.00032	U	0.00032	U	0.00034	U	0.00037	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Bromomethane	--	--	--	0.00037	U	0.00037	U	0.00037	U	0.00039	U	0.00043	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
Vinyl chloride	13	0.02	0.02	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
Chloroethane	--	1.9	--	0.00034	U	0.00034	U	0.00035	U	0.00036	U	0.0004	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
1,1-Dichloroethene	500	0.33	0.33	0.00029	U	0.00028	U	0.00029	U	0.0003	U	0.00033	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
trans-1,2-Dichloroethene	500	0.19	0.19	0.00023	U	0.00023	U	0.00023	U	0.00024	U	0.00027	U	0.0018	U	0.0016	U	0.0018	U	0.0018	U
Trichloroethene	200	0.47	0.47	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00016	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,2-Dichlorobenzene	500	1.1	1.1	0.00017	U	0.00017	U	0.00017	U	0.00018	U	0.00019	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,3-Dichlorobenzene	280	2.4	2.4	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00017	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,4-Dichlorobenzene	130	1.8	1.8	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00017	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Methyl tert butyl ether	500	0.93	0.93	0.00009	U	0.00009	U	0.00009	U	0.0001	U	0.00011	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
p/m-Xylene	--	--	--	0.00022	U	0.00022	U	0.00022	U	0.00023	U	0.00025	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
o-Xylene	--	--	--	0.00019	U	0.00019	U	0.00019	U	0.0002	U	0.00022	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
Xylenes, Total	500	1.6	0.26	0.00019	U	0.00019	U	0.00019	U	0.0002	U	0.00022	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
cis-1,2-Dichloroethene	500	0.25	0.25	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00018	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,2-Dichloroethene, Total	--	--	--	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00018	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Dibromomethane	--	--	--	0.00018	U	0.00018	U	0.00018	U	0.00019	U	0.00021	U	0.012	U	0.01	U	0.012	U	0.012	U
Styrene	--	--	--	0.00044	U	0.00044	U	0.00044	U	0.00046	U	0.00051	U	0.0023	U	0.0021	U	0.0024	U	0.0025	U
Dichlorodifluoromethane	--	--	--	0.00021	U	0.00021	U	0.00021	U	0.00022	U	0.00024	U	0.012	U	0.01	U	0.012	U	0.012	U
Acetone	500	0.05	0.05	0.017		0.026		0.0019	J	0.002	J	0.0023	J	0.0051	J	0.0034	J	0.0067	J	0.012	U
Carbon disulfide	--	2.7	--	0.0012	U	0.0012	U	0.0012	U	0.0013	U	0.0014	U	0.012	U	0.01	U	0.012	U	0.012	U
2-Butanone	500	0.12	0.12	0.00086	J	0.0017	J	0.0003	U	0.00031	U	0.00034	U	0.012	U	0.01	U	0.012	U	0.012	U
Vinyl acetate	--	--	--	0.00014	U	0.00014	U	0.00014	U	0.00015	U	0.00017	U	0.012	U	0.01	U	0.012	U	0.012	U
4-Methyl-2-pentanone	--	1	--	0.00027	U	0.00026	U	0.00027	U	0.00028	U	0.00031	U	0.012	U	0.01	U	0.012	U	0.012	U
1,2,3-Trichloropropane	--	0.34	--	0.00018	U	0.00018	U	0.00018	U	0.00019	U	0.0002	U	0.012	U	0.01	U	0.012	U	0.012	U
2-Hexanone	--	--	--	0.00073	U	0.00072	U	0.00073	U	0.00077	U	0.00084	U	0.012	U	0.01	U	0.012	U	0.012	U
Bromochloromethane	--	--	--	0.0003	U	0.0003	U	0.0003	U	0.00032	U	0.00035	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
2,2-Dichloropropane	--	--	--	0.00025	U	0.00024	U	0.00025	U	0.00026	U	0.00028	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,2-Dibromoethane	--	--	--	0.00019	U	0.00019	U	0.00019	U	0.0002	U	0.00022	U	0.0047	U	0.0041	U	0.0047	U	0.0049	U
1,3-Dichloropropane	--	0.3	--	0.00016	U	0.00016	U	0.00016	U	0.00017	U	0.00018	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,1,1,2-Tetrachloroethane	--	--	--	0.00035	U	0.00035	U	0.00035	U	0.00037	U	0.0004	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Bromobenzene	--	--	--	0.00023	U	0.00023	U	0.00023	U	0.00024	U	0.00026	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
n-Butylbenzene	500	12	12	0.00012	U	0.00012	U	0.00012	U	0.00013	U	0.00014	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
sec-Butylbenzene	500	11	11	0.00013	U	0.00013	U	0.00013	U	0.00014	U	0.00015	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
tert-Butylbenzene	500	5.9	5.9	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00017	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
o-Chlorotoluene	--	--	--	0.00017	U	0.00017	U	0.00018	U	0.00018	U	0.0002	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
p-Chlorotoluene	--	--	--	0.00014	U	0.00014	U	0.00014	U	0.00015	U	0.00017	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,2-Dibromo-3-chloropropane	--	--	--	0.00043	U	0.00043	U	0.00043	U	0.00046	U	0.0005	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Hexachlorobutadiene	--	--	--	0.00025	U	0.00025	U	0.00025	U	0.00026	U	0.00029	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Isopropylbenzene	--	2.3	--	0.00011	U	0.00011	U	0.00011	U	0.00012	U	0.00013	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
p-Isopropyltoluene	--	10	--	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00016	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
Naphthalene	500	12	12	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00017	U	0.0058	U	0.00019	J	0.0059	U	0.0062	U
Acrylonitrile	--	--	--	0.00056	U	0.00056	U	0.00056	U	0.00059	U	0.00065	U	0.012	U	0.01	U	0.012	U	0.012	U
n-Propylbenzene	500	3.9	3.9	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00014	U	0.0012	U	0.001	U	0.0012	U	0.0012	U
1,2,3-Trichlorobenzene	--	--	--	0.00016	U	0.00016	U	0.00016	U	0.00017	U	0.00019	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,2,4-Trichlorobenzene	--	3.4	--	0.0002	U	0.0002	U	0.0002	U	0.00021	U	0.00023	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,3,5-Trimethylbenzene	190	8.4	8.4	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00018	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,2,4-Trimethylbenzene	190	3.6	3.6	0.00015	U	0.00015	U	0.00015	U	0.00016	U	0.00018	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
1,4-Dioxane	130	0.1	0.1	0.016	U	0.016	U	0.016	U	0.017	U	0.018	U	0.12	U	0.1	U	0.12	U	0.12	U
p-Diethylbenzene	--	--	--	0.00017	U	0.00017	U	0.00018	U	0.00018	U	0.0002	U	0.0047	U	0.0041	U	0.0047	U	0.0049	U
p-Ethyltoluene	--	--	--	0.00014	U	0.00013	U	0.00014	U	0.00014	U	0.00016	U	0.0047	U	0.0041	U	0.0047	U	0.0049	U
1,2,4,5-Tetramethylbenzene	--	--	--	0.00025	J	0.00014	U	0.00014	U	0.00015	U	0.00016	U	0.0047	U	0.0041	U	0.0047	U	0.0049	U
Ethyl ether	--	--	--	0.00028	U	0.00028	U	0.00028	U	0.0003	U	0.00033	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
trans-1,4-Dichloro-2-butene	--	--	--	0.00043	U	0.00043	U	0.00043	U	0.00045	U	0.0005	U	0.0058	U	0.0052	U	0.0059	U	0.0062	U
Total VOCs	--	--	--	0.02091	-	0.0328	-	0.0061	-	0.002	-	0.0023	-	0.00588	-	0.00394	-	0.008	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	0.0077		-	-	-		0.00424	J	0.00248	J	0.00268	J
Unknown	--	--	--	0.0024		-	-	0.004		-	-	-	-	0.00432	J	0.00394	J	0.00441	J	0.00416	J
No Tentatively Identified Compo	--	--	--	-	-	0	U	-	-	-	-	0	U	-		-		-		-	
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	0.00539	J	-		0.0027	J	-	-
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Alkane	--	--	--	0.0034		-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Aromatic	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Benzene, pentamethyl-	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Alkane	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Alkane	--	--	--	0.004		-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Benzene	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Unknown Alkane	--	--	--	0.0029		-	-	-	-	-	-	-	-	-		-		-		-	
Unknown	--	--	--	-	-	-	-	-	-	0.0026		-	-	-		-		-		-	
Tetradecane	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-		-		-	
Total TIC Compounds	--	--	--	0.0127		-	-	0.004		0.0103		-	-	0.00444	J	0.00399	J	0.00425	J	0.00414	J

Notes:
NY-UNRES = New York Unrestricted Use Criteria
NY-RESC = Commercial Criteria, New York Restricted Use
NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 5: Semivolatile Organic Compounds in Soil
JS Cleaners- Rochdale Village

LOCATION LAB SAMPLE ID COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	JS/SB1 (0-2) L1528466-01 11/3/15		JS/SB1 (13-14) L1528466-02 11/3/15		JS/SB1 (15-16) L1528466-03 11/3/15		JS/SB1 (20-21) L1528466-04 11/3/15		JS-SB-2D (0-2) L1528960-01 11/6/2015		JS-SB-2D (16-18) L1528960-02 11/6/2015		JS-SB-2D (45-47) L1528960-03 11/6/2015	
Semivolatile Organic Compounds Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acenaphthene	500	98	20	0.035	U	0.036	U	0.038	U	0.042	U	0.086	U	0.042	U	0.044	U
1,2,4-Trichlorobenzene	--	3.4	--	0.055	U	0.058	U	0.061	U	0.067	U	0.14	U	0.067	U	0.07	U
Hexachlorobenzene	6	1.4	0.33	0.032	U	0.033	U	0.034	U	0.038	U	0.078	U	0.038	U	0.04	U
Bis(2-chloroethyl)ether	--	--	--	0.047	U	0.049	U	0.052	U	0.057	U	0.12	U	0.057	U	0.06	U
2-Chloronaphthalene	--	--	--	0.055	U	0.057	U	0.06	U	0.067	U	0.14	U	0.066	U	0.069	U
1,2-Dichlorobenzene	500	1.1	1.1	0.056	U	0.058	U	0.061	U	0.067	U	0.14	U	0.067	U	0.07	U
1,3-Dichlorobenzene	280	2.4	2.4	0.053	U	0.055	U	0.058	U	0.065	U	0.13	U	0.064	U	0.067	U
1,4-Dichlorobenzene	130	1.8	1.8	0.051	U	0.053	U	0.056	U	0.062	U	0.13	U	0.062	U	0.065	U
3,3'-Dichlorobenzidine	--	--	--	0.045	U	0.047	U	0.049	U	0.054	U	0.11	U	0.054	U	0.057	U
2,4-Dinitrotoluene	--	--	--	0.036	U	0.038	U	0.04	U	0.044	U	0.09	U	0.044	U	0.046	U
2,6-Dinitrotoluene	--	0.17	--	0.043	U	0.045	U	0.047	U	0.052	U	0.11	U	0.052	U	0.054	U
Fluoranthene	500	1000	100	0.031	U	0.032	U	0.034	U	0.038	U	0.077	U	0.037	U	0.039	U
4-Chlorophenyl phenyl ether	--	--	--	0.052	U	0.053	U	0.056	U	0.062	U	0.13	U	0.062	U	0.065	U
4-Bromophenyl phenyl ether	--	--	--	0.039	U	0.04	U	0.042	U	0.047	U	0.096	U	0.047	U	0.049	U
Bis(2-chloroisopropyl)ether	--	--	--	0.06	U	0.062	U	0.065	U	0.072	U	0.15	U	0.072	U	0.075	U
Bis(2-chloroethoxy)methane	--	--	--	0.051	U	0.053	U	0.056	U	0.062	U	0.13	U	0.062	U	0.064	U
Hexachlorobutadiene	--	--	--	0.048	U	0.05	U	0.052	U	0.058	U	0.12	U	0.058	U	0.06	U
Hexachlorocyclopentadiene	--	--	--	0.11	U	0.11	U	0.12	U	0.13	U	0.27	U	0.13	U	0.14	U
Hexachloroethane	--	--	--	0.031	U	0.032	U	0.034	U	0.037	U	0.076	U	0.037	U	0.039	U
Isophorone	--	4.4	--	0.045	U	0.047	U	0.049	U	0.054	U	0.11	U	0.054	U	0.057	U
Naphthalene	500	12	12	0.056	U	0.058	U	0.061	U	0.068	U	0.14	U	0.068	U	0.071	U
Nitrobenzene	69	0.17	--	0.04	U	0.042	U	0.044	U	0.049	U	0.1	U	0.048	U	0.051	U
NitrosoDiPhenylAmine(NDPA)/DPA	--	--	--	0.036	U	0.037	U	0.039	U	0.043	U	0.088	U	0.043	U	0.045	U
n-Nitrosodi-n-propylamine	--	--	--	0.05	U	0.052	U	0.055	U	0.061	U	0.12	U	0.061	U	0.064	U
Bis(2-Ethylhexyl)phthalate	--	435	--	0.12	J	0.4		0.14	J	0.14	J	0.11	U	0.053	U	0.056	U
Butyl benzyl phthalate	--	122	--	0.033	U	0.034	U	0.036	U	0.04	U	0.082	U	0.04	U	0.042	U
Di-n-butylphthalate	--	8.1	--	0.033	U	0.034	U	0.036	U	0.04	U	0.081	U	0.039	U	0.041	U
Di-n-octylphthalate	--	120	--	0.042	U	0.043	U	0.046	U	0.05	U	0.1	U	0.05	U	0.052	U
Diethyl phthalate	--	7.1	--	0.036	U	0.037	U	0.039	U	0.043	U	0.089	U	0.043	U	0.045	U
Dimethyl phthalate	--	27	--	0.043	U	0.045	U	0.047	U	0.052	U	0.11	U	0.052	U	0.054	U
Benzo(a)anthracene	5.6	1	1	0.033	U	0.034	U	0.036	U	0.04	U	0.082	U	0.04	U	0.042	U
Benzo(a)pyrene	1	22	1	0.056	J	0.043	U	0.045	U	0.05	U	0.1	U	0.05	U	0.052	U
Benzo(b)fluoranthene	5.6	1.7	1	0.067	J	0.035	U	0.037	U	0.041	U	0.085	U	0.041	U	0.043	U
Benzo(k)fluoranthene	56	1.7	0.8	0.032	U	0.034	U	0.035	U	0.039	U	0.08	U	0.039	U	0.041	U
Chrysene	56	1	1	0.033	U	0.034	U	0.036	U	0.04	U	0.082	U	0.04	U	0.042	U
Acenaphthylene	500	107	100	0.032	U	0.033	U	0.034	U	0.038	U	0.078	U	0.038	U	0.04	U
Anthracene	500	1000	100	0.028	U	0.029	U	0.031	U	0.034	U	0.07	U	0.034	U	0.035	U
Benzo(ghi)perylene	500	1000	100	0.035	U	0.036	U	0.038	U	0.043	U	0.087	U	0.042	U	0.044	U
Fluorene	500	386	30	0.048	U	0.05	U	0.053	U	0.059	U	0.12	U	0.058	U	0.061	U
Phenanthrene	500	1000	100	0.033	U	0.034	U	0.036	U	0.04	U	0.082	U	0.04	U	0.042	U
Dibenzo(a,h)anthracene	0.56	1000	0.33	0.033	U	0.034	U	0.036	U	0.04	U	0.081	U	0.039	U	0.041	U
Indeno(1,2,3-cd)Pyrene	5.6	8.2	0.5	0.091	J	0.039	U	0.041	U	0.046	U	0.093	U	0.045	U	0.047	U
Pyrene	500	1000	100	0.033	U	0.034	U	0.036	U	0.04	U	0.082	U	0.04	U	0.041	U
Biphenyl	--	--	--	0.056	U	0.058	U	0.061	U	0.068	U	0.14	U	0.067	U	0.07	U
4-Chloroaniline	--	0.22	--	0.045	U	0.046	U	0.049	U	0.054	U	0.11	U	0.054	U	0.056	U
2-Nitroaniline	--	0.4	--	0.048	U	0.05	U	0.052	U	0.058	U	0.12	U	0.058	U	0.06	U
3-Nitroaniline	--	0.5	--	0.047	U	0.048	U	0.051	U	0.056	U	0.12	U	0.056	U	0.059	U
4-Nitroaniline	--	--	--	0.046	U	0.047	U	0.05	U	0.055	U	0.11	U	0.055	U	0.058	U
Dibenzofuran	350	6.2	7	0.056	U	0.059	U	0.062	U	0.068	U	0.14	U	0.068	U	0.071	U
2-Methylnaphthalene	--	36.4	--	0.054	U	0.056	U	0.059	U	0.065	U	0.13	U	0.065	U	0.068	U
1,2,4,5-Tetrachlorobenzene	--	--	--	0.052	U	0.054	U	0.057	U	0.064	U	0.13	U	0.063	U	0.066	U
Acetophenone	--	--	--	0.052	U	0.054	U	0.057	U	0.064	U	0.13	U	0.063	U	0.066	U
2,4,6-Trichlorophenol	--	--	--	0.032	U	0.033	U	0.035	U	0.039	U	0.079	U	0.038	U	0.04	U
P-Chloro-M-Cresol	--	--	--	0.049	U	0.051	U	0.054	U	0.059	U	0.12	U	0.059	U	0.062	U
2-Chlorophenol	--	--	--	0.051	U	0.053	U	0.056	U	0.062	U	0.13	U	0.062	U	0.064	U
2,4-Dichlorophenol	--	0.4	--	0.055	U	0.057	U	0.06	U	0.066	U	0.14	U	0.066	U	0.069	U
2,4-Dimethylphenol	--	--	--	0.05	U	0.052	U	0.055	U	0.061	U	0.12	U	0.061	U	0.064	U
2-Nitrophenol	--	0.3	--	0.053	U	0.055	U	0.058	U	0.064	U	0.13	U	0.064	U	0.066	U
4-Nitrophenol	--	0.1	--	0.055	U	0.057	U	0.06	U	0.066	U	0.14	U	0.066	U	0.069	U
2,4-Dinitrophenol	--	0.2	--	0.23	U	0.24	U	0.25	U	0.28	U	0.57	U	0.28	U	0.29	U
4,6-Dinitro-o-cresol	--	--	--	0.062	U	0.064	U	0.068	U	0.075	U	0.15	U	0.075	U	0.078	U
Pentachlorophenol	6.7	0.8	0.8	0.036	U	0.038	U	0.04	U	0.044	U	0.09	U	0.044	U	0.046	U
Phenol	500	0.33	0.33	0.05	U	0.052	U	0.055	U	0.061	U	0.12	U	0.06	U	0.063	U
2-Methylphenol	500	0.33	0.33	0.054	U	0.056	U	0.06	U	0.066	U	0.14	U	0.066	U	0.069	U
3-Methylphenol/4-Methylphenol	500	0.33	0.33	0.056	U	0.058	U	0.061	U	0.067	U	0.14	U	0.067	U	0.07	U
2,4,5-Trichlorophenol	--	0.1	--	0.055	U	0.057	U	0.06	U	0.066	U	0.14	U	0.066	U	0.069	U
Benzoic Acid	--	2.7	--	0.17	U	0.18	U	0.19	U	0.21	U	0.42	U	0.21	U	0.22	U
Benzyl Alcohol	--	--	--	0.052	U	0.054	U	0.057	U	0.063	U	0.13	U	0.063	U	0.066	U
Carbazole	--	--	--	0.036	U	0.038	U	0.04	U	0.044	U	0.09	U	0.044	U	0.046	U
Total SVOCs	--	--	--	0.334	-	0.4		0.14	-	0.14		-	-	-	-	-	-
No Tentatively Identified Compounds	--	--	--	-	-	0	U	0	U	0	U	0	U	0	U	0	U
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-		-	-
Unknown	--	--	--	0.56		-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	0.2		-	-	-	-	-	-	-	-	-	-	-	-
Cyclic Octaatomic Sulfur	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	0.52		-	-	-	-	-	-	-	-	-	-	-	-
Total SVOCs	--	--	--	1.28	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
NY-UNRES = New York Unrestricted Use Criteria
NY-RESC = Commercial Criteria, New York Restricted Use
NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 2: SVOCs in Soil
JS Cleaners- Rochdale Village

