Weston & Sampson

westonandsampson.com

98 South Main Street, Suite 2
Waterbury, VT 05676
tel: 802.244.5051

WORK PLAN

July 28, 2022

Initial Site Investigation Work Plan

143-151 N Main Street
Barre City, Vermont

Prepared for:
City of Barre, Vermont

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1.0 SITE BACKGROUND

Weston & Sampson Engineers, Inc. (Weston & Sampson), on behalf of the City of Barre, has prepared this Phase II Environmental Site Assessment (ESA) Work Plan for assessment of the property located at 143-151 N Main Street in Barre, Vermont (the Site; Figure 1). The primary objective of this Phase II ESA Work Plan is to assess potential impacts related to several Recognized Environmental Conditions (RECs) identified during an ASTM Phase I Environmental Site Assessment (ESA) completed for the Site in 2022. The Site was identified using the Vermont Agency of Natural Resources (ANR) Environmental Research Tool (ERT) as the former JJ Newberry Property (SMS #1996-2006).

1.1 Site Location

Street Address: 143-151 N Main Street, Barre, VT
Latitude (North): 44.198715 - 44° 11' 55.37''
Longitude (West): -72.502378 - -72° 30' 08.56"
Universal Transverse Mercator: Zone 18
UTM X (Meters): 699577
UTM Y (Meters): 4896978
Elevation: 617 ft. above sea level
Site Owner: Overlake Park, LLC & Stephen Lewenstein
County: Washington
Parcel ID: 008118000
Size: 0.47 acres

1.2 Current Use of Property

The Site is developed with one, approximately 15,444 square foot (sq ft), single story commercial retail building with basement, that is currently vacant. Site features are shown on Figure 2.

1.3 Current Use of Adjacent Properties

The Site is zoned in the Urban Center 1 District (UC-1) and is currently vacant. Uses in the UC-1 District include commercial and residential property uses. Adjoining property uses to the northeast are commercial (nail salon). Adjoining property uses to the southwest are commercial (hardware store, pool supply store, coin and hobby shop, antique store). Adjoining uses to the northeast are residential and commercial (auto repair shop). Adjoining properties to the southeast are vacant.

1.4 Background

The Site is in an area of Barre City, Vermont that has been developed for commercial and residential use since at least 1884. The Site was developed with a residence and a shed sometime before 1884. The residence was replaced with a commercial storefront building between 1925 and 1948. The Site continued to be operated as a commercial storefront until at least 2010. Specific Site occupants identified during a June 2022 Phase I ESA included a JJ Newberry Co. variety store starting in 1948; Vermont Trading Stores between at least 1992 and 1995; and the Family Dollar Store in at least 2010. Currently the building is vacant.

The Site is listed as a state hazardous waste site under Sites Management Section (SMS) #962006 for a release of No. 2 fuel oil to soil identified during underground storage tank (UST) closure in 1996. Response actions included limited impacted soil removal. However, impacted soils underlying one (1) of the two (2) USTs was left in place due to their location proximate to the building foundation, city utilities and sidewalk. Because no exposure routes to sensitive receptors were identified, and the City planned

on utility installation adjoining the impacted area, the VTDEC determined that the petroleum contamination would be adequately addressed during construction and a Sites Management Activities Completed (SMAC) designation was issued. Main Street was reconstructed, including water, sewer, storm sewer and electrical utility replacements in 2012. No record of contaminant assessment or mitigation during utility construction was observed in the historical records review. Relevant UST closure and assessment documentation for is provided as Appendix A.

VTDEC records for the adjoining 12 Keith Avenue property (SMS# 2014-4500) indicate that environmental media at the Site are impacted related to a release of chlorinated volatile organic compounds (CVOCs) and light non-aqueous phase liquid (LNAPL) originating from the 12 Keith Avenue property. Subsurface investigations conducted under the 12 Keith Avenue site identified petroleum-related compounds and CVOCs in soil, groundwater, and soil gas at 12 Keith Avenue exceeding the applicable VTDEC standards due to historical dry-cleaning operations at the property.

During Keith Avenue sidewalk construction activities in 2016, soil stockpile sample analytical results identified arsenic and polycyclic aromatic hydrocarbons (PAHs) in soil at concentrations exceeding the Vermont Soil Standards (VSS) and the soil was transported for off-site disposal. The Partial CAP report on file for the property noted that impacts could be migrating onto the Site; however, access was not granted to conduct assessment activities. Results of the investigations were used to develop a Partial Corrective Action Plan (CAP), which included recommendations to excavate impacted soils to install a pavement subbase, the installation of an engineered barriers in areas of concern, and the implementation of institutional controls with long-term monitoring.

In 2017, Stone Environmental collected soil gas samples adjacent to the Site. Tetrachloroethene (PCE) was detected above the Vermont Shallow Soil Gas Screening values (SSGSV) in the soil gas samples collected adjacent to the Site. Between 2018 and 2019, soil gas samples collected adjacent to the Site contained PCE and TCE above the Vermont Vapor Intrusion Screening Values (VISV) for non-residential use. Indoor air samples collected in the Site building contained TCE above the residential and non-residential Indoor Air Standards (IAS). Residual petroleum LNAPL was observed in three soil borings adjacent to the Site. Relevant data and field logs from these subsurface investigations are provided as Appendix B.

In April 2020, a partial CAP Construction Completion Report was submitted to VTDEC for the 12 Keith Avenue property. The report described Corrective Actions completed to date, including removal of the CVOC hot spot, soil management, the installation of engineered barriers, including concrete caps (sidewalks) and asphalt caps (parking lot) underlain by geotextile fabric, and a vapor barrier pilot test. For the vapor barrier pilot test, a vapor barrier was installed along the eastern foundation the of 159 North Main Street building. The edge of the 159 North Main Street building and the Site building was not sealed because of a utility pole prevented access. Air samples were collected and detected low levels of TCE just below the IAS for residential use in both the interior of 159 North Main Street and in the outside ambient samples. Relevant figures depicting sampling locations, data tables, and field logs prepared by Stone Environmental are provided as Appendix B.

In June 2022, Weston & Sampson completed a Phase I ESA for the Site, which identified the following RECs:

- The presence of petroleum products in soil at the Site related to a historical UST.
- The likely presence of hazardous substances and/or petroleum products due to migration of contaminants from documented and likely releases at off-Site properties.

- The likely presence of vapor intrusion at the Site related to the release at the 12 Keith Avenue property.

Two Business Environmental Risks (BERs) were also identified:

- Potential per- and polyfluoroalkyl substances (PFAS) impacts at the Site related to likely releases associated with off-site, historical high-risk property uses.
- The likely presence of urban-development-related contaminants including arsenic, lead, and PAHs in environmental media at the Site due to its location in an urban area.

1.5 Purpose

This Phase II ESA is being completed to evaluate whether there are impacts associated with the RECs identified in the 2022 Phase I ESA.

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2.0 CONCEPTUAL SITE MODEL

2.1 Site Description

The Site is a vacant former retail facility that is developed with an approximately 15,444-square-foot commercial building. Topography of the Site is generally flat. The building footprint covers the majority of the Site, and remaining exposed groundcover is primarily asphalt. The Site is approximately 617 feet above mean sea level.

Surficial soils at the Site are mapped as the Urban Land-Udipsamments complex. Urban land is a designation for non-native fill material. Udipsamment soils are sands stabilized by vegetation. Udipsamments belong to an unspecified hydrologic group and soil drainage class. Their corrosion potential is unknown.

The Site is also located within a Designated Urban Soil Zone as defined by the VTDEC and shown on the online ANR Atlas. These are areas in which the use of VTDEC urban background values for concentrations of PAHs in soil may be used when evaluating contaminant concentrations at a Site.

Bedrock geology underlying the Site is mapped as the Waits River Formation, which is described as a dark-gray to silvery-gray, lustrous, carbonaceous muscovite-biotite-quartz phyllite containing beds of punky-brown-weathering, dark-bluish-gray micaceous quartz-rich limestone. Bedrock was not observed during the Phase I ESA Site reconnaissance. Based on nearby drinking water well logs, bedrock is located approximately 45 feet below ground surface (bgs). Contaminant flow into bedrock is not expected due to thick clay and till overburden deposits.

Groundwater is present at approximately 12 feet bgs and local groundwater flow is to the southwest toward the Stevens Branch of the Winooski River. Due to the presence of numerous buried utilities, repeated construction, and roadway construction activities groundwater flow directions may be counter to those expected.