LOCATION				JS/SB3D (1-3)		JS/SB3D (15-17)		JS/SB3D (20-22)		JS/SB3D (33-35)		JS/SB4 (0-2)		JS/SB4 (14-15)		JS/SB4 (17-18)	
LAB SAMPLE ID				L1529459-01		L1529459-02		L1529459-04		L1529459-05		L1528466-06		L1528466-07		L1528466-08	
COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	11/9/15		11/9/15		11/9/15		11/9/15		11/3/15		11/3/15		11/3/15	
Semivolatile Organic Compounds Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Acenaphthene	500	98	20	0.074	U	0.039	U	0.042	U	0.04	U	0.036	U	0.044	U	0.04	U
1,2,4-Trichlorobenzene	--	3.4	--	0.12	U	0.062	U	0.066	U	0.063	U	0.058	U	0.07	U	0.064	U
Hexachlorobenzene	6	1.4	0.33	0.067	U	0.035	U	0.038	U	0.036	U	0.033	U	0.04	U	0.036	U
Bis(2-chloroethyl)ether	--	--	--	0.1	U	0.053	U	0.057	U	0.054	U	0.05	U	0.06	U	0.054	U
2-Chloronaphthalene	--	--	--	0.12	U	0.062	U	0.066	U	0.063	U	0.058	U	0.07	U	0.063	U
1,2-Dichlorobenzene	500	1.1	1.1	0.12	U	0.062	U	0.066	U	0.063	U	0.058	U	0.07	U	0.064	U
1,3-Dichlorobenzene	280	2.4	2.4	0.11	U	0.06	U	0.064	U	0.061	U	0.056	U	0.067	U	0.061	U
1,4-Dichlorobenzene	130	1.8	1.8	0.11	U	0.058	U	0.061	U	0.059	U	0.054	U	0.065	U	0.059	U
3,3'-Dichlorobenzidine	--	--	--	0.096	U	0.05	U	0.054	U	0.051	U	0.047	U	0.057	U	0.052	U
2,4-Dinitrotoluene	--	--	--	0.078	U	0.041	U	0.044	U	0.042	U	0.038	U	0.046	U	0.042	U
2,6-Dinitrotoluene	--	0.17	--	0.092	U	0.049	U	0.052	U	0.049	U	0.045	U	0.055	U	0.05	U
Fluoranthene	500	1000	100	0.38		0.035	U	0.037	U	0.035	U	0.11	J	0.039	U	0.036	U
4-Chlorophenyl phenyl ether	--	--	--	0.11	U	0.058	U	0.061	U	0.059	U	0.054	U	0.065	U	0.059	U
4-Bromophenyl phenyl ether	--	--	--	0.083	U	0.044	U	0.046	U	0.044	U	0.041	U	0.049	U	0.045	U
Bis(2-chloroisopropyl)ether	--	--	--	0.13	U	0.067	U	0.071	U	0.068	U	0.062	U	0.075	U	0.068	U
Bis(2-chloroethoxy)methane	--	--	--	0.11	U	0.057	U	0.061	U	0.058	U	0.054	U	0.065	U	0.059	U
Hexachlorobutadiene	--	--	--	0.1	U	0.054	U	0.057	U	0.054	U	0.05	U	0.06	U	0.055	U
Hexachlorocyclopentadiene	--	--	--	0.23	U	0.12	U	0.13	U	0.12	U	0.11	U	0.14	U	0.12	U
Hexachloroethane	--	--	--	0.065	U	0.034	U	0.037	U	0.035	U	0.032	U	0.039	U	0.035	U
Isophorone	--	4.4	--	0.096	U	0.05	U	0.054	U	0.051	U	0.047	U	0.057	U	0.052	U
Naphthalene	500	12	12	0.12	U	0.063	U	0.067	U	0.064	U	0.059	U	0.071	U	0.064	U
Nitrobenzene	69	0.17	--	0.086	U	0.045	U	0.048	U	0.046	U	0.042	U	0.051	U	0.046	U
NitrosoDiPhenylAmine(NDPA)/DPA	--	--	--	0.076	U	0.04	U	0.042	U	0.04	U	0.037	U	0.045	U	0.041	U
n-Nitrosodi-n-propylamine	--	--	--	0.11	U	0.056	U	0.06	U	0.058	U	0.053	U	0.064	U	0.058	U
Bis(2-Ethylhexyl)phthalate	--	435	--	0.33	U	0.18	J	0.12	J	0.13	J	0.14	J	0.056	U	0.051	U
Butyl benzyl phthalate	--	122	--	0.07	U	0.037	U	0.039	U	0.038	U	0.035	U	0.042	U	0.038	U
Di-n-butylphthalate	--	8.1	--	0.069	U	0.037	U	0.039	U	0.037	U	0.034	U	0.041	U	0.037	U
Di-n-octylphthalate	--	120	--	0.088	U	0.047	U	0.05	U	0.048	U	0.044	U	0.052	U	0.048	U
Diethyl phthalate	--	7.1	--	0.076	U	0.04	U	0.043	U	0.041	U	0.038	U	0.045	U	0.041	U
Dimethyl phthalate	--	27	--	0.091	U	0.048	U	0.051	U	0.049	U	0.045	U	0.054	U	0.049	U
Benzo(a)anthracene	5.6	1	1	0.2	J	0.037	U	0.04	U	0.038	U	0.058	J	0.042	U	0.038	U
Benzo(a)pyrene	1	22	1	0.25	J	0.046	U	0.049	U	0.047	U	0.094	J	0.052	U	0.047	U
Benzo(b)fluoranthene	5.6	1.7	1	0.29		0.038	U	0.041	U	0.039	U	0.11	J	0.043	U	0.039	U
Benzo(k)fluoranthene	56	1.7	0.8	0.078	J	0.036	U	0.038	U	0.037	U	0.034	U	0.041	U	0.037	U
Chrysene	56	1	1	0.17	J	0.037	U	0.04	U	0.038	U	0.054	J	0.042	U	0.038	U
Acenaphthylene	500	107	100	0.067	U	0.036	U	0.038	U	0.036	U	0.033	U	0.04	U	0.036	U
Anthracene	500	1000	100	0.06	U	0.032	U	0.034	U	0.032	U	0.03	U	0.036	U	0.032	U
Benzo(ghi)perylene	500	1000	100	0.11	J	0.039	U	0.042	U	0.04	U	0.038	J	0.044	U	0.04	U
Fluorene	500	386	30	0.1	U	0.054	U	0.058	U	0.055	U	0.051	U	0.061	U	0.056	U
Phenanthrene	500	1000	100	0.25		0.037	U	0.04	U	0.038	U	0.053	J	0.042	U	0.038	U
Dibenzo(a,h)anthracene	0.56	1000	0.33	0.088	J	0.037	U	0.039	U	0.037	U	0.039	J	0.041	U	0.038	U
Indeno(1,2,3-cd)Pyrene	5.6	8.2	0.5	0.27	J	0.042	U	0.045	U	0.043	U	0.12	J	0.047	U	0.043	U
Pyrene	500	1000	100	0.32		0.037	U	0.039	U	0.038	U	0.1	J	0.042	U	0.038	U
Biphenyl	--	--	--	0.12	U	0.063	U	0.067	U	0.064	U	0.058	U	0.07	U	0.064	U
4-Chloroaniline	--	0.22	--	0.095	U	0.05	U	0.053	U	0.051	U	0.047	U	0.056	U	0.051	U
2-Nitroaniline	--	0.4	--	0.1	U	0.054	U	0.057	U	0.054	U	0.05	U	0.06	U	0.055	U
3-Nitroaniline	--	0.5	--	0.099	U	0.052	U	0.056	U	0.053	U	0.049	U	0.059	U	0.054	U
4-Nitroaniline	--	--	--	0.097	U	0.051	U	0.054	U	0.052	U	0.048	U	0.058	U	0.052	U
Dibenzofuran	350	6.2	7	0.12	U	0.063	U	0.067	U	0.064	U	0.059	U	0.071	U	0.065	U
2-Methylnaphthalene	--	36.4	--	0.11	U	0.061	U	0.064	U	0.062	U	0.057	U	0.068	U	0.062	U
1,2,4,5-Tetrachlorobenzene	--	--	--	0.11	U	0.059	U	0.062	U	0.06	U	0.055	U	0.066	U	0.06	U
Acetophenone	--	--	--	0.11	U	0.059	U	0.063	U	0.06	U	0.055	U	0.066	U	0.06	U
2,4,6-Trichlorophenol	--	--	--	0.068	U	0.036	U	0.038	U	0.036	U	0.034	U	0.04	U	0.037	U
P-Chloro-M-Cresol	--	--	--	0.1	U	0.055	U	0.058	U	0.056	U	0.052	U	0.062	U	0.056	U
2-Chlorophenol	--	--	--	0.11	U	0.057	U	0.061	U	0.058	U	0.054	U	0.064	U	0.059	U
2,4-Dichlorophenol	--	0.4	--	0.12	U	0.062	U	0.065	U	0.063	U	0.058	U	0.069	U	0.063	U
2,4-Dimethylphenol	--	--	--	0.11	U	0.056	U	0.06	U	0.058	U	0.053	U	0.064	U	0.058	U
2-Nitrophenol	--	0.3	--	0.11	U	0.059	U	0.063	U	0.06	U	0.055	U	0.067	U	0.06	U
4-Nitrophenol	--	0.1	--	0.12	U	0.062	U	0.065	U	0.063	U	0.058	U	0.069	U	0.063	U
2,4-Dinitrophenol	--	0.2	--	0.49	U	0.26	U	0.28	U	0.26	U	0.24	U	0.29	U	0.26	U
4,6-Dinitro-o-cresol	--	--	--	0.13	U	0.069	U	0.074	U	0.071	U	0.065	U	0.078	U	0.071	U
Pentachlorophenol	6.7	0.8	0.8	0.077	U	0.041	U	0.043	U	0.041	U	0.038	U	0.046	U	0.042	U
Phenol	500	0.33	0.33	0.11	U	0.056	U	0.06	U	0.057	U	0.052	U	0.063	U	0.057	U
2-Methylphenol	500	0.33	0.33	0.12	U	0.061	U	0.065	U	0.062	U	0.057	U	0.069	U	0.062	U
3-Methylphenol/4-Methylphenol	500	0.33	0.33	0.12	U	0.062	U	0.066	U	0.063	U	0.058	U	0.07	U	0.064	U
2,4,5-Trichlorophenol	--	0.1	--	0.12	U	0.062	U	0.065	U	0.063	U	0.058	U	0.069	U	0.063	U
Benzoic Acid	--	2.7	--	0.36	U	0.19	U	0.2	U	0.2	U	0.18	U	0.22	U	0.2	U
Benzyl Alcohol	--	--	--	0.11	U	0.058	U	0.062	U	0.06	U	0.055	U	0.066	U	0.06	U
Carbazole	--	--	--	0.077	U	0.041	U	0.043	U	0.042	U	0.038	U	0.046	U	0.042	U
Total SVOCs	--	--	--	2.736	-	0.18	-	0.12	-	0.13	-	0.916	-	-		-	-
No Tentatively Identified Compounds	--	--	--	0	U	0	U	0	U	0	U	-	-	0	U	0	U
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	-	-	1		-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	-	-	0.93		-	-	-	-
Cyclic Octaatomic Sulfur	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total SVOCs	--	--	--	-	-	-	-	-	-	-	-	1.93	-	-	-	-	-

Notes:
NY-UNRES = New York Unrestricted Use Criteria
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NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
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For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 2: SVOCs in Soil
JS Cleaners- Rochdale Village

LOCATION LAB SAMPLE ID COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	JS/SB5 (1-3) L1529459-06 11/10/15		JS/SB5 (1-3) DUP L1529459-07 11/10/15		JS/SB5 (3-5) L1529459-08 11/10/15		JS/SB5 (15-17) L1529459-09 11/10/15		JS/SB5 (19-21) L1529459-10 11/10/15	
Semivolatile Organic Compounds Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Acenaphthene	500	98	20	0.037	U	0.037	U	0.048	U	0.039	U	0.042	U
1,2,4-Trichlorobenzene	--	3.4	--	0.058	U	0.059	U	0.076	U	0.063	U	0.068	U
Hexachlorobenzene	6	1.4	0.33	0.033	U	0.033	U	0.043	U	0.036	U	0.038	U
Bis(2-chloroethyl)ether	--	--	--	0.05	U	0.05	U	0.065	U	0.054	U	0.058	U
2-Chloronaphthalene	--	--	--	0.058	U	0.058	U	0.075	U	0.062	U	0.067	U
1,2-Dichlorobenzene	500	1.1	1.1	0.058	U	0.059	U	0.076	U	0.063	U	0.068	U
1,3-Dichlorobenzene	280	2.4	2.4	0.056	U	0.056	U	0.073	U	0.06	U	0.065	U
1,4-Dichlorobenzene	130	1.8	1.8	0.054	U	0.054	U	0.07	U	0.058	U	0.063	U
3,3'-Dichlorobenzidine	--	--	--	0.047	U	0.048	U	0.062	U	0.051	U	0.055	U
2,4-Dinitrotoluene	--	--	--	0.038	U	0.039	U	0.05	U	0.041	U	0.044	U
2,6-Dinitrotoluene	--	0.17	--	0.046	U	0.046	U	0.059	U	0.049	U	0.053	U
Fluoranthene	500	1000	100	0.098	J	0.14		0.042	U	0.035	U	0.038	U
4-Chlorophenyl phenyl ether	--	--	--	0.054	U	0.055	U	0.07	U	0.058	U	0.063	U
4-Bromophenyl phenyl ether	--	--	--	0.041	U	0.041	U	0.053	U	0.044	U	0.047	U
Bis(2-chloroisopropyl)ether	--	--	--	0.063	U	0.063	U	0.081	U	0.067	U	0.073	U
Bis(2-chloroethoxy)methane	--	--	--	0.054	U	0.054	U	0.07	U	0.058	U	0.062	U
Hexachlorobutadiene	--	--	--	0.05	U	0.051	U	0.065	U	0.054	U	0.058	U
Hexachlorocyclopentadiene	--	--	--	0.11	U	0.12	U	0.15	U	0.12	U	0.13	U
Hexachloroethane	--	--	--	0.032	U	0.033	U	0.042	U	0.035	U	0.038	U
Isophorone	--	4.4	--	0.047	U	0.048	U	0.062	U	0.051	U	0.055	U
Naphthalene	500	12	12	0.059	U	0.06	U	0.077	U	0.064	U	0.068	U
Nitrobenzene	69	0.17	--	0.042	U	0.043	U	0.055	U	0.046	U	0.049	U
NitrosoDiPhenylAmine(NDPA)/DPA	--	--	--	0.037	U	0.038	U	0.049	U	0.04	U	0.043	U
n-Nitrosodi-n-propylamine	--	--	--	0.053	U	0.054	U	0.069	U	0.057	U	0.062	U
Bis(2-Ethylhexyl)phthalate	--	435	--	0.15	J	0.12	J	0.061	U	0.077	J	0.16	J
Butyl benzyl phthalate	--	122	--	0.035	U	0.035	U	0.045	U	0.037	U	0.04	U
Di-n-butylphthalate	--	8.1	--	0.034	U	0.035	U	0.045	U	0.037	U	0.04	U
Di-n-octylphthalate	--	120	--	0.044	U	0.044	U	0.057	U	0.047	U	0.051	U
Diethyl phthalate	--	7.1	--	0.038	U	0.038	U	0.049	U	0.04	U	0.044	U
Dimethyl phthalate	--	27	--	0.045	U	0.046	U	0.059	U	0.049	U	0.052	U
Benzo(a)anthracene	5.6	1	1	0.053	J	0.072	J	0.045	U	0.038	U	0.04	U
Benzo(a)pyrene	1	22	1	0.047	J	0.068	J	0.057	U	0.047	U	0.05	U
Benzo(b)fluoranthene	5.6	1.7	1	0.061	J	0.09	J	0.047	U	0.039	U	0.042	U
Benzo(k)fluoranthene	56	1.7	0.8	0.034	U	0.034	U	0.044	U	0.036	U	0.039	U
Chrysene	56	1	1	0.054	J	0.076	J	0.045	U	0.038	U	0.04	U
Acenaphthylene	500	107	100	0.033	U	0.034	U	0.043	U	0.036	U	0.039	U
Anthracene	500	1000	100	0.03	U	0.03	U	0.038	U	0.032	U	0.034	U
Benzo(ghi)perylene	500	1000	100	0.037	U	0.043	J	0.048	U	0.04	U	0.043	U
Fluorene	500	386	30	0.051	U	0.051	U	0.066	U	0.055	U	0.059	U
Phenanthrene	500	1000	100	0.057	J	0.082	J	0.045	U	0.037	U	0.04	U
Dibenzo(a,h)anthracene	0.56	1000	0.33	0.034	U	0.035	U	0.045	U	0.037	U	0.04	U
Indeno(1,2,3-cd)Pyrene	5.6	8.2	0.5	0.04	U	0.04	J	0.051	U	0.042	U	0.046	U
Pyrene	500	1000	100	0.092	J	0.12		0.045	U	0.037	U	0.04	U
Biphenyl	--	--	--	0.059	U	0.059	U	0.076	U	0.063	U	0.068	U
4-Chloroaniline	--	0.22	--	0.047	U	0.047	U	0.061	U	0.05	U	0.054	U
2-Nitroaniline	--	0.4	--	0.05	U	0.051	U	0.065	U	0.054	U	0.058	U
3-Nitroaniline	--	0.5	--	0.049	U	0.05	U	0.064	U	0.053	U	0.057	U
4-Nitroaniline	--	--	--	0.048	U	0.048	U	0.062	U	0.052	U	0.056	U
Dibenzofuran	350	6.2	7	0.06	U	0.06	U	0.077	U	0.064	U	0.069	U
2-Methylnaphthalene	--	36.4	--	0.057	U	0.057	U	0.074	U	0.061	U	0.066	U
1,2,4,5-Tetrachlorobenzene	--	--	--	0.055	U	0.056	U	0.072	U	0.059	U	0.064	U
Acetophenone	--	--	--	0.055	U	0.056	U	0.072	U	0.059	U	0.064	U
2,4,6-Trichlorophenol	--	--	--	0.034	U	0.034	U	0.044	U	0.036	U	0.039	U
P-Chloro-M-Cresol	--	--	--	0.052	U	0.052	U	0.067	U	0.056	U	0.06	U
2-Chlorophenol	--	--	--	0.054	U	0.054	U	0.07	U	0.058	U	0.062	U
2,4-Dichlorophenol	--	0.4	--	0.058	U	0.058	U	0.075	U	0.062	U	0.067	U
2,4-Dimethylphenol	--	--	--	0.053	U	0.054	U	0.069	U	0.057	U	0.062	U
2-Nitrophenol	--	0.3	--	0.056	U	0.056	U	0.072	U	0.06	U	0.064	U
4-Nitrophenol	--	0.1	--	0.058	U	0.058	U	0.075	U	0.062	U	0.067	U
2,4-Dinitrophenol	--	0.2	--	0.24	U	0.24	U	0.32	U	0.26	U	0.28	U
4,6-Dinitro-o-cresol	--	--	--	0.065	U	0.066	U	0.085	U	0.07	U	0.076	U
Pentachlorophenol	6.7	0.8	0.8	0.038	U	0.038	U	0.05	U	0.041	U	0.044	U
Phenol	500	0.33	0.33	0.053	U	0.053	U	0.068	U	0.057	U	0.061	U
2-Methylphenol	500	0.33	0.33	0.057	U	0.058	U	0.074	U	0.062	U	0.066	U
3-Methylphenol/4-Methylphenol	500	0.33	0.33	0.058	U	0.059	U	0.076	U	0.063	U	0.068	U
2,4,5-Trichlorophenol	--	0.1	--	0.058	U	0.058	U	0.075	U	0.062	U	0.067	U
Benzoic Acid	--	2.7	--	0.18	U	0.18	U	0.23	U	0.19	U	0.21	U
Benzyl Alcohol	--	--	--	0.055	U	0.055	U	0.071	U	0.059	U	0.064	U
Carbazole	--	--	--	0.038	U	0.039	U	0.05	U	0.041	U	0.044	U
Total SVOCs	--	--	--	0.612	-	0.851	-	-	-	0.077	-	0.16	-
No Tentatively Identified Compounds	--	--	--	0	U	-	-	-	-	0	U	0	U
Unknown	--	--	--	-	-	-	-	0.22		-	-	-	-
Unknown	--	--	--	-	-	0.18		-	-	-	-	-	-
Unknown	--	--	--	-	-	0.15		-	-	-	-	-	-
Cyclic Octaatomic Sulfur	--	--	--	-	-	-	-	-	-	-	-	-	-
Unknown	--	--	--	-	-	0.45		-	-	-	-	-	-
Total SVOCs	--	--	--	-	-	0.78	-	0.22	-	-	-	-	-

Notes:
NY-UNRES = New York Unrestricted Use Criteria
NY-RESC = Commercial Criteria, New York Restricted Use
NY-RESGW = Groundwater Criteria, New York Restricted Use
Cells highlighted in yellow indicate concentrations above the NY-RESC, NY-RESGW, and NY-UNRES values
Cells highlighted in blue indicate concentrations above either the NY-RESGW or NY-UNRES value, or both, but below the NY-RESC value
Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 6: Pesticides and PCBs in Soil
JS Cleaners- Rochdale Village

LOCATION	NY-RESC	NY-RESGW	NY-UNRES	JS/SB1 (0-2)		JS/SB1 (13-14)		JS/SB1 (15-16)		JS/SB1 (20-21)		JS-SB-2D (0-2)		JS-SB-2D (16-18)		JS-SB-2D (45-47)		JS/SB3D (1-3)		JS/SB3D (15-17)		JS/SB3D (20-22)		JS/SB3D (33-35)	
LAB SAMPLE ID				L1528466-01		L1528466-02		L1528466-03		L1528466-04		L1528960-01		L1528960-02		L1528960-03		L1529459-01		L1529459-02		L1529459-04		L1529459-05	
COLLECTION DATE				11/3/15		11/3/15		11/3/15		11/3/15		11/6/2015		11/6/2015		11/6/2015		11/9/15		11/9/15		11/9/15		11/9/15	
Pesticides Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Delta-BHC	500	0.25	0.04	0.000304	U	0.000319	U	0.000354	U	0.000386	U	0.000394	U	0.000381	U	0.000395	U	0.000326	U	0.000344	U	0.000368	U	0.000361	U
Lindane	9.2	0.1	0.1	0.00029	U	0.000303	U	0.000337	U	0.000367	U	0.000374	U	0.000362	U	0.000376	U	0.00031	U	0.000327	U	0.00035	U	0.000343	U
Alpha-BHC	3.4	0.02	0.02	0.000184	U	0.000193	U	0.000214	U	0.000233	U	0.000238	U	0.00023	U	0.000239	U	0.000197	U	0.000208	U	0.000222	U	0.000218	U
Beta-BHC	3	0.09	0.036	0.000589	U	0.000617	U	0.000686	U	0.000747	U	0.000762	U	0.000737	U	0.000765	U	0.000632	U	0.000665	U	0.000712	U	0.000698	U
Heptachlor	15	0.38	0.042	0.000348	U	0.000365	U	0.000406	U	0.000441	U	0.00045	U	0.000436	U	0.000452	U	0.000374	U	0.000393	U	0.000421	U	0.000413	U
Aldrin	0.68	0.19	0.005	0.000547	U	0.000573	U	0.000637	U	0.000693	U	0.000708	U	0.000685	U	0.00071	U	0.000587	U	0.000618	U	0.000661	U	0.000648	U
Heptachlor epoxide	--	0.02	--	0.000874	U	0.000916	U	0.00102	U	0.00111	U	0.00113	U	0.00109	U	0.00113	U	0.000938	U	0.000987	U	0.00106	U	0.00104	U
Endrin	89	0.06	0.014	0.000266	U	0.000278	U	0.000309	U	0.000336	U	0.000343	U	0.000332	U	0.000345	U	0.000285	U	0.0003	U	0.000321	U	0.000315	U
Endrin ketone	--	--	--	0.0004	U	0.000419	U	0.000466	U	0.000507	U	0.000518	U	0.000501	U	0.000519	U	0.000429	U	0.000452	U	0.000484	U	0.000474	U
Dieldrin	1.4	0.1	0.005	0.000486	U	0.000509	U	0.000566	U	0.000615	U	0.000628	U	0.000608	U	0.00063	U	0.000521	U	0.000548	U	0.000587	U	0.000576	U
4,4'-DDE	62	17	0.0033	0.000359	U	0.000376	U	0.000419	U	0.000455	U	0.0012	J	0.00045	U	0.000466	U	0.000385	U	0.000406	U	0.000434	U	0.000426	U
4,4'-DDD	92	14	0.0033	0.000554	U	0.00058	U	0.000646	U	0.000702	U	0.000717	U	0.000694	U	0.00072	U	0.000594	U	0.000626	U	0.00067	U	0.000657	U
4,4'-DDT	47	136	0.0033	0.00125	U	0.00131	U	0.00146	U	0.00158	U	0.00163	J	0.00156	U	0.00162	U	0.00134	U	0.00141	U	0.00151	U	0.00148	U
Endosulfan I	200	102	2.4	0.000367	U	0.000384	U	0.000428	U	0.000465	U	0.000475	U	0.000459	U	0.000477	U	0.000394	U	0.000414	U	0.000444	U	0.000435	U
Endosulfan II	200	102	2.4	0.000519	U	0.000544	U	0.000605	U	0.000658	U	0.000672	U	0.00065	U	0.000674	U	0.000557	U	0.000586	U	0.000628	U	0.000616	U
Endosulfan sulfate	200	1000	2.4	0.000308	U	0.000323	U	0.000359	U	0.00039	U	0.000399	U	0.000386	U	0.0004	U	0.000331	U	0.000348	U	0.000372	U	0.000365	U
Methoxychlor	--	900	--	0.000907	U	0.000949	U	0.00106	U	0.00115	U	0.00117	U	0.00113	U	0.00118	U	0.000972	U	0.00102	U	0.0011	U	0.00107	U
Toxaphene	--	--	--	0.00816	U	0.00854	U	0.0095	U	0.0103	U	0.0106	U	0.0102	U	0.0106	U	0.00875	U	0.00921	U	0.00986	U	0.00967	U
cis-Chlordane	24	2.9	0.094	0.000541	U	0.000567	U	0.000631	U	0.000686	U	0.0007	U	0.000677	U	0.000703	U	0.000581	U	0.000611	U	0.000654	U	0.000642	U
trans-Chlordane	--	--	--	0.000513	U	0.000537	U	0.000597	U	0.000813	J	0.000663	U	0.000642	U	0.000666	U	0.00055	U	0.000579	U	0.00062	U	0.000608	U
Chlordane	--	--	--	0.00515	U	0.00539	U	0.006	U	0.00652	U	0.00666	U	0.00644	U	0.00668	U	0.00552	U	0.00581	U	0.00622	U	0.0061	U
Polychlorinated Biphenyls																									
Aroclor 1016	1	3.2	0.1	0.00263	U	0.0027	U	0.00291	U	0.00324	U	0.00327	U	0.00309	U	0.00341	U	0.00276	U	0.00297	U	0.00316	U	0.00299	U
Aroclor 1221	1	3.2	0.1	0.00307	U	0.00315	U	0.00339	U	0.00378	U	0.00382	U	0.00361	U	0.00398	U	0.00322	U	0.00347	U	0.00369	U	0.00349	U
Aroclor 1232	1	3.2	0.1	0.0039	U	0.004	U	0.00431	U	0.0048	U	0.00485	U	0.00458	U	0.00506	U	0.00409	U	0.00441	U	0.0047	U	0.00444	U
Aroclor 1242	1	3.2	0.1	0.00407	U	0.00418	U	0.0045	U	0.00502	U	0.124		0.00479	U	0.00528	U	0.00427	U	0.00461	U	0.0049	U	0.00463	U
Aroclor 1248	1	3.2	0.1	0.00281	U	0.00288	U	0.0031	U	0.00346	U	0.0035	U	0.0033	U	0.00364	U	0.00294	U	0.00318	U	0.00338	U	0.0032	U
Aroclor 1254	1	3.2	0.1	0.048		0.0028	U	0.00302	U	0.00337	U	0.0478		0.00321	U	0.00355	U	0.00287	U	0.00309	U	0.00329	U	0.00311	U
Aroclor 1260	1	3.2	0.1	0.00254	U	0.0026	U	0.0028	U	0.00312	U	0.00913	J	0.00298	U	0.00329	U	0.00266	U	0.00287	U	0.00305	U	0.00288	U
Aroclor 1262	1	3.2	0.1	0.00165	U	0.00169	U	0.00182	U	0.00203	U	0.00205	U	0.00194	U	0.00214	U	0.00173	U	0.00187	U	0.00199	U	0.00188	U
Aroclor 1268	1	3.2	0.1	0.00482	U	0.00495	U	0.00534	U	0.00594	U	0.006	U	0.00567	U	0.00626	U	0.00506	U	0.00546	U	0.00581	U	0.00549	U
PCBs, Total	--	--	--	0.048		0.00169	U	0.00182	U	0.00203	U	0.181		0.00194	U	0.00214	U	0.00173	U	0.00187	U	0.00199	U	0.00188	U

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DUP = designation for duplicate sample
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For U qualified entries, the MDL is shown
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J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 3: Pesticides and PCBs in Soil
JS Cleaners- Rochdale Village

LOCATION				JS/SB4 (0-2)		JS/SB4 (14-15)		JS/SB4 (17-18)		JS/SB5 (1-3)		JS/SB5 (1-3) DUP		JS/SB5 (3-5)		JS/SB5 (15-17)		JS/SB5 (19-21)	
LAB SAMPLE ID				L1528466-06		L1528466-07		L1528466-08		L1529459-06		L1529459-07		L1529459-08		L1529459-09		L1529459-10	
COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	11/3/15		11/3/15		11/3/15		11/10/15		11/10/15		11/10/15		11/10/15		11/10/15	
Pesticides Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Delta-BHC	500	0.25	0.04	0.000332	U	0.000385	U	0.000355	U	0.000335	U	0.000339	U	0.000331	U	0.000346	U	0.000373	U
Lindane	9.2	0.1	0.1	0.000316	U	0.000366	U	0.000337	U	0.000319	U	0.000322	U	0.000315	U	0.000329	U	0.000355	U
Alpha-BHC	3.4	0.02	0.02	0.000201	U	0.000232	U	0.000214	U	0.000202	U	0.000205	U	0.0002	U	0.000209	U	0.000226	U
Beta-BHC	3	0.09	0.036	0.000643	U	0.000745	U	0.000686	U	0.000649	U	0.000656	U	0.000641	U	0.000669	U	0.000723	U
Heptachlor	15	0.38	0.042	0.00038	U	0.00044	U	0.000406	U	0.000384	U	0.000388	U	0.000379	U	0.000396	U	0.000427	U
Aldrin	0.68	0.19	0.005	0.000597	U	0.000692	U	0.000638	U	0.000603	U	0.000609	U	0.000595	U	0.000621	U	0.000671	U
Heptachlor epoxide	--	0.02	--	0.000954	U	0.0011	U	0.00102	U	0.000963	U	0.000973	U	0.000951	U	0.000992	U	0.00107	U
Endrin	89	0.06	0.014	0.00029	U	0.000336	U	0.000309	U	0.000292	U	0.000296	U	0.000289	U	0.000301	U	0.000326	U
Endrin ketone	--	--	--	0.000436	U	0.000506	U	0.000466	U	0.000441	U	0.000446	U	0.000435	U	0.000454	U	0.000491	U
Dieldrin	1.4	0.1	0.005	0.00053	U	0.000614	U	0.000566	U	0.000535	U	0.000541	U	0.000528	U	0.000551	U	0.000596	U
4,4'-DDE	62	17	0.0033	0.000899	J	0.000454	U	0.000419	U	0.000396	U	0.0004	U	0.000391	U	0.000408	U	0.000441	U
4,4'-DDD	92	14	0.0033	0.000605	U	0.000701	U	0.000646	U	0.000611	U	0.000617	U	0.000603	U	0.000629	U	0.00068	U
4,4'-DDT	47	136	0.0033	0.00244	J	0.00158	U	0.00146	U	0.00138	U	0.00139	U	0.00136	U	0.00142	U	0.00153	U
Endosulfan I	200	102	2.4	0.0004	U	0.000464	U	0.000428	U	0.000404	U	0.000409	U	0.000399	U	0.000417	U	0.00045	U
Endosulfan II	200	102	2.4	0.000566	U	0.000657	U	0.000605	U	0.000572	U	0.000578	U	0.000565	U	0.00059	U	0.000637	U
Endosulfan sulfate	200	1000	2.4	0.000336	U	0.00039	U	0.000359	U	0.00034	U	0.000343	U	0.000335	U	0.00035	U	0.000378	U
Methoxychlor	--	900	--	0.000989	U	0.00115	U	0.00106	U	0.000999	U	0.00101	U	0.000986	U	0.00103	U	0.00111	U
Toxaphene	--	--	--	0.0089	U	0.0103	U	0.00951	U	0.00899	U	0.00908	U	0.00888	U	0.00926	U	0.01	U
cis-Chlordane	24	2.9	0.094	0.000591	U	0.000684	U	0.000631	U	0.000596	U	0.000603	U	0.000589	U	0.000615	U	0.000664	U
trans-Chlordane	--	--	--	0.00056	U	0.000648	U	0.000598	U	0.000565	U	0.000571	U	0.000558	U	0.000582	U	0.000629	U
Chlordane	--	--	--	0.00562	U	0.00651	U	0.006	U	0.00567	U	0.00573	U	0.0056	U	0.00584	U	0.00632	U
Polychlorinated Biphenyls																			
Aroclor 1016	1	3.2	0.1	0.00284	U	0.00334	U	0.003	U	0.00277	U	0.00276	U	0.00283	U	0.00271	U	0.00325	U
Aroclor 1221	1	3.2	0.1	0.00331	U	0.0039	U	0.0035	U	0.00324	U	0.00322	U	0.0033	U	0.00316	U	0.0038	U
Aroclor 1232	1	3.2	0.1	0.00421	U	0.00495	U	0.00445	U	0.00412	U	0.0041	U	0.0042	U	0.00402	U	0.00483	U
Aroclor 1242	1	3.2	0.1	0.0044	U	0.00517	U	0.00464	U	0.0043	U	0.00428	U	0.00438	U	0.0042	U	0.00504	U
Aroclor 1248	1	3.2	0.1	0.00303	U	0.00356	U	0.0032	U	0.00296	U	0.00295	U	0.00302	U	0.00289	U	0.00348	U
Aroclor 1254	1	3.2	0.1	0.00296	U	0.00347	U	0.00312	U	0.00289	U	0.00288	U	0.00294	U	0.00282	U	0.00338	U
Aroclor 1260	1	3.2	0.1	0.00274	U	0.00322	U	0.00289	U	0.00268	U	0.00267	U	0.00273	U	0.00261	U	0.00314	U
Aroclor 1262	1	3.2	0.1	0.00178	U	0.0021	U	0.00188	U	0.00174	U	0.00174	U	0.00178	U	0.0017	U	0.00204	U
Aroclor 1268	1	3.2	0.1	0.00521	U	0.00613	U	0.0055	U	0.00509	U	0.00507	U	0.00519	U	0.00497	U	0.00597	U
PCBs, Total	--	--	--	0.00178	U	0.0021	U	0.00188	U	0.00174	U	0.00174	U	0.00178	U	0.0017	U	0.00204	U

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DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 7: Metals in Soil
JS Cleaners- Rochdale Village

LOCATION LAB SAMPLE ID COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	JS/SB1 (0-2) L1528466-01 11/3/2015		JS/SB1 (13-14) L1528466-02 11/3/2015		JS/SB1 (15-16) L1528466-03 11/3/2015		JS/SB1 (20-21) L1528466-04 11/3/2015		JS-SB-2D (0-2) L1528960-01 11/6/2015		JS-SB-2D (16-18) L1528960-02 11/6/2015		JS-SB-2D (45-47) L1528960-03 11/6/2015	
Total Metals Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	Conc	Q	Conc	Q	Conc	Q
Aluminum, Total	--	--	--	3900		2500		2000		1700		5600		1900		1500	
Antimony, Total	--	--	--	0.65	U	0.65	U	0.72	U	0.79	U	1.2	J	0.73	U	0.83	U
Arsenic, Total	16	16	13	2.7		1.7		1.4		0.75	J	1.9		0.55	J	0.21	U
Barium, Total	400	820	350	19		13		12		12		22		13		9.9	
Beryllium, Total	590	47	7.2	0.15	J	0.1	J	0.12	J	0.1	U	0.22	J	0.09	U	0.1	J
Cadmium, Total	9.3	7.5	2.5	0.06	U	0.06	U	0.06	U	0.07	U	0.06	U	0.06	U	0.07	U
Calcium, Total	--	--	--	1500		450		210		110		4700		140		260	
Chromium, Total	--	--	--	13		10		6.3		4.1		9.3		5.2		6.6	
Cobalt, Total	--	--	--	3.5		6.8		3		1.9	J	2.7		2.4		1.5	J
Copper, Total	270	1720	50	7		9.8		7.3		2.8		7.4		4.8		4.1	
Iron, Total	--	--	--	9500		11000		9600		6700		8500		7000		4000	
Lead, Total	1000	450	63	6.9		0.16	U	0.18	U	0.2	U	36		0.18	U	0.21	U
Magnesium, Total	--	--	--	1400		840		720		610		1700		650		560	
Manganese, Total	10000	2000	1600	190		210		120		160		130		190		37	
Mercury, Total	2.8	0.73	0.18	0.03	J	0.02	U	0.02	U	0.02	U	0.03	J	0.02	U	0.02	U
Nickel, Total	310	130	30	12		12		9.2		3.9		9.1		6.3		4.4	
Potassium, Total	--	--	--	480		480		480		480		320		470		470	
Selenium, Total	1500	4	3.9	0.24	U	0.24	U	0.27	U	0.3	U	0.26	U	0.27	U	0.31	U
Silver, Total	1500	8.3	2	0.16	U	0.16	U	0.18	U	0.2	U	0.17	U	0.18	U	0.21	U
Sodium, Total	--	--	--	44	J	40	J	35		44	J	260		34	J	31	U
Thallium, Total	--	--	--	0.33	U	0.32	U	0.36	U	0.4	U	0.34	U	0.36	U	0.42	U
Vanadium, Total	--	--	--	9.8		9.1		7.4		5		12		6		6.2	
Zinc, Total	10000	2480	109	22		31		11		14		29		7.9		10	

Notes:
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Cells highlighted in grey indicate MDL values above the Unrestricted SCO and/or the Restricted Groundwater SCO, but below the Restricted Commercial Use SCO
DUP = designation for duplicate sample
SCO = Soil Cleanup Objective
MDL = Maximum Detection Limit
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 4: Metals in Soil
JS Cleaners- Rochdale Village

LOCATION LAB SAMPLE ID COLLECTION DATE	NY-RESC	NY-RESGW	NY-UNRES	JS-SB-3D (0-2) L1528960-01 11/6/2015		JS-SB-3D (16-18) L1528960-02 11/6/2015		JS/SB3D (20-22) L1529459-04 11/9/2015		JS/SB3D (33-35) L1529459-05 11/9/2015		JS/SB4 (0-2) L1528466-06 11/3/2015		JS/SB4 (14-15) L1528466-07 11/3/2015		JS/SB4 (17-18) L1528466-08 11/3/2015	
Total Metals Units: mg/kg				Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Aluminum, Total	--	--	--	12000		3600		2000		3100		8300		2600		3100	
Antimony, Total	--	--	--	0.79	U	0.77	U	0.79	U	0.76	U	0.69	U	0.8	U	0.75	U
Arsenic, Total	16	16	13	8.2		2.2		0.6	J	0.54	J	3.2		1.1		1	
Barium, Total	400	820	350	57		22		12		22		22		16		27	
Beryllium, Total	590	47	7.2	0.5	J	0.14	J	0.1	J	0.09	U	0.23	J	0.1	U	0.09	U
Cadmium, Total	9.3	7.5	2.5	0.07	U	0.07	U	0.07	U	0.07	U	0.06	U	0.07	U	0.07	U
Calcium, Total	--	--	--	5100		370		270		260		770		150		140	
Chromium, Total	--	--	--	23		20		7.5		8.8		13		6.5		6.8	
Cobalt, Total	--	--	--	6		4.2		2.2		2.6		3.9		2.6		3.1	
Copper, Total	270	1720	50	24		11		5.7		5.7		6		5.1		4.3	
Iron, Total	--	--	--	18000		13000		9500		9500		11000		7000		8400	
Lead, Total	1000	450	63	67		0.19	U	0.2	U	0.19	U	2.8	J	0.2	U	0.19	U
Magnesium, Total	--	--	--	2400		1300		630		1200		1100		920		1300	
Manganese, Total	10000	2000	1600	370		210		140		110		120		160		180	
Mercury, Total	2.8	0.73	0.18	0.03	J	0.02	U	0.02	U	0.02	U	0.03	J	0.02	U	0.02	U
Nickel, Total	310	130	30	20		12		5.2		5.4		9.2		7.9		7	
Potassium, Total	--	--	--	630		920		500		1100		330		780		1100	
Selenium, Total	1500	4	3.9	0.3	U	0.29	U	0.3	U	0.28	U	0.26	U	0.3	U	0.28	U
Silver, Total	1500	8.3	2	0.2	U	0.19	U	0.2	U	0.19	U	0.17	U	0.2	U	0.19	U
Sodium, Total	--	--	--	55	J	66	J	46	J	42		68		30	U	28	U
Thallium, Total	--	--	--	0.4	U	0.39	U	0.4	U	0.38	U	0.35	U	0.4	U	0.37	U
Vanadium, Total	--	--	--	26		13		9.1		11		16		7.9		10	
Zinc, Total	10000	2480	109	71		15		8.4		12		16		12		13	

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Results and MDL values are in milligrams per kilogram (mg/kg)
Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 4: Metals in Soil
JS Cleaners- Rochdale Village

LOCATION	NY-RESC	NY-RESGW	NY-UNRES	JS/SB5 (3-5)		JS/SB5 (15-17)		JS/SB5 (1-3)		JS/SB5 (1-3) DUP		JS/SB5 (19-21)	
LAB SAMPLE ID				L1529459-08		L1529459-09		L1529459-06		L1529459-07		L1529459-10	
COLLECTION DATE				11/10/2015		11/10/2015		11/10/2015		11/10/2015		11/10/2015	
Total Metals Units: mg/kg				**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Aluminum, Total	--	--	--	4900		2400		5400		5500		1700	
Antimony, Total	--	--	--	0.69	U	0.71	U	0.69	U	0.67	U	0.8	U
Arsenic, Total	16	16	13	2.5		0.38	J	2.3		4.5		0.42	J
Barium, Total	400	820	350	120		13		23		24		9.8	
Beryllium, Total	590	47	7.2	0.21	J	0.09	U	0.2	J	0.21	J	0.1	U
Cadmium, Total	9.3	7.5	2.5	0.06	U	0.06	U	0.06	U	0.06	U	0.07	U
Calcium, Total	--	--	--	1300		180		1600		3400		130	
Chromium, Total	--	--	--	8		5.3		8.8		8.7		6.2	
Cobalt, Total	--	--	--	2.7		2.4		2.9		2.9		1.9	J
Copper, Total	270	1720	50	8.2		5.4		8.4		8.2		4.1	
Iron, Total	--	--	--	9700		6800		8500		1.7	U	6400	
Lead, Total	1000	450	63	24		0.18	U	12		16		0.2	U
Magnesium, Total	--	--	--	810		700		880		1100		710	
Manganese, Total	10000	2000	1600	200		120		180		180		130	
Mercury, Total	2.8	0.73	0.18	0.06	J	0.02	U	0.05	J	0.067	J	0.02	U
Nickel, Total	310	130	30	7.6		5.7		7.1		9.1		4	
Potassium, Total	--	--	--	280		500		250		300		410	
Selenium, Total	1500	4	3.9	0.26	U	0.27	U	0.26	U	0.25	U	0.3	U
Silver, Total	1500	8.3	2	0.17	U	0.18	U	0.17	U	0.17	U	0.2	U
Sodium, Total	--	--	--	110	J	28	J	120	J	140	J	50	J
Thallium, Total	--	--	--	0.35	U	0.36	U	0.34	U	0.34	U	0.4	U
Vanadium, Total	--	--	--	12		7.6		12		12		4.9	
Zinc, Total	10000	2480	109	20		9.6		18		23		20	

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Soil sample depths shown in feet (ft) within sample location
-- = No standard

Table 8: Volatile Organic Compounds (VOCs) in Groundwater
JS Cleaners- Rochdale Village