2.2 Contaminants of Concern and Potential Sources

The potential contaminants of concern (COCs) for the Site are petroleum and chlorinated volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), arsenic, lead, and PFAS. The potential COCs and their respective potential sources are summarized in the table below.

COCs	Potential Source(s)
VOCs	• Release at 12 Keith Avenue (CVOCs and petroleum products related to historical dry-cleaning operations) • Historical on-Site USTs (SMS Site No. 962006) • Historical off-Site UST (12 Keith Avenue; SMS Site No. 2014-4500) • Likely releases at off-Site properties with which high-risk uses are or have been associated (including auto repair, auto painting, millinery, photo processing, fabric dying, and dry-cleaning)
SVOCs, Arsenic, Lead	• Non-native fill material
PFAS	• Likely releases at off-Site properties with current or former high-risk uses (e.g. dry-cleaning)

2.3 Migration Pathways

Releases in the vicinity of the on-site and off-site USTs would likely occur near the ground surface around the fill pipes, beneath the USTs, or beneath the distribution lines. Once released, these compounds could migrate downwards through the vadose (unsaturated soil) zone to the groundwater interface. Once in the groundwater, they will flow advectively downgradient to the southwest.

Some contaminants (such as VOCs) may be present as soil gas contained in soil pore space. In deeper portions of the vadose zone, this soil gas will migrate through diffusion. In near-surface zones, soil gas will migrate through advection/convection and can enter building spaces in contact with the soil.

2.4 Sensitive Receptors

A Sensitive Receptor Map, generated with the Agency of Natural Resources online Natural Resources Atlas, is provided as Figure 3. Potential human receptors include Site users (e.g., employees, visitors, or trespassers), construction workers and utility workers performing subsurface activities, and nearby residents downgradient of the Site. Potential ecological receptors include aquatic biota in the Stevens Branch of the Winooski River, located approximately 560 feet southwest of the Site.

2.5 Exposure Pathways

Potential exposure pathways to sensitive receptors include direct contact/ingestion of contaminated soil or groundwater and inhalation of indoor air.

Three incomplete exposure pathways have been identified:

- Releases from the on-site and off-site USTs would be to the subsurface and surface soil is unlikely to be impacted from these sources. Additionally, the off-site UST was removed from the 12 Keith Avenue Property in 2019.
- The area is served with municipal water and neither on-site nor off-site users are considered likely to ingest impacted groundwater. Direct contact with groundwater could occur if high groundwater conditions result in basement flooding.

Three potentially complete or unknown exposure pathways have been identified:

- Future Site users performing subsurface work, such as construction or utility workers, may encounter contaminated soil or groundwater. Basement flooding could result in Site User exposure to contaminated groundwater.
- Based on the results of indoor air and soil gas sampling events conducted in 2019, vapor intrusion could be occurring, and Site users could be exposed to CVOCs through inhalation.
- If CVOC-impacted groundwater is migrating off-site, surface water could be impacted by CVOC-impacted groundwater discharging to the Stevens Branch of the Winooski River.

The following table summarizes the potentially affected media, sensitive receptors that may be impacted and addresses whether each exposure pathway is considered complete, incomplete, or is currently unknown.

Impacted Media	Contaminants Of Concern	Sensitive Receptors	Exposure Pathways	Exposure Pathway Complete?
Surface Soil	VOCs, SVOCs, Metals	Site users	Direct Contact, Ingestion	Incomplete
Subsurface Soil	VOCs, SVOCs, Metals	Site Users	Direct Contact, Ingestion	Incomplete
		Future Site users (construction/utility workers)	Direct Contact, Ingestion	Unknown
Groundwater	VOCs, SVOCs, Metals, PFAS	Site users	Direct Contact, Ingestion	Incomplete
		Future Site users (construction/utility workers)	Direct Contact, Ingestion	Unknown
		Off-Site users	Direct Contact, Ingestion	Unknown
Surface Water	VOCs, SVOCs, Metals	Stream/surface water – Stevens Branch	Direct Contact, Ingestion	Unknown
Indoor Air	VOCs	Site users	Inhalation	Unknown

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3.0 SITE CHARACTERIZATION STRATEGY

The goal of this proposed work is to evaluate if contaminated soil, groundwater, or soil gas is present on-Site due to on- and/or off-Site releases.