SAMPLE ID:		JSGW1		JSGW1 DUP		JSGW2S		JSGW2D		JS GW3S		JS GW3D	
LAB ID:		L1530794-01		L1530794-02		L1530794-04		L1530794-03		L1530650-04		L1530650-05	
COLLECTION DATE:	NY-TOGS-GA	11/23/2015		11/23/2015		11/23/2015		11/23/2015		11/20/2015		11/20/2015	
Volatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1-Dichloroethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Chloroform	7	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Carbon tetrachloride	5	1.3	U	1.3	U	0.13	U	0.13	U	0.13	U	0.13	U
1,2-Dichloropropane	1	1.3	U	1.3	U	0.13	U	0.13	U	0.13	U	0.13	U
Dibromochloromethane	50	1.5	U	1.5	U	0.15	U	0.15	U	0.15	U	0.15	U
1,1,2-Trichloroethane	1	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	5	620		590		0.37	J	0.96		0.28	J	0.34	J
Chlorobenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Trichlorofluoromethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dichloroethane	0.6	1.3	U	1.3	U	0.13	U	0.13	U	0.13	U	0.13	U
1,1,1-Trichloroethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromodichloromethane	50	1.9	U	1.9	U	0.19	U	0.19	U	0.19	U	0.19	U
trans-1,3-Dichloropropene	0.4	1.6	U	1.6	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.4	1.4	U	1.4	U	0.14	U	0.14	U	0.14	U	0.14	U
1,3-Dichloropropene, Total	--	1.4	U	1.4	U	0.14	U	0.14	U	0.14	U	0.14	U
1,1-Dichloropropene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromoform	50	6.5	U	6.5	U	0.65	U	0.65	U	0.65	U	0.65	U
1,1,2,2-Tetrachloroethane	5	1.4	U	1.4	U	0.14	U	0.14	U	0.14	U	0.14	U
Benzene	1	1.6	U	1.6	U	0.16	U	0.16	U	0.16	U	0.16	U
Toluene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Chloromethane	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromomethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Vinyl chloride	2	0.7	U	0.7	U	0.07	U	0.07	U	0.07	U	0.07	U
Chloroethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1-Dichloroethene	5	1.4	U	1.4	U	0.14	U	0.14	U	0.14	U	0.14	U
trans-1,2-Dichloroethene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Trichloroethene	5	1.8	U	1.8	U	0.18	U	0.42	J	0.18	U	0.18	J
1,2-Dichlorobenzene	3	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,3-Dichlorobenzene	3	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,4-Dichlorobenzene	3	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Methyl tert butyl ether	10	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
p/m-Xylene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
o-Xylene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Xylenes, Total	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
cis-1,2-Dichloroethene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dichloroethene, Total	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dibromomethane	5	10	U	10	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	0.04	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Acrylonitrile	5	15	U	15	U	1.5	U	1.5	U	1.5	U	1.5	U
Styrene	930	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Dichlorodifluoromethane	5	10	U	10	U	1	U	1	U	1	U	1	U
Acetone	50	15	U	15	U	1.5	U	1.5	U	1.5	U	1.5	U
Carbon disulfide	60	10	U	10	U	1	U	1	U	1	U	1	U
2-Butanone	50	19	U	19	U	1.9	U	1.9	U	1.9	U	1.9	U
Vinyl acetate	--	10	U	10	U	1	U	1	U	1	U	1	U
4-Methyl-2-pentanone	--	10	U	10	U	1	U	1	U	1	U	1	U
2-Hexanone	50	10	U	10	U	1	U	1	U	1	U	1	U
Bromochloromethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
2,2-Dichloropropane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dibromoethane	0.0006	6.5	U	6.5	U	0.65	U	0.65	U	0.65	U	0.65	U
1,3-Dichloropropane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,1,1,2-Tetrachloroethane	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Bromobenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
n-Butylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
sec-Butylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
tert-Butylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
o-Chlorotoluene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Chlorotoluene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2-Dibromo-3-chloropropane	0.04	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Hexachlorobutadiene	0.5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Isopropylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Isopropyltoluene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
Naphthalene	10	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
n-Propylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,3-Trichlorobenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4-Trichlorobenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,3,5-Trimethylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4-Trimethylbenzene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,4-Dioxane	--	410	U	410	U	41	U	41	U	41	U	41	U
p-Diethylbenzene	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
p-Ethyltoluene	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
1,2,4,5-Tetramethylbenzene	5	6.5	U	6.5	U	0.65	U	0.65	U	0.65	U	0.65	U
Ethyl ether	--	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
trans-1,4-Dichloro-2-butene	5	7	U	7	U	0.7	U	0.7	U	0.7	U	0.7	U
No Tentatively Identified Compounds	--	ND		ND		ND		ND		ND		ND	
Sulfur Dioxide	--	NA		NA		NA		NA		NA		NA	
Unknown	--	NA		NA		NA		NA		NA		NA	
Total TIC Compounds	--	NA		NA		NA		NA		NA		NA	

Notes:
NY-TOGS-GA: New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004.
MDL = Maximum Detection Limit
Conc = Concentration
Q = Laboratory Data Qualifier
NA = Not Analyzed
Cells highlighted in yellow indicate concentrations above NY-TOGS-GA
Cells shaded in grey indicate MDL values above NY-TOGS-GA
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard

Table 5: Volatile Organic Compounds (VOCs) in Groundwater
JS Cleaners- Rochdale Village

SAMPLE ID:		JSGW-6		JSGW-6 DUP		TRIP BLANK		FIELD BLANK		FIELD BLANK-JS		TRIP BLANK	
LAB ID:		L1642598-01		L1642598-02		L1530650-06		L1530794-05		L1642598-03		L1642598-04	
COLLECTION DATE:	NY-TOGS-GA	12/30/2016		12/30/2016		11/18/2015		11/23/2015		12/30/2016		12/30/2016	
Volatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Methylene chloride	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,1-Dichloroethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Chloroform	7	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.13	U	0.13	U	0.5	U	0.5	U
1,2-Dichloropropane	1	1	U	1	U	0.13	U	0.13	U	1	U	1	U
Dibromochloromethane	50	0.5	U	0.5	U	0.15	U	0.15	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	1.5	U	1.5	U	0.5	U	0.5	U	1.5	U	1.5	U
Tetrachloroethene	5	1.2		1.3		0.18	U	0.18	U	0.5	U	0.5	U
Chlorobenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Trichlorofluoromethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.13	U	0.13	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.19	U	0.19	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.16	U	0.16	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.14	U	0.14	U	0.5	U	0.5	U
1,3-Dichloropropene, Total	--	0.5	U	0.5	U	0.14	U	0.14	U	0.5	U	0.5	U
1,1-Dichloropropene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Bromoform	50	2	U	2	U	0.65	U	0.65	U	2	U	2	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.14	U	0.14	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	0.16	U	0.16	U	0.5	U	0.5	U
Toluene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Ethylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Chloromethane	--	2.5	U	2.5	U	1.3	J	0.7	U	2.5	U	2.5	U
Bromomethane	5	0.83	J	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Vinyl chloride	2	1	U	1	U	0.07	U	0.07	U	1	U	1	U
Chloroethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,1-Dichloroethene	5	0.5	U	0.5	U	0.14	U	0.14	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Trichloroethene	5	0.5	U	0.5	U	0.18	U	0.18	U	0.5	U	0.5	U
1,2-Dichlorobenzene	3	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,3-Dichlorobenzene	3	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,4-Dichlorobenzene	3	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Methyl tert butyl ether	10	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
p/m-Xylene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
o-Xylene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Xylenes, Total	--	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2-Dichloroethene, Total	--	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Dibromomethane	5	5	U	5	U	1	U	1	U	5	U	5	U
1,2,3-Trichloropropane	0.04	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Acrylonitrile	5	5	U	5	U	1.5	U	1.5	U	5	U	5	U
Styrene	930	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Dichlorodifluoromethane	5	5	U	5	U	1	U	1	U	5	U	5	U
Acetone	50	5	U	5	U	1.5	U	1.5	U	5	U	5	U
Carbon disulfide	60	5	U	5	U	1	U	1	U	5	U	5	U
2-Butanone	50	5	U	5	U	1.9	U	1.9	U	5	U	5	U
Vinyl acetate	--	5	U	5	U	1	U	1	U	5	U	5	U
4-Methyl-2-pentanone	--	5	U	5	U	1	U	1	U	5	U	5	U
2-Hexanone	50	5	U	5	U	1	U	1	U	5	U	5	U
Bromochloromethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
2,2-Dichloropropane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2-Dibromoethane	0.0006	2	U	2	U	0.65	U	0.65	U	2	U	2	U
1,3-Dichloropropane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,1,1,2-Tetrachloroethane	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Bromobenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
n-Butylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
sec-Butylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
tert-Butylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
o-Chlorotoluene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
p-Chlorotoluene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2-Dibromo-3-chloropropane	0.04	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Hexachlorobutadiene	0.5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Isopropylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
p-Isopropyltoluene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
Naphthalene	10	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
n-Propylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2,3-Trichlorobenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2,4-Trichlorobenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,3,5-Trimethylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,2,4-Trimethylbenzene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
1,4-Dioxane	--	250	U	250	U	41	U	41	U	250	U	250	U
p-Diethylbenzene	--	2	U	2	U	0.7	U	0.7	U	2	U	2	U
p-Ethyltoluene	--	2	U	2	U	0.7	U	0.7	U	2	U	2	U
1,2,4,5-Tetramethylbenzene	5	2	U	2	U	0.65	U	0.65	U	2	U	2	U
Ethyl ether	--	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
trans-1,4-Dichloro-2-butene	5	2.5	U	2.5	U	0.7	U	0.7	U	2.5	U	2.5	U
No Tentatively Identified Compounds	--	NA		NA		-		ND		NA		NA	
Sulfur Dioxide	--	NA		NA		4.4	J	NA		NA		NA	
Unknown	--	NA		NA		1.2	J	NA		NA		NA	
Total TIC Compounds	--	NA		NA		5.6	J	NA		NA		NA	

Notes:
NY-TOGS-GA: New York TOGS 111 Groundwater Effluent Lim
MDL = Maximum Detection Limit
Conc = Concentration
Q = Laboratory Data Qualifier
NA = Not Analyzed
Cells highlighted in yellow indicate concentrations above NY-TC
Cells shaded in grey indicate MDL values above NY-TOGS-GA
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RI
-- = No standard

Table 9: Semi Volatile Organic Compounds in Groundwater
JS Cleaners- Rochdale Village

SAMPLE ID:		JSGW1		JSGW1 DUP		JSGW2S		JSGW2D		JS GW3S		JS GW3D		FIELD BLANK	
LAB ID:		L1530794-01		L1530794-02		L1530794-04		L1530794-03		L1530650-04		L1530650-05		L1530794-05	
COLLECTION DATE:	NY-TOGS-GA	11/23/2015		11/23/2015		11/23/2015		11/23/2015		11/20/2015		11/20/2015		11/23/2015	
Semivolatile Organic Compounds Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
1,2,4-Trichlorobenzene	5	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Bis(2-chloroethyl)ether	1	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
1,2-Dichlorobenzene	3	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
1,3-Dichlorobenzene	3	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,4-Dichlorobenzene	3	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
3,3'-Dichlorobenzidine	5	0.48	U	0.48	U	0.48	U	0.48	U	0.48	U	0.48	U	0.48	U
2,4-Dinitrotoluene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2,6-Dinitrotoluene	5	0.89	U	0.89	U	0.89	U	0.89	U	0.89	U	0.89	U	0.89	U
4-Chlorophenyl phenyl ether	--	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
4-Bromophenyl phenyl ether	--	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Bis(2-chloroisopropyl)ether	5	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Bis(2-chloroethoxy)methane	5	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Hexachlorocyclopentadiene	5	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U
Isophorone	50	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U
Nitrobenzene	0.4	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
NitrosoDiPhenylAmine(NDPA)/DPA	50	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
n-Nitrosodi-n-propylamine	--	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	0.64	U
Bis(2-Ethylhexyl)phthalate	5	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U
Butyl benzyl phthalate	50	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Di-n-butylphthalate	50	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
Di-n-octylphthalate	50	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Diethyl phthalate	50	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Dimethyl phthalate	50	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Biphenyl	--	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
4-Chloroaniline	5	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U
2-Nitroaniline	5	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U	0.96	U
3-Nitroaniline	5	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
4-Nitroaniline	5	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U	0.83	U
Dibenzofuran	--	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,2,4,5-Tetrachlorobenzene	5	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
Acetophenone	--	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
2,4,6-Trichlorophenol	--	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U
P-Chloro-M-Cresol	--	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
2-Chlorophenol	--	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U
2,4-Dichlorophenol	2	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U	0.56	U
2,4-Dimethylphenol	2	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U	0.58	U
2-Nitrophenol	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
4-Nitrophenol	--	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
2,4-Dinitrophenol	2	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
4,6-Dinitro-o-cresol	--	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Phenol	2	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
2-Methylphenol	--	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
3-Methylphenol/4-Methylphenol	--	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U
2,4,5-Trichlorophenol	--	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
Benzoic Acid	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Benzyl Alcohol	--	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U	0.68	U
Carbazole	--	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Unknown	--	-		-		8.5	J	5.6	J	0	U	0	U	7.4	J
Unknown	--	80	J	92	J	-	-	-	-	-	-	-	-	-	-
Unknown	--	5.6	J	5.6	J	-	-	-	-	-		-		-	-
Acenaphthene	20	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
2-Chloronaphthalene	10	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Fluoranthene	50	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Hexachlorobutadiene	0.5	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Naphthalene	10	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Benzo(a)anthracene	--	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Benzo(a)pyrene	0	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Benzo(b)fluoranthene	0.002	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Benzo(k)fluoranthene	0.002	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Chrysene	0.002	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Acenaphthylene	--	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Anthracene	50	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Benzo(ghi)perylene	--	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Fluorene	50	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Phenanthrene	50	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Dibenzo(a,h)anthracene	--	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Indeno(1,2,3-cd)Pyrene	0.002	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Pyrene	50	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
2-Methylnaphthalene	--	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Pentachlorophenol	2	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
Hexachlorobenzene	0.04	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Hexachloroethane	5	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U

Notes:
NY-TOGS-GA: New York TOGS 111 Groundwater Effluent Limitations criteria reflects all addendum to criteria through June 2004.
MDL = Maximum Detection Limit
Conc = Concentration
Q = Laboratory Data Qualifier
NA = Not Analyzed
Cells highlighted in yellow indicate concentrations above NY-TOGS-GA
Cells shaded in grey indicate MDL values above NY-TOGS-GA
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard

Table 10: Pesticides/PCBs in Groundwater
JS Cleaners- Rochdale Village

SAMPLE ID:		JSGW1		JSGW1 DUP		JSGW2S		JSGW2D		JS GW3S		JS GW3D		FIELD BLANK	
LAB ID:		L1530794-01		L1530794-02		L1530794-04		L1530794-03		L1530650-04		L1530650-05		L1530794-05	
COLLECTION DATE:	NY-TOGS-GA	11/23/2015		11/23/2015		11/23/2015		11/23/2015		11/20/2015		11/20/2015		11/23/2015	
Pesticides Units: ug/l		Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Delta-BHC	0.04	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Lindane	0.05	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Alpha-BHC	0.01	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Beta-BHC	0.04	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Heptachlor	0.04	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Aldrin	0	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Heptachlor epoxide	0.03	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Endrin	0	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Endrin ketone	5	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Dieldrin	0.004	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
4,4'-DDE	0.2	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
4,4'-DDD	0.3	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
4,4'-DDT	0.2	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Endosulfan I	--	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Endosulfan II	--	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Endosulfan sulfate	--	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Methoxychlor	35	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U
Toxaphene	0.06	0.063	U	0.063	U	0.063	U	0.063	U	0.063	U	0.063	U	0.063	U
cis-Chlordane	--	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U	0.007	U
trans-Chlordane	--	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Chlordane	0.05	0.046	U	0.046	U	0.046	U	0.046	U	0.046	U	0.046	U	0.046	U
Polychlorinated Biphenyls															
Aroclor 1016	0.09	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U	0.055	U
Aroclor 1221	0.09	0.053	U	0.053	U	0.053	U	0.053	U	0.053	U	0.053	U	0.053	U
Aroclor 1232	0.09	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U
Aroclor 1242	0.09	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Aroclor 1248	0.09	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U	0.051	U
Aroclor 1254	0.09	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U	0.034	U
Aroclor 1260	0.09	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U	0.032	U
Aroclor 1262	0.09	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U
Aroclor 1268	0.09	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U	0.038	U
PCBs, Total	--	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U	0.029	U

Notes:
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MDL = Maximum Detection Limit
Conc = Concentration
Q = Laboratory Data Qualifier
NA = Not Analyzed
Cells highlighted in yellow indicate concentrations above NY-TOGS-GA
Cells shaded in grey indicate MDL values above NY-TOGS-GA
For U qualified entries, the MDL is shown
U = not detected at or above the MDL
For J qualified entries, the estimated concentration is shown
J = estimated value, indicating the detected value is below the RL, but above the MDL
-- = No standard

Table 11: Metals in Groundwater
JS Cleaners- Rochdale Village

SAMPLE ID:		JSGW1		JSGW1 DUP		JSGW2S		JSGW2D		JS GW3S		JS GW3D		FIELD BLANK	
LAB ID:		L1530794-01		L1530794-02		L1530794-04		L1530794-03		L1530650-04		L1530650-05		L1530794-05	
COLLECTION DATE:	NY-TOGS-GA	11/23/2015		11/23/2015		11/23/2015		11/23/2015		11/20/2015		11/20/2015		11/23/2015	
Dissolved Metals Units: ug/l		**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**	**Conc**	**Q**
Aluminum, Dissolved	2000	5.91	J	3.2	J	4.66	J	3.13	J	3	J	2	U	4.14	J
Antimony, Dissolved	6	1.24	J	0.98	J	0.81	J	0.96	J	0.5	J	0.9	J	1.4	J
Arsenic, Dissolved	50	0.21	J	0.23	J	0.19	J	0.13	J	0.3	J	0.2	J	0.12	U
Barium, Dissolved	2000	87.97		87.74		93.96		56.7		55.1		77.3		0.26	J
Beryllium, Dissolved	3	0.15	U	0.15	U	0.15	U	0.15	U	0.2	U	0.2	U	0.15	U
Cadmium, Dissolved	10	0.05	U	0.05	U	0.05	U	0.05	U	0.1	J	0.1	U	0.05	U
Calcium, Dissolved	--	183000		180000		87900		72800		114000		84000		55.2	J
Chromium, Dissolved	100	1.06	J	0.92	J	1.33	J	0.81	J	16.9		3.7	J	1.29	J
Cobalt, Dissolved	--	4.14		3.87		0.08	J	0.72		0.5		0.7		0.06	U
Copper, Dissolved	1000	0.64	J	0.92	J	0.34	J	0.26	U	0.7	J	0.3	J	0.26	U
Iron, Dissolved	600	1040		911		12	U	12	U	77		18	J	12	U
Lead, Dissolved	50	0.12	U	0.12	U	0.12	U	0.12	U	0.1	U	0.1	U	0.12	U
Magnesium, Dissolved	35000	18500		18500		11000		15500		11200		12000		22.3	U
Manganese, Dissolved	600	1389		1118		68		444.1		401.9		550.4		0.3	U
Mercury, Dissolved	1.4	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Nickel, Dissolved	200	9.72		9.21		1.34	J	3.34		5.7		3.4	J	1.07	J
Potassium, Dissolved	--	9760		9780		8400		6100		5920		7730		19.3	U
Selenium, Dissolved	20	4.58	J	4.66	J	3.43	J	1	U	4.8	J	1	J	1	U
Silver, Dissolved	100	0.07	U	0.07	U	0.07	U	0.07	U	0.1	U	0.1	U	0.07	U
Sodium, Dissolved	--	142000		176000		106000		51800		83700		86600		92.5	J
Thallium, Dissolved	0.5	0.17	J	0.16	J	0.11	J	0.05	U	0.1	J	0.1	U	0.05	U
Vanadium, Dissolved	--	0.55	U	0.55	U	0.55	U	0.55	U	0.6	U	0.6	U	0.55	U
Zinc, Dissolved	5000	25.96		24.56		2.56	U	2.56	U	2.6	U	2.6	U	2.56	U
Total Metals															
Aluminum, Total	2000	279		143		80		21		13		38		14	
Antimony, Total	6	0.2	J	0.1	J	0.2	J	0.8	J	0.1	J	0.1	J	0.1	U
Arsenic, Total	50	0.6		0.4	J	0.3	J	0.1	U	0.2	J	0.2	J	0.1	U
Barium, Total	2000	88.2		83.4		95		56.9		58.7		80.8		0.3	J
Beryllium, Total	3	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium, Total	10	0.1	U	0.1	U	0.1	U	0.1	J	0.1	J	0.1	J	0.1	U
Calcium, Total	--	170000		192000		100000		78200		107000		80700		228	
Chromium, Total	100	3.1		1.5	J	0.9	J	0.8	J	1.6	J	1.7	J	0.6	J
Cobalt, Total	--	4.4		3.6		0.1	J	0.6		0.4	J	0.7		0.1	U
Copper, Total	1000	1.8		1.7		0.6	J	0.3	U	0.4	J	0.5	J	0.3	U
Iron, Total	600	2060		1450		122		78		33	J	163		12	U
Lead, Total	50	0.3	J	0.2	J	0.3	J	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium, Total	35000	18100		17200		10100		14000		10400		12600		22	U
Manganese, Total	600	1237		1100		85.3		467.9		350.3		487.7		0.3	U
Mercury, Total	1.4	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Nickel, Total	200	9.9		8.4		1.1		3.3		2.8	J	2.3	J	0.2	J
Potassium, Total	--	9900		9330		8140		5940		5260		7800		19	U
Selenium, Total	20	4.9	J	4	J	4	J	1	U	5		1	U	1	U
Silver, Total	100	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Sodium, Total	--	146000		164000		121000		46900		69600		73000		120	
Thallium, Total	0.5	0.2	J	0.2	J	0.1	J	0.1	U	0.1	J	0.1	U	0.1	U
Vanadium, Total	--	0.8	J	0.6	U	0.6	J	0.6	U	0.6	U	0.6	U	0.6	U
Zinc, Total	5000	29.1		23.5		2.6	U	2.6	U	2.6	U	2.6	U	2.6	U