3.1 Applicable Standards

The screening criteria for soil will be the Vermont Soil Standards (VSS) for residential use published in the Vermont Investigation and Remediation of Contaminated Properties Rule (I-Rule), effective July 6, 2019.

The screening criteria for groundwater will be the Vermont Groundwater Enforcement Standards (VGES), as listed in Chapter 12: Groundwater Protection Rule and Strategy of the State of Vermont Environmental Protection Rules, effective July 6, 2019. Groundwater results will also be compared to the Vapor Intrusion Standards (VIS) for groundwater (residential use) provided in the I-Rule.

The screening criteria for soil gas will be the Vapor Intrusion Standards for Sub-slab Soil Gas (VIS-SSG) for residential use published in the I-Rule.

3.2 Field Activities and Analytical Methods

Prior to initiating subsurface field activities, the proposed boring locations will be marked and Dig Safe and the local Department of Public Works will be notified. A private locater will be used to clear the boring locations.

3.2.1 Soil Assessment

A total of 10 soil borings will be advanced at the Site. Four (4) of the soil borings will be advanced in locations outside of the Site building and six (6) borings will be advanced inside of the Site building as shown on Figure 4.

Boring locations have been selected to evaluate COCs from on-Site and off-Site sources. Borings will be advanced to a depth of 5 feet beneath the groundwater interface, anticipated to be approximately 12-15 feet bgs. During boring advancement, soil will be screened for visual and/or olfactory evidence of contamination. Soil will also be screened for VOCs using a photoionization detector (PID).

Soil samples will be collected for laboratory analysis from one (1) depth interval at each boring location. Laboratory samples will be collected at the depth interval exhibiting the highest evidence of contamination (i.e., visual, olfactory, and/or PID reading), or from the depth interval at the groundwater interface if evidence of contamination is not observed. Each sample will be submitted to Pace Analytical Laboratory (Pace), located in East Longmeadow, Massachusetts for analysis of RCRA 8 metals by EPA Methods SW-846 6010 and SW-846 7471, SVOCs by EPA Method SW-846 8270, and VOCs by EPA Method SW-846 8260.

The following table describes the boring locations and samples to be collected:

Location	Boring Depth	Sample Number	Sample Location	Analysis
SB-1	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-2	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-3	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-4	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-5	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-6	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-7	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-8	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-9	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals
SB-10	five feet below water table	1	Evidence of contamination **OR** groundwater interface	VOCs, SVOCs, RCRA 8 metals

The six (6) soil borings inside the Site building (SB-5 through SB-10) will be completed through the concrete slab. A hand auger will be advanced to collect soil samples from within the coring/hand boring locations. Soil boring locations SB-1 and SB-2 will be advanced near the property line between the Site and the 12 Keith Avenue Property to evaluate potential impacts related to 12 Keith Avenue, historical dry-cleaning operations and likely releases associated with off-Site properties. Soil borings SB-9 and SB-10 will be advanced as close to the southeastern wall of the Site building as possible to evaluate potential impacts related to the historical USTs removed from the Site. All 10 of the soil boring locations have been selected to provide a general characterization of Site subsurface conditions.

Soil samples will be submitted to Pace Analytical Laboratory (Pace) in East Longmeadow, Massachusetts for the analyses listed in the table above.

3.2.2 Groundwater Monitoring Well Installation

Two (2) of the soil borings outside of the Site building and two (2) of the soil borings inside of the Site building will be completed as groundwater monitoring wells. Groundwater monitoring well locations will be selected based on observed field evidence of contamination (i.e., odor, staining, sheen, etc.) and to evaluate on-Site groundwater flow direction. Assumed locations are shown on **Figure 4**. The groundwater monitoring wells will be identified as MW-1 through MW-4. Monitoring wells will be screened across the groundwater interface and will be constructed of 1.5" Schedule 40 PVC with 10-ft long 0.010" factory-slotted screens pre-packed with #1 silica sand. The sand column will extend from the bottom of the screen to one foot above the screen. At least one foot of bentonite will be placed above the filter pack. The remainder of the well annuluses will be filled with soil cuttings or clean fill. Wells will be completed with flush-mount road boxes, secured in concrete.

The wells will be developed by purging groundwater until the groundwater turbidity is less than 15 nephelometric turbidity units (NTUs). Purged groundwater will be stored in a drum on Site, pending analytical results.

3.2.3 Groundwater Monitoring

Prior to sampling, depth-to-water (DTW) in the selected wells will be gauged and groundwater elevations calculated for inclusion on a groundwater contour map. The new monitoring wells will be allowed to equilibrate for at least one week before sampling. The wells will be sampled in conformance with EPA Region I "Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", EQASOP-GW4 (Revision 4, September 19, 2017). Groundwater samples will be submitted to Pace for analysis of PFAS via LC/MS/MS with isotope dilution, RCRA 8 metals by EPA Methods SW-846 6010 and SW-846 7471, SVOCs by EPA Method SW-846 8270, and VOCs by EPA Method SW-846 8260.

One (1) groundwater sample will be collected from the sump in the basement of the Site building. The sample will be submitted to Pace for analysis of PFAS via LC/MS/MS with isotope dilution, RCRA 8 metals by EPA Methods SW-846 6010 and SW-846 7471, SVOCs by EPA Method SW-846 8270, and VOCs by EPA Method SW-846 8260.

3.2.4 Soil Gas Assessment

A handheld concrete drill will be used to penetrate the basement floor at four (4) locations inside the Site building. Temporary soil gas sampling points (Cox-Colvin Vapor Pins™) will be installed as VP-1 through VP-4 (Figure 4). The soil gas sampling points will be mechanically leak-tested (i.e. water dam) to ensure they are properly sealed. Differential pressure will be measured at each point using a digital manometer prior to sample collection. Soil gas samples will be collected with Summa canisters over a 2-hour sampling period. Samples will be submitted to Pace for analysis of VOCs via EPA Method TO-15.

3.3 Site Survey

The location of the borings and monitoring wells will be surveyed for location, elevation and inclusion on the Site map.

3.4 Standard Operating Procedures

The following Weston & Sampson Standard Operating Procedures will be used during this Phase II ESA. Copies of the SOPs were previously submitted to the VTDEC.

SOP-2	Jar Headspace Screening
SOP-3	Sampling Soil from Split Spoon/Direct Push Sampling Device
SOP-5	Pre-Marking Boring Locations
SOP-7	Observing Direct Push Soil Borings
SOP-8	Decontaminating Equipment
SOP-9	Measuring Groundwater Levels
SOP-10	Sampling Soil with a Scoop or Hand Auger
SOP-11	Low Flow Groundwater Sampling
SOP-12	Elevation Survey
SOP-14	Air and Soil Gas Sampling
SOP-22	Soil Gas Monitoring Point Installation

3.5 Investigation Derived Waste

Soil cuttings will be used to fill well annuluses above bentonite seals. Remaining soil and purged groundwater development water will be stored in drums left on-Site pending analytical results. Purged groundwater from sampling activities will be returned to the well from which it was collected after sampling is complete.

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4.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN

4.1 Data Usability

4.1.1 Laboratory Data Evaluation

Weston & Sampson will perform a Tier I evaluation of the data to identify bias or other interference that could affect the quality of sample results. Quality control (QC) components that will be evaluated include the following:

- Data completeness
- Holding times
- Sample preservation
- Blank results
- Surrogate recoveries
- Laboratory control sample results
- Field duplicates

The following QA/QC Samples will be collected:

Parameter	Matrix	Number of Samples	Trip Blanks	Blind Field Duplicates
VOCs	Soil	10	0	1
	Groundwater	5	1	1
	Soil Gas	4	0	1
SVOCs	Soil	10	0	1
	Groundwater	4	0	1
PFAS	Groundwater	4	0	1
RCRA 8 metals	Soil	10	0	1
	Groundwater	4	0	1

4.1.2 PARCCS Evaluation

Weston & Sampson will evaluate the data in general accordance with the PARCCS (precision, accuracy, representativeness, completeness, comparability, and sensitivity) parameters outlined in the *U.S. Environmental Protection Agency Guidance on Quality Assurance Project Plans.*

Precision

Precision is a measure of agreement among individual measurements of the same property and is generally expressed as the reproducibility of the analytical result between initial sample and field duplicate as expressed by the relative percent difference (RPD). Precision is a measure of the reproducibility of sampling technique, matrix homogeneity, and analytical method. An RPD value of <30% is considered acceptable for groundwater and an RPD of <50% is considered acceptable for soil.