Notes:
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-- = No standard

Table 12 - Volatile Organic Compounds in Soil Vapor Compared to Ambient Levels
JS Cleaners - Rochdale Village - Queens, NY

SAMPLE ID:	JS-AA		JS-SV-1		JS-SV-2		JS-SV-3		JS-SV-4		JS-SV-6		JS-SV-7		JS-SV-8		JS-SS-1		JS-SS-2		JS-SS-3		JS-SS-4		JS-SS-5		IA-JS	
LAB ID:	L1531047-01		L1531047-02		L1531047-07		L1531047-06		L1531047-03		L1642601-04		L1642601-05		L1642601-06		L1531047-08		L1531047-10		L1531047-09		L1531047-04		L1531047-05		L1642601-07	
COLLECTION DATE:	11/24/2015		11/24/2015		11/24/2015		11/24/2015		11/24/2015		12/30/2016		12/30/2016		12/30/2016		11/24/2015		11/24/2015		11/24/2015		11/24/2015		11/24/2015		12/30/2016	
Volatile Organic Compounds Units: ug/m3	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Dichlorodifluoromethane	1.21		5.54	U	4.94	U	0.989	U	9.89	U	2.36		2.37		2.89		9.89	U	9.89	U	9.89	U	9.89	U	21.1		3.07	
Chloromethane	1.07		2.31	U	2.07	U	0.876		4.13	U	0.413	U	0.413	U	0.481		4.13	U	4.13	U	4.13	U	4.13	U	8.3	U	1.18	
Freon-114	1.4	U	7.83	U	6.99	U	1.4	U	14	U	1.4	U	1.4	U	1.4	U	14	U	14	U	14	U	14	U	28.1	U	1.4	U
Vinyl chloride	0.511	U	2.86	U	2.56	U	0.511	U	5.11	U	0.511	U	0.511	U	0.511	U	5.11	U	5.11	U	5.11	U	5.11	U	10.3	U	0.051	U
1,3-Butadiene	0.442	U	2.48	U	2.21	U	0.442	U	4.42	U	0.442	U	0.442	U	0.442	U	4.42	U	4.42	U	4.42	U	4.42	U	8.89	U	0.442	U
Bromomethane	0.777	U	4.35	U	3.88	U	0.777	U	7.77	U	0.777	U	0.777	U	0.777	U	7.77	U	7.77	U	7.77	U	7.77	U	15.6	U	0.777	U
Chloroethane	0.528	U	2.96	U	2.64	U	0.528	U	5.28	U	0.528	U	0.528	U	0.528	U	5.28	U	5.28	U	5.28	U	5.28	U	10.6	U	0.528	U
Ethanol	17.6		83.5		116		34.3		154		53.3		65.2		50.1		230		203		245		213		349		556	
Vinyl bromide	0.874	U	4.9	U	4.37	U	0.874	U	8.74	U	0.874	U	0.874	U	0.874	U	8.74	U	8.74	U	8.74	U	8.74	U	17.6	U	0.874	U
Acetone	2.38	U	25.9		21.1		28.7		33		13		28.3		38		63.9		194		344		59.6		103		247	
Trichlorofluoromethane	1.22		6.29	U	5.62	U	1.29		4300		1.67		12.3		1.49		532		73.6		71.9		11.2	U	22.6	U	1.71	
Isopropanol	1.23	U	6.88	U	32.2		9.27		12.3	U	1.23	U	4.13		2.42		13.1		57.8		81.6		58.5		89		315	
1,1-Dichloroethene	0.793	U	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.793	U	7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.079	U
Tertiary butyl Alcohol	1.52	U	8.49	U	7.58	U	1.52	U	15.2	U	1.52	U	1.56		1.84		15.2	U	15.2	U	15.2	U	15.2	U	30.3	U	1.52	U
Methylene chloride	1.74	U	10.4		8.69	U	1.74	U	17.4	U	1.74	U	1.74	U	1.74	U	17.4	U	17.4	U	17.4	U	17.4	U	34.7	U	1.74	U
3-Chloropropene	0.626	U	3.51	U	3.13	U	0.626	U	6.26	U	0.626	U	0.626	U	0.626	U	6.26	U	6.26	U	6.26	U	6.26	U	12.6	U	0.626	U
Carbon disulfide	0.623	U	3.49	U	3.11	U	0.623	U	6.23	U	0.623	U	0.623	U	0.623	U	6.23	U	6.23	U	6.23	U	6.23	U	12.5	U	0.623	U
Freon-113	1.53	U	8.58	U	7.66	U	1.53	U	15.3	U	1.53	U	1.53	U	1.53	U	15.3	U	15.3	U	15.3	U	15.3	U	30.8	U	1.53	U
trans-1,2-Dichloroethene	0.793	U	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.892		7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.793	U
1,1-Dichloroethane	0.809	U	4.53	U	4.05	U	0.809	U	8.09	U	0.809	U	0.809	U	0.809	U	8.09	U	8.09	U	8.09	U	8.09	U	16.3	U	0.809	U
Methyl tert butyl ether	0.721	U	4.04	U	3.61	U	0.721	U	7.21	U	0.721	U	0.721	U	0.721	U	7.21	U	7.21	U	7.21	U	7.21	U	14.5	U	0.721	U
2-Butanone	1.47	U	8.26	U	7.37	U	1.68		14.7	U	1.47	U	2.75		3.92		14.7	U	14.7	U	14.7	U	14.7	U	29.5	U	1.98	
cis-1,2-Dichloroethene	0.793	U	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.793	U	7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.079	U
Ethyl Acetate	1.8	U	10.1	U	9.01	U	1.8	U	18	U	1.8	U	1.8	U	1.8	U	18	U	18	U	21.4		18	U	36	U	16.1	
Chloroform	0.977	U	5.47	U	230		1.75		9.77	U	0.977	U	0.977	U	0.977	U	9.77	U	9.77	U	9.77	U	9.77	U	25.6		1.81	
Tetrahydrofuran	1.47	U	8.26	U	7.37	U	1.47	U	14.7	U	1.47	U	1.47	U	1.47	U	14.7	U	14.7	U	14.7	U	14.7	U	29.5	U	1.47	U
1,2-Dichloroethane	0.809	U	4.53	U	4.05	U	0.809	U	8.09	U	0.809	U	0.809	U	0.809	U	8.09	U	8.09	U	8.09	U	8.09	U	16.3	U	1.21	
n-Hexane	1.06		3.95	U	3.52	U	0.705	U	7.05	U	1.54		3.03		2.52		7.05	U	7.05	U	7.05	U	7.05	U	14.2	U	1.29	
1,1,1-Trichloroethane	1.09	U	6.11	U	5.46	U	1.09	U	10.9	U	1.09	U	1.09	U	1.09	U	10.9	U	10.9	U	10.9	U	10.9	U	21.9	U	0.109	U
Benzene	1.12		3.58	U	3.19	U	1.47		6.39	U	2.8		2.31		2.59		6.39	U	6.39	U	6.39	U	6.39	U	12.8	U	1.32	
Carbon tetrachloride	1.26	U	7.05	U	6.29	U	1.26	U	12.6	U	1.26	U	1.26	U	1.26	U	12.6	U	12.6	U	12.6	U	12.6	U	25.3	U	0.654	
Cyclohexane	0.688	U	3.86	U	3.44	U	0.688	U	6.88	U	0.688	U	1.2		1.06		6.88	U	6.88	U	6.88	U	6.88	U	13.8	U	0.688	U
1,2-Dichloropropane	0.924	U	5.18	U	4.62	U	0.924	U	9.24	U	0.924	U	0.924	U	0.924	U	9.24	U	9.24	U	9.24	U	9.24	U	18.6	U	0.924	U
Bromodichloromethane	1.34	U	7.5	U	6.7	U	1.34	U	13.4	U	1.34	U	1.34	U	1.34	U	13.4	U	13.4	U	13.4	U	13.4	U	26.9	U	1.34	U
1,4-Dioxane	0.721	U	4.04	U	3.6	U	0.721	U	7.21	U	0.721	U	0.721	U	0.721	U	7.21	U	7.21	U	7.21	U	7.21	U	14.5	U	0.721	U
Trichloroethene	1.07	U	6.02	U	5.37	U	1.07	U	10.7	U	1.07	U	1.07	U	1.07	U	37.2		16.1		20.6		10.7	U	21.6	U	0.129	
2,2,4-Trimethylpentane	1.07		5.23	U	4.67	U	0.934	U	9.34	U	1.36		2.96		3.15		9.34	U	9.34	U	9.34	U	9.34	U	18.8	U	0.934	U
Heptane	0.82	U	4.59	U	4.1	U	0.82	U	8.2	U	1.12		1.19		1.39		8.2	U	8.2	U	8.2	U	8.2	U	16.5	U	0.955	
cis-1,3-Dichloropropene	0.908	U	5.08	U	4.54	U	0.908	U	9.08	U	0.908	U	0.908	U	0.908	U	9.08	U	9.08	U	9.08	U	9.08	U	18.3	U	0.908	U
4-Methyl-2-pentanone	2.05	U	11.5	U	10.2	U	2.05	U	20.5	U	2.05	U	2.05	U	2.54		20.5	U	20.5	U	20.5	U	20.5	U	41	U	2.05	U
trans-1,3-Dichloropropene	0.908	U	5.08	U	4.54	U	0.908	U	9.08	U	0.908	U	0.908	U	0.908	U	9.08	U	9.08	U	9.08	U	9.08	U	18.3	U	0.908	U
1,1,2-Trichloroethane	1.09	U	6.11	U	5.46	U	1.09	U	10.9	U	1.09	U	1.09	U	1.09	U	10.9	U	10.9	U	10.9	U	10.9	U	21.9	U	1.09	U
Toluene	2.26		5.77		4.07		2.66		7.54	U	6.93		6.44		7.39		7.54	U	7.54	U	7.54	U	7.54	U	15.1	U	10.3	
2-Hexanone	0.82	U	4.59	U	4.1	U	0.82	U	8.2	U	0.82	U	0.82	U	0.82	U	8.2	U	8.2	U	8.2	U	8.2	U	16.5	U	0.82	U
Dibromochloromethane	1.7	U	9.54	U	8.52	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	17	U	17	U	17	U	34.2	U	1.7	U
1,2-Dibromoethane	1.54	U	8.61	U	7.69	U	1.54	U	15.4	U	1.54	U	1.54	U	1.54	U	15.4	U	15.4	U	15.4	U	15.4	U	30.9	U	1.54	U
Tetrachloroethene	1.36	U	759		1830		509		1760		2.45		4.55		3.04		5280		3190		2920		2780		8610		2.39	
Chlorobenzene	0.921	U	5.16	U	4.61	U	0.921	U	9.21	U	0.921	U	0.921	U	0.921	U	9.21	U	9.21	U	9.21	U	9.21	U	18.5	U	0.921	U
Ethylbenzene	0.869	U	4.86	U	4.34	U	1.62		8.69	U	0.869	U	1.69		2.24		8.69	U	8.69	U	8.69	U	8.69	U	17.5	U	0.869	U
p/m-Xylene	1.74	U	9.73	U	13.6		6.86		17.4	U	1.9		7.56		10.1		34.2		21.3		38.9		39		59.5		1.74	U
Bromoform	2.07	U	11.6	U	10.3	U	2.07	U	20.7	U	2.07	U	2.07	U	2.07	U	20.7	U	20.7	U	20.7	U	20.7	U	41.6	U	2.07	U
Styrene	0.852	U	4.77	U	4.26	U	0.852	U	8.52	U	0.852	U	0.852	U	0.852	U	8.52	U	8.52	U	8.52	U	8.52	U	17.1	U	0.852	U
1,1,2,2-Tetrachloroethane	1.37	U	7.69	U	6.87	U	1.37	U	13.7	U	1.37	U	1.37	U	1.37	U	13.7	U	13.7	U	13.7	U	13.7	U	27.6	U	1.37	U
o-Xylene	0.869	U	4.86	U	6.34		2.96		8.69	U	0.869	U	2.32		3.37		12.8		10.3		19		17		31.2		0.869	U
4-Ethyltoluene	0.983	U	5.51	U	4.92	U	0.983	U	9.83	U	0.983	U	0.983	U	0.983	U	9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
1,3,5-Trimethylbenzene	0.983	U	5.51	U	4.92	U	0.983	U	9.83	U	0.983	U	0.983	U	0.983	U	9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
1,2,4-Trimethylbenzene	0.983	U	5.51	U	4.92	U	1.41		9.83	U	0.983	U	1.54		2.72		9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
Benzyl chloride	1.04	U	5.8	U	5.18	U	1.04	U	10.4	U	1.04	U	1.04	U	1.04	U	10.4	U	10.4	U	10.4	U	10.4	U	20.8	U	1.04	U
1,3-Dichlorobenzene	1.2	U	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	5.4	
1,2-Dichlorobenzene	1.2	U	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	1.2	U
1,2,4-Trichlorobenzene	1.48	U	8.31	U	7.42	U	1.48	U	14.8	U	1.48	U	1.48	U	1.48	U	14.8	U	14.8	U	14.8	U	14.8	U	29.8	U	1.48	U
Hexachlorobutadiene	2.13	U	11.9	U	10.7	U	2.13	U	21.3	U	2.13	U	2.13	U	2.13	U	21.3	U	21.3	U	21.3	U	21.3	U	42.9	U	2.13	U

Notes:
Cells highlighted in yellow indicate concentrations above the ambient level (JS-AA)
Cells shaded in grey indicate RL concentrations above the ambient level (JS-AA)
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the RL is shown
U = not detected at or above the RL
Results and RL values are in micrograms per cubic meter (ug/m^3)

Table 13 - Volatile Organic Compounds in Soil Vapor Compared to NYSDOH Air Guidance Values
JS Cleaners - Rochdale Village - Queens, NY

SAMPLE ID:	NYSDOH Matrix	NYSDOH Air Guidance Value	JS-SV-1		JS-SV-2		JS-SV-3		JS-SV-4		JS-SV-6		JS-SV-7		JS-SV-8		JS-SS-1		JS-SS-2		JS-SS-3		JS-SS-4		JS-SS-5		IA-JS	
LAB ID:			L1531047-02		L1531047-07		L1531047-06		L1531047-03		L1642601-04		L1642601-05		L1642601-06		L1531047-08		L1531047-10		L1531047-09		L1531047-04		L1531047-05		L1642601-07	
COLLECTION DATE:			11/24/2015		11/24/2015		11/24/2015		11/24/2015		12/30/2016		12/30/2016		12/30/2016		11/24/2015		11/24/2015		11/24/2015		11/24/2015		11/24/2015		12/30/2016	
Volatile Organic Compounds Units: ug/m3			Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q	Conc	Q
Dichlorodifluoromethane		--	5.54	U	4.94	U	0.989	U	9.89	U	2.36		2.37		2.89		9.89	U	9.89	U	9.89	U	9.89	U	21.1		3.07	
Chloromethane		--	2.31	U	2.07	U	0.876		4.13	U	0.413	U	0.413	U	0.481		4.13	U	4.13	U	4.13	U	4.13	U	8.3	U	1.18	
Freon-114		--	7.83	U	6.99	U	1.4	U	14	U	1.4	U	1.4	U	1.4	U	14	U	14	U	14	U	14	U	28.1	U	1.4	U
Vinyl chloride	C	--	2.86	U	2.56	U	0.511	U	5.11	U	0.511	U	0.511	U	0.511	U	5.11	U	5.11	U	5.11	U	5.11	U	10.3	U	0.051	U
1,3-Butadiene		--	2.48	U	2.21	U	0.442	U	4.42	U	0.442	U	0.442	U	0.442	U	4.42	U	4.42	U	4.42	U	4.42	U	8.89	U	0.442	U
Bromomethane		--	4.35	U	3.88	U	0.777	U	7.77	U	0.777	U	0.777	U	0.777	U	7.77	U	7.77	U	7.77	U	7.77	U	15.6	U	0.777	U
Chloroethane		--	2.96	U	2.64	U	0.528	U	5.28	U	0.528	U	0.528	U	0.528	U	5.28	U	5.28	U	5.28	U	5.28	U	10.6	U	0.528	U
Ethanol		--	83.5		116		34.3		154		53.3		65.2		50.1		230		203		245		213		349		556	
Vinyl bromide		--	4.9	U	4.37	U	0.874	U	8.74	U	0.874	U	0.874	U	0.874	U	8.74	U	8.74	U	8.74	U	8.74	U	17.6	U	0.874	U
Acetone		--	25.9		21.1		28.7		33		13		28.3		38		63.9		194		344		59.6		103		247	
Trichlorofluoromethane		--	6.29	U	5.62	U	1.29		4300		1.67		12.3		1.49		532		73.6		71.9		11.2	U	22.6	U	1.71	
Isopropanol		--	6.88	U	32.2		9.27		12.3	U	1.23	U	4.13		2.42		13.1		57.8		81.6		58.5		89		315	
1,1-Dichloroethene	A	--	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.793	U	7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.079	U
Tertiary butyl Alcohol		--	8.49	U	7.58	U	1.52	U	15.2	U	1.52	U	1.56		1.84		15.2	U	15.2	U	15.2	U	15.2	U	30.3	U	1.52	U
Methylene chloride	B	60	10.4		8.69	U	1.74	U	17.4	U	1.74	U	1.74	U	1.74	U	17.4	U	17.4	U	17.4	U	17.4	U	34.7	U	1.74	U
3-Chloropropene		--	3.51	U	3.13	U	0.626	U	6.26	U	0.626	U	0.626	U	0.626	U	6.26	U	6.26	U	6.26	U	6.26	U	12.6	U	0.626	U
Carbon disulfide		--	3.49	U	3.11	U	0.623	U	6.23	U	0.623	U	0.623	U	0.623	U	6.23	U	6.23	U	6.23	U	6.23	U	12.5	U	0.623	U
Freon-113		--	8.58	U	7.66	U	1.53	U	15.3	U	1.53	U	1.53	U	1.53	U	15.3	U	15.3	U	15.3	U	15.3	U	30.8	U	1.53	U
trans-1,2-Dichloroethene		--	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.892		7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.793	U
1,1-Dichloroethane		--	4.53	U	4.05	U	0.809	U	8.09	U	0.809	U	0.809	U	0.809	U	8.09	U	8.09	U	8.09	U	8.09	U	16.3	U	0.809	U
Methyl tert butyl ether		--	4.04	U	3.61	U	0.721	U	7.21	U	0.721	U	0.721	U	0.721	U	7.21	U	7.21	U	7.21	U	7.21	U	14.5	U	0.721	U
2-Butanone		--	8.26	U	7.37	U	1.68		14.7	U	1.47	U	2.75		3.92		14.7	U	14.7	U	14.7	U	14.7	U	29.5	U	1.98	
cis-1,2-Dichloroethene	A	--	4.44	U	3.96	U	0.793	U	7.93	U	0.793	U	0.793	U	0.793	U	7.93	U	7.93	U	7.93	U	7.93	U	15.9	U	0.079	U
Ethyl Acetate		--	10.1	U	9.01	U	1.8	U	18	U	1.8	U	1.8	U	1.8	U	18	U	18	U	21.4		18	U	36	U	16.1	
Chloroform		--	5.47	U	230		1.75		9.77	U	0.977	U	0.977	U	0.977	U	9.77	U	9.77	U	9.77	U	9.77	U	25.6		1.81	
Tetrahydrofuran		--	8.26	U	7.37	U	1.47	U	14.7	U	1.47	U	1.47	U	1.47	U	14.7	U	14.7	U	14.7	U	14.7	U	29.5	U	1.47	U
1,2-Dichloroethane		--	4.53	U	4.05	U	0.809	U	8.09	U	0.809	U	0.809	U	0.809	U	8.09	U	8.09	U	8.09	U	8.09	U	16.3	U	1.21	
n-Hexane		--	3.95	U	3.52	U	0.705	U	7.05	U	1.54		3.03		2.52		7.05	U	7.05	U	7.05	U	7.05	U	14.2	U	1.29	
1,1,1-Trichloroethane	B	--	6.11	U	5.46	U	1.09	U	10.9	U	1.09	U	1.09	U	1.09	U	10.9	U	10.9	U	10.9	U	10.9	U	21.9	U	0.109	U
Benzene		--	3.58	U	3.19	U	1.47		6.39	U	2.8		2.31		2.59		6.39	U	6.39	U	6.39	U	6.39	U	12.8	U	1.32	
Carbon tetrachloride	A	--	7.05	U	6.29	U	1.26	U	12.6	U	1.26	U	1.26	U	1.26	U	12.6	U	12.6	U	12.6	U	12.6	U	25.3	U	0.654	
Cyclohexane		--	3.86	U	3.44	U	0.688	U	6.88	U	0.688	U	1.2		1.06		6.88	U	6.88	U	6.88	U	6.88	U	13.8	U	0.688	U
1,2-Dichloropropane		--	5.18	U	4.62	U	0.924	U	9.24	U	0.924	U	0.924	U	0.924	U	9.24	U	9.24	U	9.24	U	9.24	U	18.6	U	0.924	U
Bromodichloromethane		--	7.5	U	6.7	U	1.34	U	13.4	U	1.34	U	1.34	U	1.34	U	13.4	U	13.4	U	13.4	U	13.4	U	26.9	U	1.34	U
1,4-Dioxane		--	4.04	U	3.6	U	0.721	U	7.21	U	0.721	U	0.721	U	0.721	U	7.21	U	7.21	U	7.21	U	7.21	U	14.5	U	0.721	U
Trichloroethene	A	2	6.02	U	5.37	U	1.07	U	10.7	U	1.07	U	1.07	U	1.07	U	37.2		16.1		20.6		10.7	U	21.6	U	0.129	
2,2,4-Trimethylpentane		--	5.23	U	4.67	U	0.934	U	9.34	U	1.36		2.96		3.15		9.34	U	9.34	U	9.34	U	9.34	U	18.8	U	0.934	U
Heptane		--	4.59	U	4.1	U	0.82	U	8.2	U	1.12		1.19		1.39		8.2	U	8.2	U	8.2	U	8.2	U	16.5	U	0.955	
cis-1,3-Dichloropropene		--	5.08	U	4.54	U	0.908	U	9.08	U	0.908	U	0.908	U	0.908	U	9.08	U	9.08	U	9.08	U	9.08	U	18.3	U	0.908	U
4-Methyl-2-pentanone		--	11.5	U	10.2	U	2.05	U	20.5	U	2.05	U	2.05	U	2.54		20.5	U	20.5	U	20.5	U	20.5	U	41	U	2.05	U
trans-1,3-Dichloropropene		--	5.08	U	4.54	U	0.908	U	9.08	U	0.908	U	0.908	U	0.908	U	9.08	U	9.08	U	9.08	U	9.08	U	18.3	U	0.908	U
1,1,2-Trichloroethane		--	6.11	U	5.46	U	1.09	U	10.9	U	1.09	U	1.09	U	1.09	U	10.9	U	10.9	U	10.9	U	10.9	U	21.9	U	1.09	U
Toluene		--	5.77		4.07		2.66		7.54	U	6.93		6.44		7.39		7.54	U	7.54	U	7.54	U	7.54	U	15.1	U	10.3	
2-Hexanone		--	4.59	U	4.1	U	0.82	U	8.2	U	0.82	U	0.82	U	0.82	U	8.2	U	8.2	U	8.2	U	8.2	U	16.5	U	0.82	U
Dibromochloromethane		--	9.54	U	8.52	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	17	U	17	U	17	U	34.2	U	1.7	U
1,2-Dibromoethane		--	8.61	U	7.69	U	1.54	U	15.4	U	1.54	U	1.54	U	1.54	U	15.4	U	15.4	U	15.4	U	15.4	U	30.9	U	1.54	U
Tetrachloroethene	B	30	759		1830		509		1760		2.45		4.55		3.04		5280		3190		2920		2780		8610		2.39	
Chlorobenzene		--	5.16	U	4.61	U	0.921	U	9.21	U	0.921	U	0.921	U	0.921	U	9.21	U	9.21	U	9.21	U	9.21	U	18.5	U	0.921	U
Ethylbenzene		--	4.86	U	4.34	U	1.62		8.69	U	0.869	U	1.69		2.24		8.69	U	8.69	U	8.69	U	8.69	U	17.5	U	0.869	U
p/m-Xylene		--	9.73	U	13.6		6.86		17.4	U	1.9		7.56		10.1		34.2		21.3		38.9		39		59.5		1.74	U
Bromoform		--	11.6	U	10.3	U	2.07	U	20.7	U	2.07	U	2.07	U	2.07	U	20.7	U	20.7	U	20.7	U	20.7	U	41.6	U	2.07	U
Styrene		--	4.77	U	4.26	U	0.852	U	8.52	U	0.852	U	0.852	U	0.852	U	8.52	U	8.52	U	8.52	U	8.52	U	17.1	U	0.852	U
1,1,2,2-Tetrachloroethane		--	7.69	U	6.87	U	1.37	U	13.7	U	1.37	U	1.37	U	1.37	U	13.7	U	13.7	U	13.7	U	13.7	U	27.6	U	1.37	U
o-Xylene		--	4.86	U	6.34		2.96		8.69	U	0.869	U	2.32		3.37		12.8		10.3		19		17		31.2		0.869	U
4-Ethyltoluene		--	5.51	U	4.92	U	0.983	U	9.83	U	0.983	U	0.983	U	0.983	U	9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
1,3,5-Trimethylbenzene		--	5.51	U	4.92	U	0.983	U	9.83	U	0.983	U	0.983	U	0.983	U	9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
1,2,4-Trimethylbenzene		--	5.51	U	4.92	U	1.41		9.83	U	0.983	U	1.54		2.72		9.83	U	9.83	U	9.83	U	9.83	U	19.8	U	0.983	U
Benzyl chloride		--	5.8	U	5.18	U	1.04	U	10.4	U	1.04	U	1.04	U	1.04	U	10.4	U	10.4	U	10.4	U	10.4	U	20.8	U	1.04	U
1,3-Dichlorobenzene		--	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	1.2	U
1,4-Dichlorobenzene		--	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	5.4	
1,2-Dichlorobenzene		--	6.73	U	6.01	U	1.2	U	12	U	1.2	U	1.2	U	1.2	U	12	U	12	U	12	U	12	U	24.2	U	1.2	U
1,2,4-Trichlorobenzene		--	8.31	U	7.42	U	1.48	U	14.8	U	1.48	U	1.48	U	1.48	U	14.8	U	14.8	U	14.8	U	14.8	U	29.8	U	1.48	U
Hexachlorobutadiene		--	11.9	U	10.7	U	2.13	U	21.3	U	2.13	U	2.13	U	2.13	U	21.3	U	21.3	U	21.3	U	21.3	U	42.9	U	2.13	U

Notes:
NYSDOH AGV = New York State Department of Health Air Guidance Values
NYSDOH AGV values from NYSDOH Soil Vapor Guidance Values, May 2017
Matrix actions are described in the report narrative and the NYSDOH Soil Vapor Guidance, May 2017
Cells highlighted in yellow indicate concentrations above NYSDOH Air Guidance Values
RL = Reporting Limit
Qual = Laboratory Data Qualifier
For U qualified entries, the RL is shown
U = not detected at or above the RL
Results and RL values are in micrograms per cubic meter (ug/m^3)

Table 14: Estimated Remedial Costs
Brownfield Cleanup Program
JS Cleaners - Rochdale Village - Queens, NY
C241165

Alternative 1: Track 2 SCOs/Active SSDS/ISCO Groundwater Treatment

Remedial Action		
Remedial Oversight and Design	$	15,000
Install SSDS below JS Rochdale, pilot test	$	50,000
SVE	$	31,600
ISCO Pilot Test	$	6,500
Groundwater Remediation at JS Rochdale (chemical injections)	$	20,000

Closure Documentation		
Prepare FER/SMP for JS Rochdale	$	40,000

Post-Remedial Certifications and Testing		
Reporting and Certifications for JS Rochdale (two years)	$	12,000
Groundwater Monitoring at JS Rochdale (two years)	$	65,000

Contingency (20%)	$	48,020
Estimated Remedial Costs	$	288,120

JS Cleaners - Rochdale Village - Queens, NY
BCP Site #C241165
Table 15
Remedial Action Construction Schedule

Milestone	Weeks from Remedial Action Start	Duration (weeks)	Estimated Date
Approval of RAWP	--	0	10/1/17
Fact Sheet Announcing Start of Remedial Action	0	2	10/15/17
Mobilization	4	2	11/1/17
Start of Remedial Action	6	10	11/15/17
Construction Complete	16	--	2/1/18
Submittal of Environmental Easement (EE)	18	--	4/1/18
Submittal of Draft Site Management Plan (SMP)	18	--	4/1/18
Submittal of Draft Final Engineering Report (FER)	20	--	6/1/18
Submit Final Engineering Report (FER)	22	--	8/1/18
Obtain Certificate of Completion (COC)	24	--	10/1/18

JS Cleaners - Rochdale Village - Queens, NY
BCP Site #C241165
Table 16
Required Permits

Permit	Law, Statute or Code	Contact
EPA Underground Injection Control (UIC) Program; Form 7520-16	Class V Well	US EPA UIC Director

Appendix A
NYSDOH Generic CAMP

New York State Department of Health
Generic Community Air Monitoring Plan

Overview

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

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

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

Community Air Monitoring Plan

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

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

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

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

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

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

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

December 2009

Appendix B
Significant Threat Determination

Appendix C
Construction Health and Safety Plan

Construction Health and Safety Plan

for
JS Cleaners- Rochdale Village
Remedial Action Work Plan

165-50 Baisley Boulevard, Jamaica
Block 12495, portion of Lot 2
BCP Site # C241165

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Rochdale Village, Inc.
169-55 137th Avenue
Queens, New York 11434

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

November 2018

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1.0 INTRODUCTION

This Construction Health and Safety Plan (CHASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental LLC (Tenen) health and safety policies and procedures. The purpose of this CHASP is the protection of Tenen field personnel and others during the implementation of the Remedial Action Work Plan (RAWP).

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2.

1.1 Scope of HASP

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Collection of groundwater samples;
- In-situ chemical oxidation sampling and implementation;
- Installation of on-site sub-slab depressurization system (SSDS); and
- Installation of on-site soil vapor extraction (SVE) system.

Subcontractors will ensure that performance of the work is in compliance with this CHASP and applicable laws and regulations.

2.0 PROJECT SAFETY AUTHORITY

The following personnel are responsible for project health and safety under this HASP.

- Project Manager, Matthew Carroll
- Health and Safety Officer (HSO), Mohamed Ahmed

In addition, each individual working at the Site will be responsible for compliance with this CHASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

2.1 Designated Personnel

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

Known previous and current uses of the site include operations that used chlorinated solvents.

A Remedial Investigation Report (RIR) dated October 2018, was prepared by Tenen Environmental LLC (Tenen).

The investigation consisted of installation of soil borings and collection of soil samples, installation and sampling of groundwater monitoring wells, installation and sampling of soil vapor points and sampling of indoor and ambient air. Based on the results of the RI and previous investigations, the following summary has been prepared:

Site History

- A dry-cleaning facility has occupied the Site property for a period of approximately 19 years.
- A UST was identified at the Site with no associated closure documentation. Records indicate a fuel oil release in 1995; Spill Number 9510922 was assigned in November 1995. Reportedly, only one gallon of product was spilled during a fuel oil delivery, and the NY Spills listing was closed the same day.

Geology/Hydrogeology

- Based on boring logs, the Site is underlain by historic fill material (silty sands mixed with anthropogenic materials) and fine to medium sand and silts to a depth of approximately ten feet below grade (ft-bg), above medium to coarse grain sand and gravel to depths of up to 50 ft-bg. Soil boring JS-SB-2D was advanced to a depth of 50 ft-bg to investigate the presence of a confining layer; no clay layer was encountered. The approximate depth to bedrock (Ravenswood Granodiorite) is 800 ft-bg.
- Groundwater was encountered between 12.9 to 14.97 feet below grade. The groundwater flow direction is toward the northwest.
- Contamination migrating from the Site is expected to flow southeast.

Chlorinated Solvents

- PCE was detected in soil above the Unrestricted Use SCO of 1.3 mg/kg at two locations adjacent to the former dry cleaning equipment. PCE was detected a maximum concentration of 6.13 mg/kg (GRS Group, Phase II, 2010) in one soil sample at 3-3.5 ft-bg. Within the same general area, PCE was also detected at a concentration of 1.6 mg/kg at 13-14 ft-bg (Tenen, RI, 2015). The PCE impact at this location was vertically delineated at 19 ft-bg.
- PCE was detected in groundwater at a maximum concentration of 860 ug/L, above the Class GA Standard, in the shallow on-site well adjacent to the dry cleaning equipment. PCE was also detected in an off-site, downgradient well at a concentration of 5.6 ug/L, slightly above the Class GA Standard. PCE was detected below the Class GA Standard in three other shallow wells and two deep wells.
- PCE was the only VOC detected in groundwater and soil above regulatory levels.
- PCE was detected in sub-slab, soil vapor and indoor air at concentrations above the non-detect ambient air concentration. PCE was detected in the sub-slab soil vapor at concentrations up to 8,610 ug/m^3.

- PCE was detected at lower concentrations outside of Mall #1's footprint and within the surrounding area, specifically at locations adjacent to the neighboring public school and residential buildings.
- TCE was detected at three sub-slab locations, including one on-site and two within the adjacent commercial space, at a maximum concentration of 37.2 ug/m^3.

Historic Fill-Related Impacts

- One metal, lead, was detected in shallow fill material above the Unrestricted Use SCO but below the Restricted Commercial Use SCO, in the shallow fill material.
- One PCB isomer was detected above the Unrestricted Use SCO but below the Restricted Commercial Use SCO, in the shallow fill material.

Qualitative Environmental Assessment

- Redevelopment and residential use of the Site are not anticipated.
- The following potential exposure routes were identified: direct contact with surface soils, inhalation and incidental ingestion; ingestion of groundwater; direct contact with groundwater and inhalation of vapors.
- Potential impacts from these exposure routes can be mitigated through the implementation of HASP and CAMP during ground-intrusive sampling and remedial activities and installation of an SSDS.

3.1 Human Exposure Pathways

The media of concern at the Site include potentially-impacted soil, groundwater and soil vapor. Potential exposure pathways include dermal contact, incidental ingestion and inhalation of vapors. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE. The risk of inhalation will be minimized through the use of an air monitoring program for VOCs and particulates.

3.2 Chemical Hazards

Based on historic uses, the following contaminants of concern are present in media that will be encountered during the implementation of the RAWP:

Chlorinated Solvents

- Tetrachloroethylene (PCE)
- Trichloroethene (TCE)

SVOCs

- Polycyclic Aromatic Hydrocarbons (PAHs)

Metals

- Iron
- Manganese

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this HASP.

3.3 Physical Hazards

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

Head Trauma
To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of protection provided.

Foot Trauma
To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

Eye Trauma
Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

Noise Exposure
Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

Buried Utilities and Overhead Power Lines
Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

Thermal Stress
The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind, sleet, snow or freezing.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Care should be taken by all Site workers to avoid slip, trip, and fall hazards. Workers shall not enter areas that do not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the site.

Any worker or oversight personnel with a medical condition that may require attention must inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered and care should be taken to avoid contact.

4.0 AIR MONITORING

Air quality monitoring equipment will be used during all work activities to measure total organic vapors. A PID (to monitor total volatile organic concentrations) will be used during on-site activities. The equipment will be calibrated daily and the results noted in the project field book. A background level will be established, at a minimum, on a daily basis, and recorded in the field book. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.
4. All 15-minute readings must be recorded. Instantaneous readings, if any, used for decision purposes should also be recorded.

During soil boring and sampling outside the mall buildings, particulate monitoring will be performed using a real-time particulate monitor that will monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

Object to be measured: Dust, Mists, Aerosols
Size range: <0.1 to 10 microns
Sensitivity: 0.001 mg/m3
Range: 0.001 to 10 mg/m3
Overall Accuracy: ±10% as compared to gravimetric analysis of stearic acid or reference dust.

Particulate levels will be monitored immediately downwind at the working site and integrated over a period not to exceed 15 minutes. The action level will be established at 150 ug/m^3 over the integrated period not to exceed 15 minutes.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear."

Tenen field personnel and other site personnel will wear Level D personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, modified Level D equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A description of the personnel protective equipment for Levels D and C is provided below.

Level D

Respiratory Protection:	None
Protective Clothing:	Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D

Respiratory Protection:	None
Protective Clothing:	Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C

Respiratory Protection:	Air purifying respirator with organic vapor cartridges and filters.
Protective Clothing:	Same as modified Level D

6.0 EXPOSURE MONITORING

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO and, if workers are wearing respiratory protective equipment, outside the face-piece.

7.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the sampling areas.

8.0 WORK AREAS

During any activities involving drilling or other subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, clarify the type of protective equipment needed, and provide an area for decontamination.

The Exclusion Zone is defined as the area where potentially contaminated materials are generated as the result of drilling, sampling, or similar activities. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located adjacent to the Exclusion Zone. The Support Zone is the area where support facilities such as vehicles, a field phone, fire extinguisher and/or first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all Site workers will assemble in the event of an emergency. These zones shall be designated daily, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins.

Control measures such as "Caution" tape and traffic cones will be placed around the perimeter of the work area when work is being done in the areas of concern (i.e., areas with exposed soil) to prevent unnecessary access.

9.0 DECONTAMINATION PROCEDURES

Personnel Decontamination
Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan.

Disposal of Materials
Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

10.0 GENERAL SAFE WORK PRACTICES

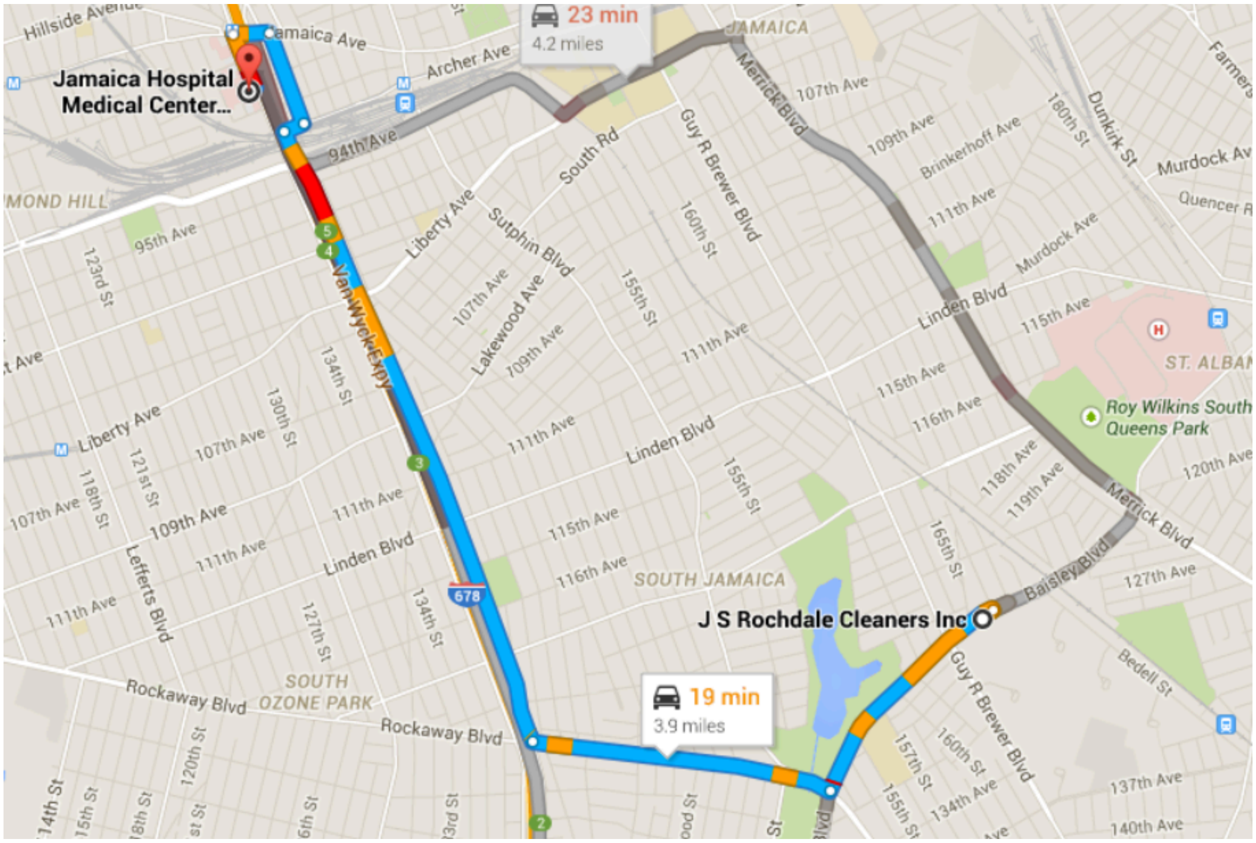
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

11.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—onsite personnel should drive him to a hospital. **The nearest emergency room is at Jamaica Hospital Medical Center located at 8900 VanWyck Expressway, Queens, NY 11418. Their phone number is (718) 206-6000.** The route to the hospital is shown and detailed on the next page.

11.1 Route to Hospital



Driving directions to **Jamaica Hospital Medical Center** from **165-50 Baisley Bloulevard, Queens, New York.**

Driving Directions

1. Head northeast on Baisley Blvd toward 166th St (456 feet).

2. Make a U-turn at 167th St (0.7 mile).

3. Turn right onto Rockaway Blvd (0.8 mile).

4. Turn right onto Van Wyck Blvd (2.1 mile).

5. Turn left onto Jamaica Ave (253 feet).

6. Turn left at the 1st cross street onto Van Wyck Blvd.

7. Destination will be on the right.

11.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts

Ambulance	911
Emergency Room	(718) 963-8000
NYSDEC Spill Hotline	(800) 457-7362
NYSDEC Manager, Sondra Martinkat	(718) 482-4891
Tenen QEP, Mohamed Ahmed	(917) 612-6018
On-site Field Phone, Matthew Carroll	(646) 827-1061
Client representative, Pius Kwarteng-Danquah	(718) 276-5700

12.0 TRAINING

All personnel performing the field activities involving hazardous waste, as determined by 40 CFR 262.11 and ECL 27-0903 or a "source area," as determined by DER-10 1.3(b)70, will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

13.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving subsurface disturbance involving hazardous waste, as determined by 40 CFR 262.11 and ECL 27-0903 or a "source area," as determined by DER-10 1.3(b)70, at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the HASP must be on-site at all times and will be kept by the HSO.

AFFIDAVIT

I have read the Construction Health and Safety Plan (CHASP) for the JS Cleaners Site in Queens, NY. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signature: ________________________________ Date: _________________
Signature: ________________________________ Date: _________________
Signature: ________________________________ Date: _________________
Signature: ________________________________ Date: _________________
Signature: ________________________________ Date: _________________

Appendix B

Injury Reporting Form (OSHA Form 300)

Appendix C

Material Safety Data Sheets (MSDS)

Appendix D
Soil / Materials Management Plan

SOIL/MATERIALS MANAGEMENT PLAN

for
JS Cleaners- Rochdale Village
Remedial Action Work Plan

165-50 Baisley Boulevard, Jamaica
Block 12495, portion of Lot 2
BCP Site # C241165

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Rochdale Village, Inc.
169-55 137th Avenue
Queens, New York 11434

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

November 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

This Soil/Materials Management Plan (SMMP) has been developed for the Remedial Action Work Plan (RAWP) prepared for JS Cleaners (the Site).

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2.