Accuracy

Accuracy is the degree of measurement with an accepted reference or true value. Weston & Sampson will evaluate accuracy by reviewing surrogate results, laboratory control sample results, and calibration QC results.

Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of the population, parameter variation, or environmental condition. Weston & Sampson has designed the sampling protocol to ensure representativeness by incorporating factors such as site history, visual and olfactory observations, physical features, proper sample collection and preservation procedures, appropriate testing methodology, and field screening data.

Completeness

Completeness is a measure of whether enough data has been collected to support a regulatory opinion and is expressed as a percentage representing the ratio of valid data to expected data. Data may be considered invalid for reasons such as exceeding the holding time, poor calibration of analytical instruments, and poor surrogate or matrix spike recoveries.

Comparability

Comparability refers to the level of confidence with the correlation of data collected during separate events or by different persons or analyzed by different methods. This may be measured qualitatively based on a review of sampling and testing procedures or quantitatively by comparison of sample data collected at the same location using the same sampling and testing procedures. Sampling and testing procedures will use accepted standards for quality assurance and quality control and are expected to be comparable to any future data collected at the Site.

Sensitivity

Sensitivity is a measure of whether the laboratory method was sufficient to report detected contaminants at concentrations at or below the applicable regulatory criteria. The selected laboratory, Pace, can achieve the appropriate sensitivity for this project.

5.0 SCHEDULE AND COSTS

5.1 Project Timeline

The proposed timeline for this project is detailed in the table provided below, shaded cells indicate weeks of expected work:

Task	Weeks from Approval to Proceed										
	1	2	3	4	5	6	7	8	9	10	11
Workplan Approval											
Field Activities											
Laboratory Analysis											
Reporting											

5.2 Project Costs

Our Level of Effort and Cost Table (Table 1) is attached including a breakdown of work to be performed and the basis of our estimated costs. All work will be completed with prior authorization by the VTDEC Project Manager.

Cost $36,500

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6.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

This report was prepared by the following individuals:

Jill Murphy Ready
Geologist III

I certify under penalty of perjury that I am an environmental professional and that all content contained within this deliverable is to the best of my knowledge true and correct.

Steven LaRosa
Team Leader

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FIGURES

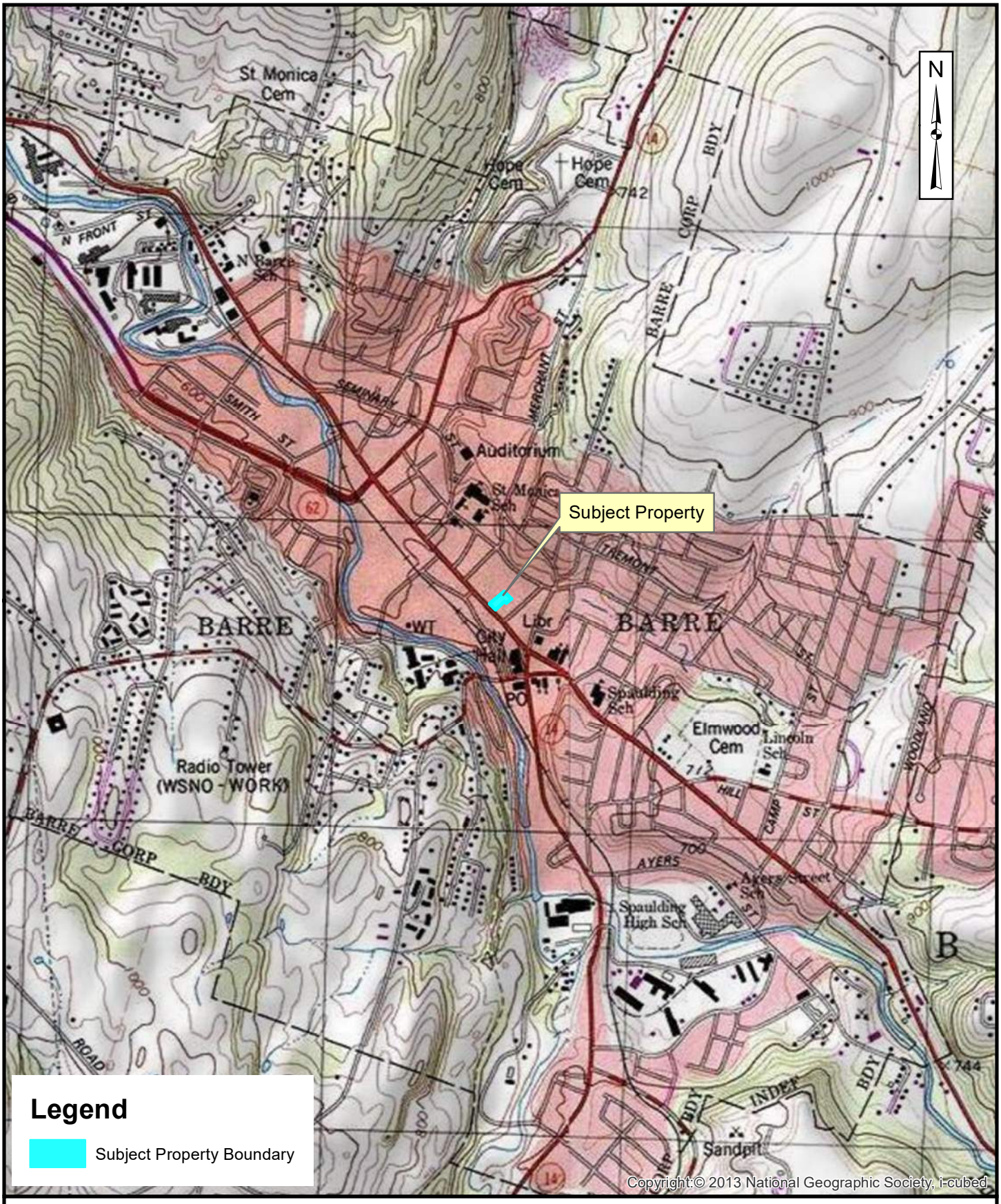


FIGURE 1
BARRE CITY, VERMONT
143-151 N MAIN STREET PHASE I ESA

LOCUS MAP

0 2,000 4,000 **Feet**

Legend

- Subject Property Boundary
- Surrounding Area Properties of Interest

75 0 75

Scale In Feet

FIGURE 2

BARRE CITY, VERMONT
143-151 N MAIN STREET PHASE I ESA

SITE PLAN

MAY 2022 SCALE: NOTED

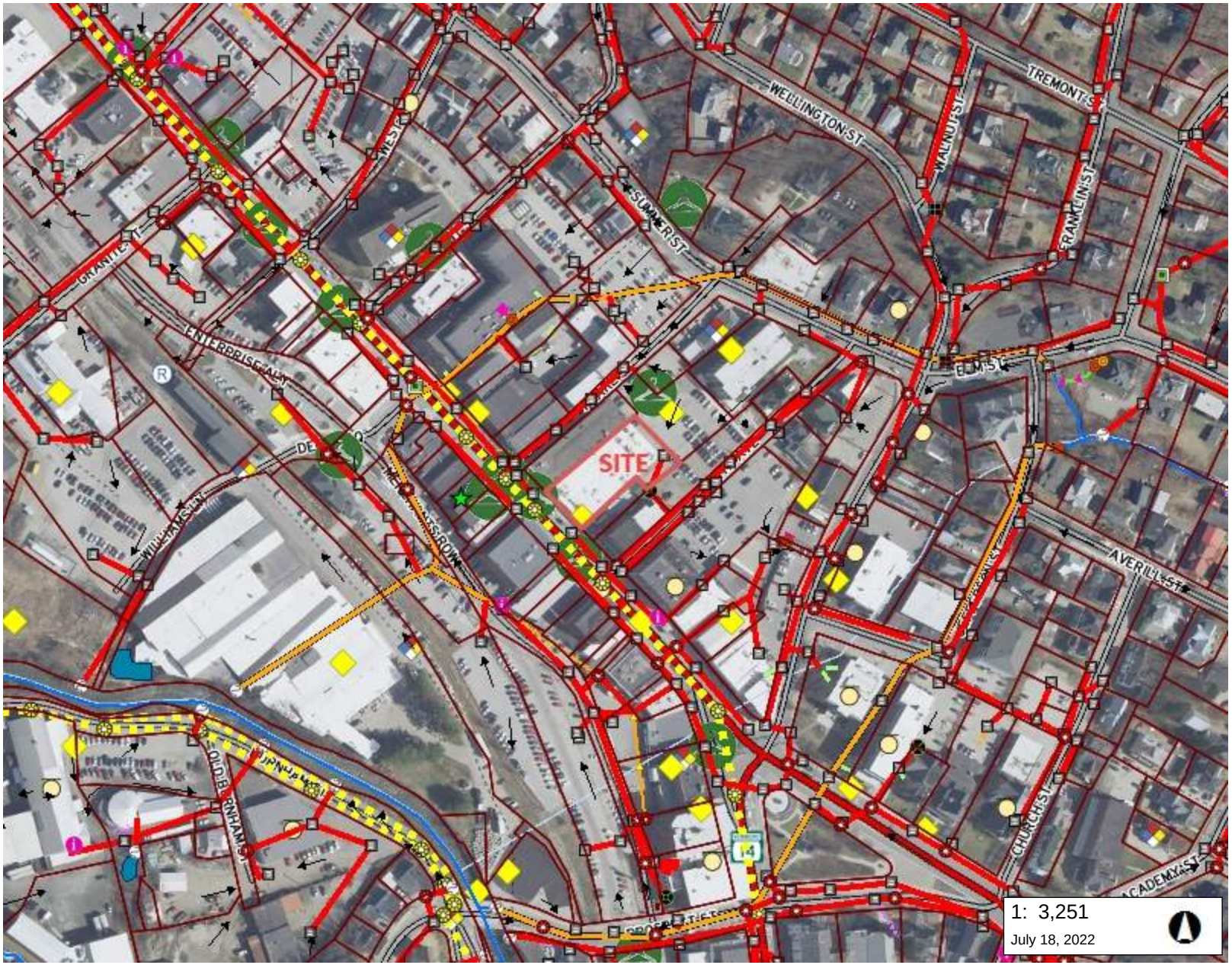
Weston & Sampson

VERMONT

Figure 3 - Sensitive Receptors Map

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Rare Threatened Endangered
  - Threatened or Endangered
  - Rare
- Significant Natural Community
- Uncommon Species and Other
  - Animal
  - Plant
  - Natural Community
- Wetland Projects
- Existing stormwater point
  - Pipe Cross (not connected)
  - Catchbasin
  - Dry Well
  - Drop Inlet
  - Grate/Curb Inlet
  - Yard drain
  - Junction Box
  - Stormwater Manhole
  - Outfall
  - Culvert inlet
  - Culvert outlet
  - Pond outlet structure
  - Treatment feature (see notes)
  - Retrofit
  - Unknown Point
  - Information Point
  - <all other values>

NOTES