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the supervision of the Remedial Engineer (RE) and will be reported in the Final Engineering Report (FER). Soil Screening will be performed during all remedial and development excavations into known or potentially contaminated material regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of a COC.

1.2 Soil Staging Methods

Excavated soil from the sub-slab depressurization system (SSDS) pits will be placed in 55-gallon drums. While drums are on-site and work is occurring, they will be inspected daily. All drum management will be compliant with applicable laws and regulations.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off the Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils are not proposed for reuse on-Site.

1.4 Materials Excavation, Load-Out and Departure

The RE overseeing the remedial activities, or a qualified environmental professional under his/her supervision, will:

- Oversee remedial work and the excavation and load-out of excavated material;

- Ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- Ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- Ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this RAWP are properly addressed by appropriate parties;
- Ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- Ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Mechanical processing of historical fill and contaminated soil on the Site is prohibited.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364.

Trucks removing drums from the Site will be loaded within the loading dock of Key Food, located adjacent to the Site within Mall #1. Trucks will exit Rochdale Village on 166th Street and make a right on Baisley Boulevard, followed by a right on Rockaway Boulevard. Trucks will head west on Rockaway Boulevard to the Van Wyck Expressway.

These are the most appropriate routes and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) limiting total distance to major highways; (d) promoting safety in access to highways; and, (e) overall safety in transport. All trucks loaded with Site materials will exit the vicinity of the Site using only the most-current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2015 New York City Truck Route Map).

All trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 Materials Disposal Off-Site

To document that the disposal of regulated material exported from the Site complies with applicable laws and regulations, the following documentation will be established and reported by the RE for each disposal destination used in this project:

(1) a letter from the RE or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the RE or Applicant, and will include as an attachment a summary of all chemical data for the material being transported; and

(2) a letter from each disposal facility stating it is in receipt of the correspondence, (1) above, and is approved to accept the material.

These documents will be included in the FER. The FER will include an itemized account of the destination of all material removed from the Site during the remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the FER.

All soil, fill and other waste excavated and removed from the Site will be managed as regulated material (municipal solid waste per 6NYCRR Part 360-1.2) and will be disposed in accordance with applicable laws and regulations. Historic fill and material that does not meet Track 1 Unrestricted Use soil cleanup objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility). Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Approximately one 55-gallon drum of soil is proposed for off-Site disposal. Final disposal facilities will be identified to NYSDEC prior to shipping material to any facility. Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the FER. Hazardous wastes derived from on-Site will be stored, transported and disposed of in compliance with applicable laws and regulations.

If disposal of soil and fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by NYSDEC with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6 NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse

Soil reuse is not proposed on-Site.

1.8 Import of Backfill Soil from Off-Site Sources

Soil is not anticipated to be imported to the Site for use as clean cover.

1.9 Fluids Management

Dewatering is not contemplated during implementation of the RAWP.

1.10 Stormwater Pollution Prevention

All work will be completed in the cellar and stormwater pollution prevention practices are not required.

1.11 Erosion and Sediment Control Measures

All work will be completed in at grade building and erosion and sediment control measures are not required.

1.12 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to the NYSDEC Project Manager. Petroleum spills will be reported to the NYSDEC Spill Hotline. These findings will be included in applicable daily report(s). If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to NYSDEC. Analysis will be performed for Full List volatiles and semi-volatiles, pesticides/PCBs, and TAL metals, as appropriate.

1.13 Odor, Dust and Nuisance Control

A Site-specific Community Air Monitoring Plan (CAMP) is included in the Health and Safety Plan (HASP) included as Appendix C of the RAWP.

Odor Control

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

Dust Control

Dust management during invasive on-Site work will include, as necessary:

- Use of a dedicated water spray method at suitable supply and pressure for any soil disturbances; and,
- Identification of air intakes on adjoining residential properties.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. Where nuisance dust emissions have developed during remedial work and cannot be corrected, use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices will be considered. NYSDEC will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the RE.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Appendix E
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

for
JS Cleaners
Remedial Action Work Plan

165-50 Baisley Boulevard, Jamaica
Block 12495, portion of Lot 2
BCP Site # C241165

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
Rochdale Village, Inc.
169-55 137th Avenue
Queens, New York 11434

Prepared by:

TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

November 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the Remedial Action Work Plan (RAWP) prepared for JS Cleaners (the Site).

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2.

1.1 Project Scope and QAPP Objective

The proposed scope of work includes the following:

- installation of an active sub-slab depressurization (SSDS);
- installation of a soil vapor extraction (SVE) system;
- in-situ chemical oxidation (ISCO) groundwater treatment via injection points; and,
- post-remedial groundwater sampling.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of the Remedial Action Work Plan (RAWP). This QAPP addresses how the acquisition and handling of samples and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP addresses the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

2.0 PROJECT ORGANIZATION

The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the Remedial Action Work Plan (RAWP) on behalf of Rochdale Village (the Participant) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

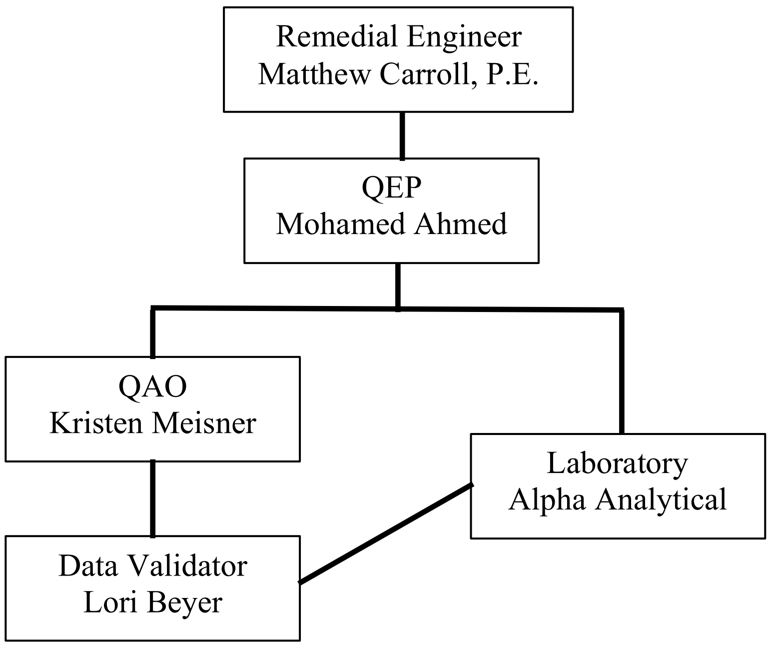
The Remedial Engineer for the project will be Mr. Matthew Carroll, P.E. Mr. Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. His experience involves projects from inception through investigation, remediation and closure. His expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mr. Carroll received his Bachelor of Engineering from Stevens Institute of Technology and Bachelor of Science in Chemistry from New York University and is a New York State professional engineer; his resume is included in Appendix A.

The Project Manager and Qualified Environmental Professional (QEP) will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor’s Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

The Quality Assurance Officer will be Ms. Kristen Meisner, E.I.T. Ms. Meisner is an environmental engineer with experience in soil, groundwater and soil vapor sampling techniques and data analysis, remedial systems, and environmental permitting. While with a national consulting firm, Ms. Meisner designed and implemented environmental investigations, designed remedial systems and performed watershed analyses for the U.S. Army Corps of Engineers. Her prior experience has involved projects related to the Spill Prevention, Control, and Countermeasure (SPCC) and Petroleum Bulk Storage (PBS) plan requirements. She has also prepared environmental permits for air, stormwater and wastewater under the NPDES, RCRA, SARA Title II, Title V, OSHA and Discharge Monitoring programs. Ms. Meisner is an Engineer-in-Training in New York State and holds a Bachelor of Science in Environmental Engineering from the University of New Hampshire; her resume is included in Appendix A.

In addition, Tenen will utilize subcontractors for laboratory services (Alpha Analytical of Westborough, MA) and data validation (L.A.B. Validation Corp. of East Northport, NY). The resume for the Data Usability Summary Report (DUSR) preparer, Ms. Lori Beyer, is included in Appendix A.

An organization chart for the implementation of the RAWP and QAPP is below.



3.0 SAMPLING AND DECONTAMINATION PROCEDURES

A detailed description of the procedures to be used during this program for collection of post-remedial groundwater samples as well as in-situ chemical oxidation (ISCO) pilot test sampling, is provided below. Proposed groundwater sample locations are shown on Figure 8 of the RAWP. Proposed ISCO pilot test and injection point locations are shown on Figure 6. An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

3.1 Level of Effort for QC Samples

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.

- Duplicate samples are analyzed to check for sampling and analytical reproducibility.

- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples.

The analytical laboratory, Alpha Analytical, is certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) as LabIDs 11148 and 11627. NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

3.2 Sample Handling

Samples will either be picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State Analytical Services Protocol (ASP).

3.3 Custody Procedures

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

3.4 Sample Storage

Samples will be stored in secure limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, +/- 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

3.5 Sample Custody

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;

- Sample storage log (same as the laboratory chain of custody); and,
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

3.6 Sample Tracking

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

3.7 Groundwater Sampling

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Monitoring wells will also be gauged for the presence of non-aqueous phase liquid (NAPL). In the event that NAPL is detected, Tenen will record the thickness and will not collect a sample. If NAPL is not detected, Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (bladder pump system). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump and bladder will be decontaminated between samples.

Groundwater samples will be collected for VOC analysis through dedicated tubing. Prior to, and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field observations will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4 degrees-C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

All groundwater samples will be analyzed for TCL VOCs. A Category B data package will be provided.

3.8 ISCO Treatment Pilot Test Sampling

The ISCO pilot test will be conducted to evaluate the potential full scale use of the ISCO technology to treat cVOCs in groundwater at the Site. The pilot test will include one round of sampling at the Site. One groundwater sample will be collected from the previously installed permanent groundwater monitoring well JS-GW-1 and analyzed for the following: dissolved oxygen, nitrate, Fe^{2+}, sulfate, methane, alkalinity, pH and chloride. One soil boring will be advanced in the area adjacent to JS-GW-1 and a soil sample will be collected and analyzed for the same parameters. Also, a permanent shallow groundwater well will be installed at the Site at the southern border of the proposed injection area, and analyzed for VOCs.

3.9 Effluent Air Sampling

One effluent air sample will be collected in accordance with regulatory guidance. The sample will be collected at the effluent stack of the SSDS/SVE.

The effluent air will be first screened for VOCs using a PID.

The sample will be collected in a laboratory-supplied six-liter canister using an two-hour regulator. The sampling flow rate will not exceed 0.2 liters per minute (L/min). A slight vacuum will be left in the Summa® canister at the end of sampling to documented that the canister did not leak during transit. If no vacuum remains in the canister, the canister will not be sent to the laboratory for analysis, and the sample will be re-collected. The sample will be analyzed for VOCs using EPA Method TO-15.

A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone and chain of custody.

3.10 Analytical Methods/Quality Assurance Summary Table

A summary of the analytical methods and quality assurance methods are included in Table 1, below.

Table 1
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples				Total # Samples	Analytical Parameter	Method	Preservative	Holding Time	Container
		TB	FB	DUP	MS/MSD						
ISCO Groundwater	1	0	0	0	0	1	Nitrate	SM 4500 or EPA 353	None	48 hour	300 mL plastic
	1	0	0	0	0	1	Ferrous Iron	SM 3500	None	24 hour	250 mL plastic
	1	0	0	0	0	1	Sulfate	SM 4500 or EPA 9038	None	28 days	250 mL plastic
	1	0	0	0	0	1	Methane	EPA Method RSK 117	HCl	14 days	20 mL vials
	1	0	0	0	0	1	Alkalinity	SM 2320	None	14 days	120 mL plastic
	1	0	0	0	0	1	Chloride	SM 4500	None	28 days	250 mL plastic
	1	0	0	0	0	1	VOCs	8260	Cool to 4°C, pH<2 with HCl	14 days	(3) 40 mL clear glass vials
ISCO Soil	1	0	0	0	0	1	Nitrate	SM 4500	None	48 hour	300 mL plastic
	1	0	0	0	0	1	Sulfate	SM 4500 or EPA 9038	None	28 days	250 mL plastic
	1	0	0	0	0	1	Chloride	SM 4500	None	28 days	250 mL plastic

Post Remedial Groundwater	3	1	1	1	1	7	VOCs	8260	Cool to 4°C, pH<2 with HCl	14 days	(3) 40 mL clear glass vials
Effluent Air	1	No QA/QC samples				1	VOCs	TO-15	None		2.7 L Summa

TB – Trip Blank
FB – Field Blank
DUP – Duplicate
°C – degrees Celsius
mL – milliliter
L – liter

3.11 Decontamination

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox) and/or a steam cleaner. All non-dedicated sampling equipment will also have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

3.12 Data Review and Reporting

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

Groundwater – NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values (AWQS); and,
Soil Vapor, Indoor Air and Ambient Air – NYSDOH Air Guidance Values (AGVs) and Decision Matrices, as applicable, and ambient air sample results.

A report documenting the Remedial Action implementation will be prepared, and will describe Site conditions and document applicable observations made during the sample collection. In addition, the report will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, geologic logs, well construction diagrams, and field notes will be included in the report as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EqUIS format.

The data will be presented in accordance with Section 5.8(c) of the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (2010).

Appendix A

Resumes

Matthew Carroll, P.E.
Environmental Engineer/Principal

Experience Summary

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

Selected Project Experience

470 Kent Avenue, Brooklyn
As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

500 Exterior Street, Bronx
Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

Gateway Elton I and II, Brooklyn
Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

Affordable Housing Development, Rye, NY
Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

Queens West Development BCP Site, Long Island City, New York
Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

Brownfield Cleanup Program Redevelopment Sites – West Side, New York City
Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

BCP Site, Downtown Brooklyn, New York
Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

West Chelsea Brownfield Cleanup Program Site
Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program
Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

NYSDEC Spill Site– Far West Side, Manhattan
Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

Affordable Housing Site, Brooklyn, New York
Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

New York City School Construction Authority Hazardous Materials Contract
Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

Former Manufacturing Facility, Hoboken, New Jersey
Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

F**ormer Varnish Manufacturer – Newark, New Jersey**
Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

Education and Certifications

Professional Engineer, New York
Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002
Bachelor of Science, Chemistry, New York University, 2002
Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

Mohamed Ahmed, Ph.D., C.P.G.
Sr. Geologist/Principal

Experience Summary

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City "e" designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation.

Selected Project Experience

Willoughby Square, Downtown Brooklyn
As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor's Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

School Facility, Borough Park, Brooklyn
Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

LGA Hotel Site, East Elmhurst, Queens
Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

436 10th Avenue, Manhattan
As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

Brownfield Cleanup Program Site, Downtown Brooklyn
Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

Queens West Development, Long Island City
Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

Former Creosote Site, Long Island City
Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

NYSDEC Spill Site – Far West Side, Manhattan
Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

Active Industrial Facility, Newburgh, New York
Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

Former Dry Cleaning Facility, New York City
Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

Waterfront Redevelopment, Yonkers, NY
Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

Prince's Point, Staten Island, New York
Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

Apartment Complex, New York City, New York
Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.

Publications

"Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight". Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

"Water and Organic Waste Near Dumping Ground in the New York Bight". International Journal of Coal Geology, volume 43. (With G. Friedman)

Education and Certifications

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)
M.Ph., Earth and Environmental Sciences, City University of New York (1998)
M.A. Geology, Brooklyn College (1993)
B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY: General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President

- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director

- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager

- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager

- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer

- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager

- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist

- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional
Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

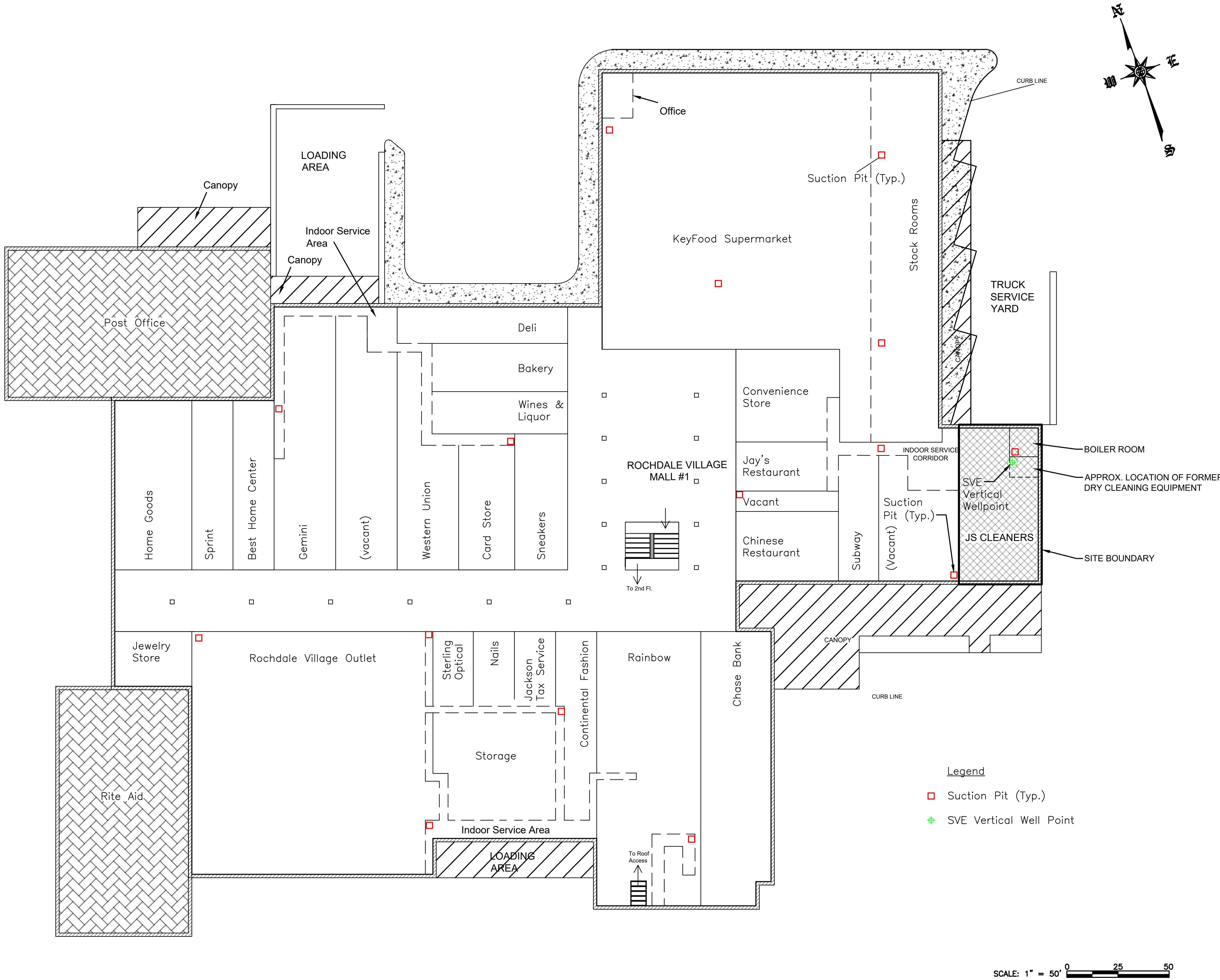
Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Appendix F
Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE) Design



CLIENT

JS Cleaners
Rochdale Village
BCP # C241165
165-50 Baisley Boulevard
Jamaica, Queens

CONSULTANT

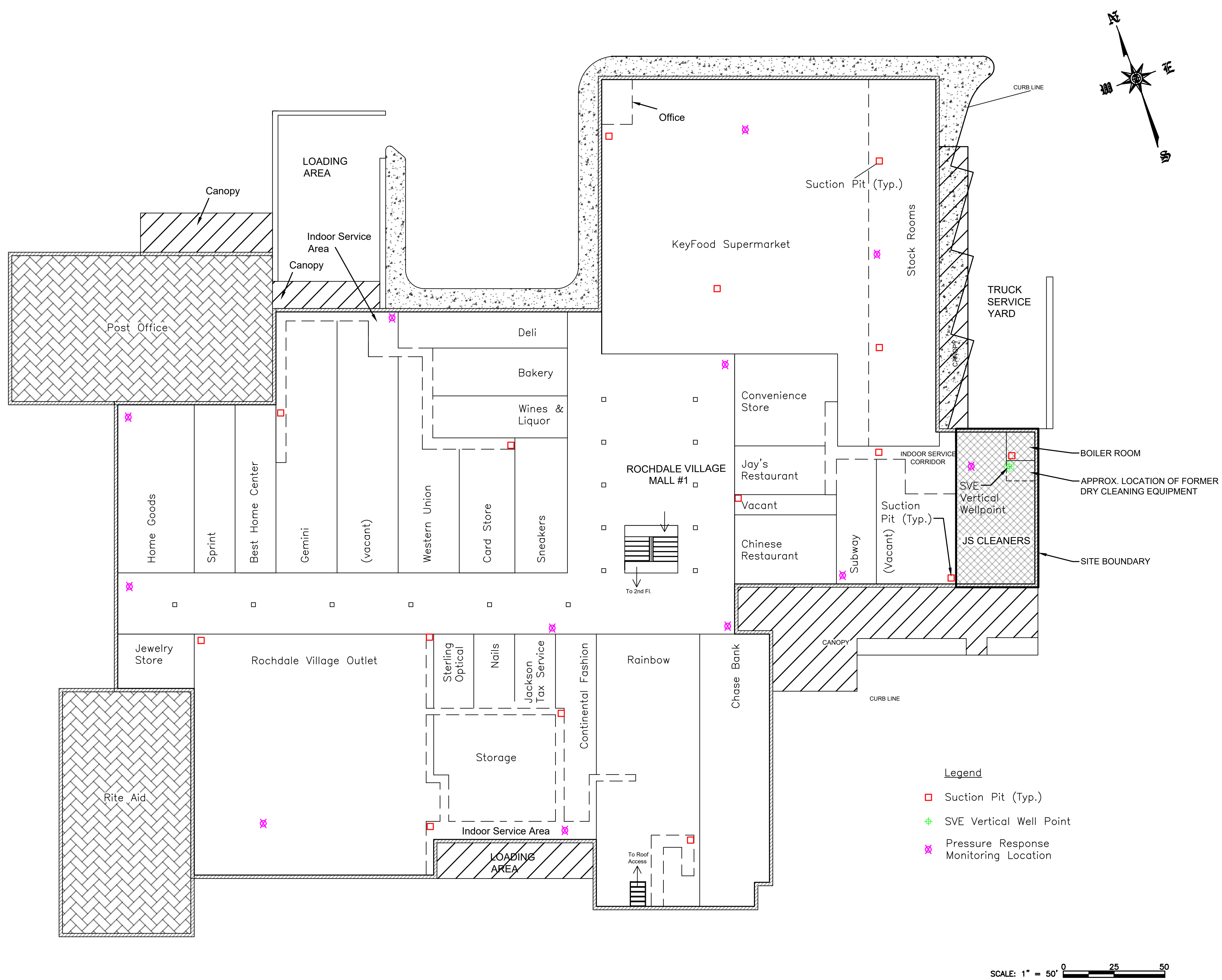
TENEN ENVIRONMENTAL

TENEN ENVIRONMENTAL, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: 646-606-2332
F: 646-606-2379

DRAWN BY	CHECKED BY	DATE	SCALE:
LM	KM	October 2018	As Noted

DRAWING TITLE:
At Grade SSDS/SVE Layout

DRAWING NO.
X-100



CLIENT

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O: 646-606-2332
F: 646-606-2379

DRAWN BY: LM

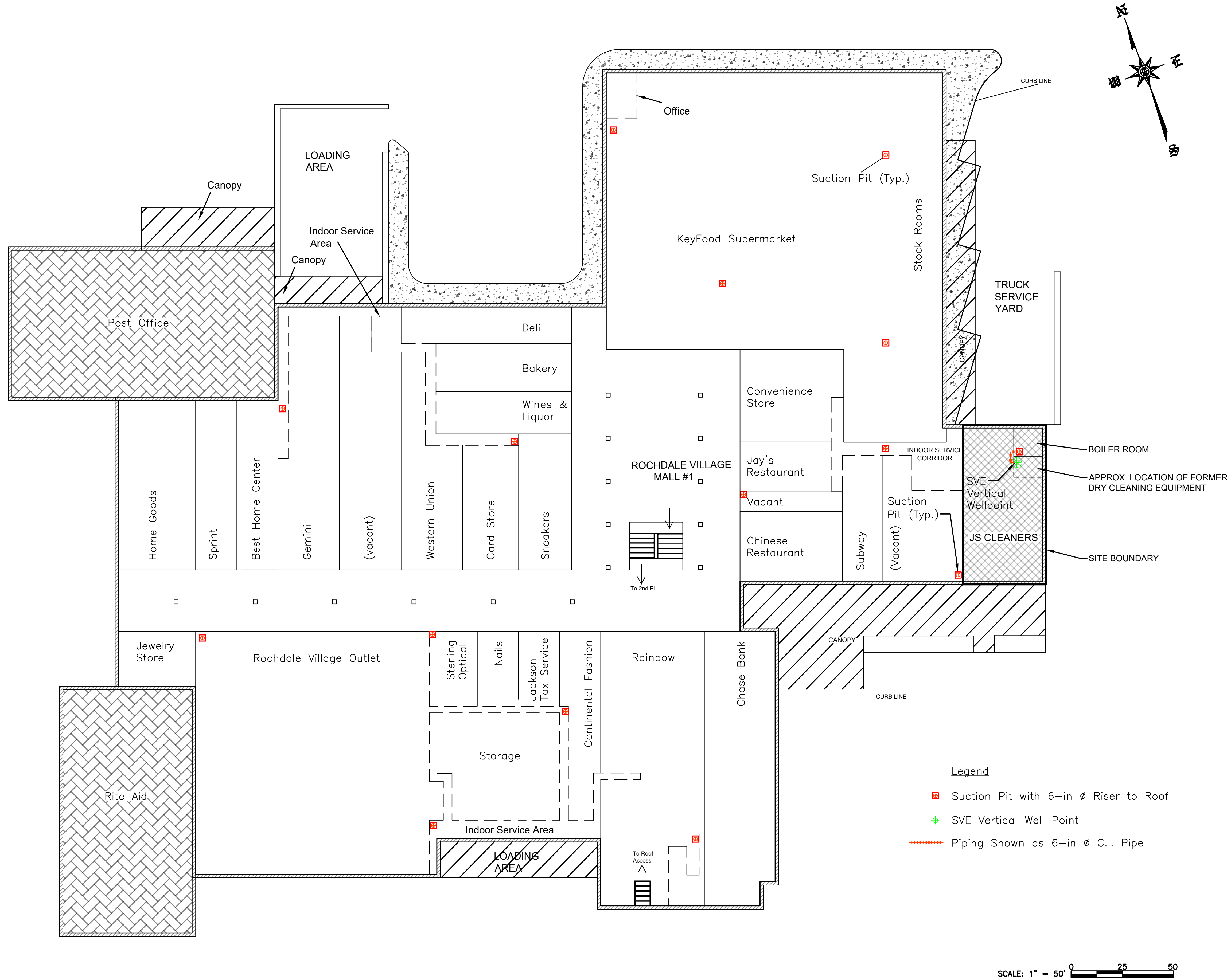
CHECKED BY: KM

DATE: October 2018

SCALE: As Noted

DRAWING TITLE: Pressure Monitoring Locations

DRAWING NO.: X-101



CLIENT

JS Cleaners
Rochdale Village
BCP # C241165
165-50 Baisley Boulevard
Jamaica, Queens

CONSULTANT

TENEN ENVIRONMENTAL

TENEN ENVIRONMENTAL, LLC
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O: 646-606-2332
F: 646-606-2379

DRAWN BY: LM

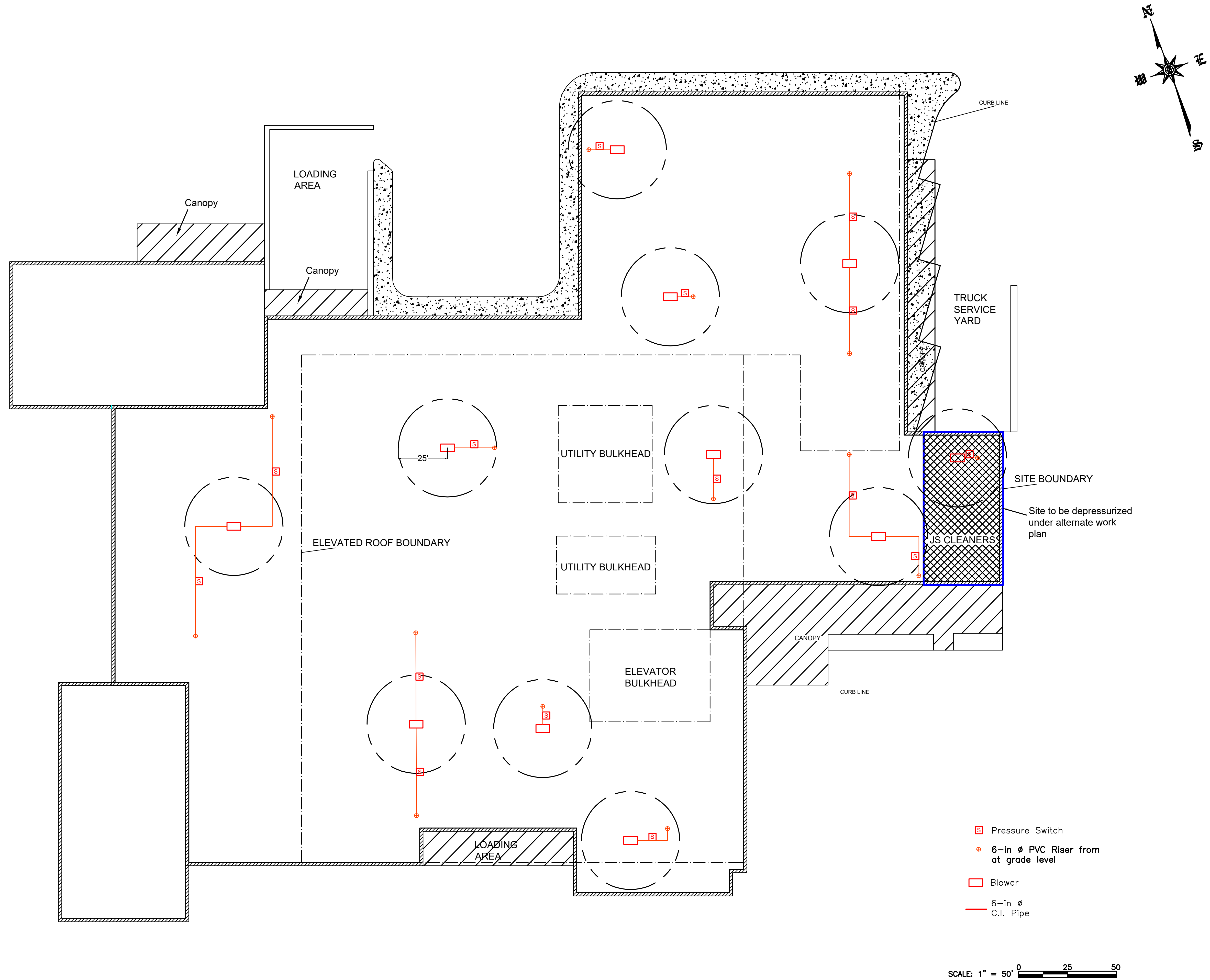
CHECKED BY: KM

DATE: October 2018

SCALE: As Noted

DRAWING TITLE: SSDS/SVE Piping

DRAWING NO. X-102



CLIENT
JS Cleaners
Rochdale Village
BCP # C241165
165-50 Baisley Boulevard
Jamaica, Queens

CONSULTANT
TENEN ENVIRONMENTAL
TENEN ENVIRONMENTAL, LLC
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Suite 702
New York, NY 10001
O: 646-606-2332
F: 646-606-2379

DRAWN BY: LM
CHECKED BY: KM
DATE: November 2018
SCALE: As Noted

DRAWING TITLE: SSDS/SVE Roof Layout
DRAWING NO. X-103

Appendix G
Draft Operations, Maintenance and Monitoring (OM&M) Plan

OPERATIONS, MAINTENANCE & MONITORING (OM&M) PLAN

SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS) and Soil Vapor Extraction (SVE) System

for
JS Cleaners- Rochdale Village Remedial Action Work Plan

165-50 Baisley Boulevard, Jamaica
Block 12495, portion of Lot 2
BCP Site # C241165

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
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OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

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OPERATIONS, MAINTENANCE AND MONITORING (OM&M) PLAN

1.0 INTRODUCTION

This Operations, Maintenance and Monitoring (OM&M) Plan has been developed to detail the engineering controls (ECs) implemented as part of the Interim Remedial Measures (IRM) Work Plan prepared for JS Cleaners (the Site).

The Site is located at 165-50 Baisley Boulevard, in the Jamaica neighborhood of Queens, NY. The Site is currently vacant; the previous occupant, a dry cleaner (JS Cleaners), ceased operations in January 2017. The Site is located within the Rochdale Village Mall (Mall #1), part of a larger community development and housing complex known as Rochdale Village.

Rochdale Mall #1 is a one- and two-story retail and office building (141,000 gross square feet) with associated parking. The Rochdale Village complex is bounded by Baisley Boulevard, Bedell Street, 137th Street and Guy R. Brewer Boulevard. Mall #1 is located in the northwest corner of Rochdale Village with associated parking spaces fronting Baisley Boulevard and Guy R. Brewer Boulevard. The Site is a 3,160 square foot one-story retail space located in the eastern end of Rochdale Village Mall. The Site is located in Queens Community Board 12 and is generally identified as a portion of Block 12495, Lot 2.

1.1 Background

Environmental investigations at the Site have documented elevated concentrations of chlorinated solvents in the sub-slab soil vapor, groundwater and soil. There is the potential for an indoor air intrusion condition.

In order to address the potential for indoor air quality impacts from the sub-slab soil vapor, an active sub-slab depressurization system (SSDS) has been designed and will be incorporated into the current building plan.

The goals of the permanent SVE for the Site are to remove VOCs from the soil and soil vapor, and prevent off-Site migration of soil vapors.

1.2 Summary of Engineering Controls (ECs)

Engineering Controls (ECs) to address residual contamination through physical protective measures at the Site have been incorporated to ensure that the Site remains protective of public health and the environment.

A sub-slab depressurization system (SSDS) was installed below the current slab in the basement of the building. The principal components of the SSDS are a layer of gravel beneath the basement slab, two suction pits within the gravel layer, solid-construction piping from each suction pit to an exterior suction fan on the roof and monitoring points through the basement slab. The goal of the system was to create a pressure differential of at least -0.02 inches of water column (in-wc) between the basement and sub-slab environments. A visual and audible alarm will be installed in the basement to notify the building management if the pressure at the suction fan has dropped below 50% of the start-up pressure. The system was designed in general accordance with NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (NYSDOH Soil Vapor Guidance).

The objective of the SVE system is to remove remaining PCE contamination from the soil; the system will also address PCE in soil vapor and prevent off-Site migration of soil vapors. The design goal of the SVE is to create a pressure differential of approximately -0.1 in-wc beneath the building slab in the area surrounding the vertical extraction well. One, two-inch diameter vertical SVE well was constructed of slotted (0.020 inch) schedule 40 PVC screen and advanced to a depth of 14 ft-bg.

The SVE extraction well piping was plumbed in to the adjacent SSDS suction pit piping, and connected to a regenerative blower on the roof. The extraction well was fitted with a valve tying in to the SSDS piping to regulate flow. Cast-iron piping and valves were utilized for all above grade interior piping. The discharge location for the blower was located on the building roof consistent with the NYSDEC DAR-1 guidance.

2.0 Engineering Control Operations

Three permanent ECs are being incorporated into the building as part of this IRM Work Plan to address potential soil vapor intrusion at the Site. The ECs are:

- an active sub-slab depressurization system (SSDS);
- a soil vapor exctraction system (SVE);
- a composite cover system; and,
- post-remedial groundwater monitoring.

General design drawings and specifications are included in the Appendices.

2.1 Sub-Slab Depressurization System (SSDS)

The SSDS will reduce the potential for soil vapor migration into the building. The SSDS will be inspected at specific intervals as defined in this OM&M.

2.2 Soil Vapor Extraction (SVE)

The SVE will remove remaining PCE contamination from the soil; the system will also address PCE in soil vapor and prevent off-Site migration of soil vapors. The SVE will be inspected at specific intervals as defined in this OM&M.

2.3 Composite Cover System

Exposure to soil, groundwater, and soil vapor would be prevented by a composite cover system that will be maintained the Site. The composite cover system will be the existing concrete building slab.

2.4 Groundwater Monitoring

Long-term monitoring (eight quarterly events) of the groundwater will be conducted to confirm groundwater concentrations. All quarterly monitoring samples will be analyzed for VOCs.

While post-remedial groundwater monitoring is part of the selected remedy, it is presented as an EC because it will continue after the Final Engineering Report (FER) and Site Management Plan (SMP) are submitted.

3.0 Routine Maintenance and Monitoring

EC inspections will be performed by a person knowledgeable with the mechanical systems present in the building and familiar with the property and may include a building or property superintendent.

3.1 EC Inspection Frequency

Site inspection and certification for performance of the active SSDS and SVE will be performed on a schedule detailed in the Final Engineering Report (FER) and reported in a Periodic Review Report (PRR).

3.2 EC Inspection Components

The EC inspections will evaluate the following:

- continued performance of ECs as designed;
- compliance with this SMP;
- continued achievement of remedial performance criteria;
- accuracy and completeness of Site records;
- necessity for any changes to the remedial systems; and
- general Site conditions at the time of inspection.

In the event of an emergency, such as a natural disaster or an unforeseen failure of any of the ECs, an inspection of the ECs will be conducted by a Qualified Environmental Professional (QEP), as defined by NYSDEC.

3.3 EC Inspections

3.3.1 Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE) System

EC inspections of the SSDS and SVE components shall include the following:

- Observe visible components (fan, vacuum alarm/monitor, vacuum gauge, tubing, riser pipe, etc.) for physical wear, damage and operational issues, and replace as necessary;
- Remove any blockages in vacuum monitor and gauge tubing and riser pipe taps;
- Verify operation of vacuum monitor by disconnecting tubing from riser pipe and noting if the building notification system goes into alarm mode;
- Verify operation of vacuum gauge by disconnecting tubing from riser pipe and noting if the indicator moves to zero (check high and low pressure ports to see if they are plugged correctly);
- Inspect riser pipe penetrations in concrete slab for proper seal;
- Inspect riser pipe connections at fan for leaks and tightness;
- Inspect condition of muffler (if installed) at end of outlet pipe; and
- Inspect power to fan by operating dedicated switch.

3.3.2 Composite Cover System

EC inspections of the composite cover shall include observations of the conditions of the concrete building slab if present. The composite cover will be inspected for cracks, holes or other openings that will provide access to the soil/fill below the cover. If any cracks, holes or other openings are observed in the composite cover/vapor barrier during the EC inspection, the inspector will make a recommendation that such cracks, holes or openings be immediately filled and/or sealed as necessary.

3.4 Inspection Reporting

EC inspections will be performed by a person with knowledge of the mechanical systems present in the building and familiar with the property. Inspection results will be reported to NYSDEC in a PRR.

3.5 Certifications

The results of the EC inspections will be certified at the time of the inspection and the signed certifications included in the PRR.

The Inspection Certification will certify whether:

- on-site ECs are unchanged from the previous certification;
- on-site ECs remain in-place and effective;
- on-site ECs are performing as designed; and
- anything has occurred that would impair the ability of the controls to protect public health and the environment.

4.0 EMERGENCY CONTACT NUMBERS

In the event of any emergency condition pertaining to any EC, the current Owner's representative(s) should contact the appropriate parties from the contact list below. Prompt contact should also be made to a Qualified Environmental Professional (QEP), as defined by NYSDEC. These emergency contact lists must be maintained in an easily accessible location at the Site.

Emergency Contact Numbers

Contact	Number
Medical, Fire and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Project Contact Numbers

Contact	Number
Matthew Carroll Tenen Environmental	(646) 606-2332

Appendix A

Sub-Slab Depressurization System and Soil Vapor Extraction

Appendix A-1

SSDS/SVE Design – As-Built

Appendix A-2

SSDS/SVE Operation – Routine Operating Procedures

Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE)

Routine Operating Procedures

The long-term operation and maintenance program described below shall continue throughout the life cycle of the sub-slab depressurization system (SSDS) and soil vapor extraction system (SVE) to ensure a proper working order. The long-term operation and maintenance program for the major SSDS/SVE components includes manufacturer's recommendations for the reinstallation of SSDS/SVE components if modifications to the existing system need to be made, inspection procedures, an operation schedule, typical routine maintenance activities and schedules, and troubleshooting. Refer to Section 3.3.3 for an overall inspection procedure of the SSDS.

The alarm system, described below, shall run continuously and only be disconnected for routine maintenance and inspection activities or replacement. The system includes the following:

- vacuum gauge/switch (Ashcroft pressure switch, watertight enclosure, product model B4-24-B-000-NEG50"H20
- building alarm system, activated through network interface device (NID) box

In case there is a need to relocate the vacuum gauge/switch, the new location shall ensure that the vacuum gauge/switch remains in close proximity to the riser pipe and is installed correctly. If the vacuum gauge is not indicating a vacuum while the SSDS/SVE is on, make sure that the tubing connected to the riser pipe is connected to the low pressure port. High pressure ports on the vacuum gauge/switch should be vented to atmosphere.

The vacuum gauge/switch does not require lubrication or periodic servicing. The vacuum gauge is not field serviceable and should be returned to the manufacturer or supplier if repair is needed. Repairs or alterations made to the vacuum gauge/switch by others will void the unit's warranty. The vacuum gauge/switch is factory calibrated and cannot be recalibrated in the field. The installation and operating instructions for the vacuum alarm/monitor have been included in Appendix A-3.

When testing the vacuum alarm/monitor, the tubing that connects the vacuum alarm/monitor to the riser pipe shall be disconnected and the low set point raised above the current reading. If the vacuum alarm/monitor is powered at the time of disconnecting the tubing from the riser pipe, the building system will go into alarm. The building system should go back on-line when the tubing is reconnected to the riser pipe. If the building system is in alarm when there is a vacuum present in the riser pipe, inspect the tubing and riser pipe tap to ensure that there are no blockages. If there is a blockage in either the tubing or the riser pipe tap, remove the blockage and retest the vacuum alarm/monitor.

Common troubleshooting tips that can be followed if the vacuum gauge/switch will not indicate a vacuum or is sluggish include the following:

- The pressure ports (high or low) are not hooked up correctly;
- The fittings or sensing lines are blocked, pinched or leaking;
- The cover is loose;
- The pressure sensor is improperly located;
- The ambient temperature is too low (below 20ºC).

The Industrial Plastic Fan direct-drive suction fan model 180 (CDD180) with a 1 horsepower Premium Efficiency BALDOR motor shall operate continuously and only be turned off for routine maintenance and inspection activities or replacement. The SSDS fan and motor shall not be left on the system piping without electrical power for more than 48 hours due to possible fan failure that could result from this non-operational storage. The SSDS/SVE fan unit does not require periodic servicing and should be returned to the manufacturer or supplier for service. Repairs or alterations made to the SSDS/SVE fan unit by others will void the unit's warranty. The installation and operating instructions for the SSDS/SVE fan unit have been included in Appendix A-4.

Appendix A-3

SSDS/SVE Vacuum Gauge and Switch – Installation and Operating Instructions

Appendix A-4

SSDS/SVE Fan and Motor – Installation and Operating Instructions