143-151 North Main Street, Barre, Vermont
Map created using ANR's Natural Resources Atlas

165.0 0 82.00 165.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 271 Ft. 1cm = 33 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

FIGURE 4

BARRE CITY, VERMONT
143-151 N MAIN STREET PHASE I ESA

PROPOSED SAMPLING PLAN

JULY 2022 SCALE: NOTED

Weston & Sampson

Path: \\wse03.local\WSE\Projects\VT\Barre City\147-151 N Main Street Phase I ESA\3. Drawings\.mxd\Figure 4 - Proposed Sampling Plan.mxd **User:** MurphyJ **Saved:** 7/18/2022 12:16:53 PM **Opened:** 7/18/2022 12:17:38 PM

TABLES

TABLE 1
Level of Effort and Cost Table

Weston & Sampson

147 - 151 North Main Street - Phase II ESA

7/28/2022

TASK NO.	TASK DESCRIPTION	*Person-Hours*							*Billing Costs*		
		PRN	SR PM	PROJ SCI	ENG/GEO II	ENG/GEO I	ADMIN	TOTAL HOURS	EXPENSES	SUB-CONSULT.	TOTAL COST
1	Project Management	1	1	13				15			$1,972.68
	HASP		1			2		3			$360.00
2	Field Activities										
	Markout/Private Locate/VP Install			1		12		13	$226.04	$825.00	$2,251.04
	Soil Borings/Well Installation			2		12		14	$636.04	$4,400.00	$6,356.04
	Soil Boring Analysis (Pace)										
	-VOCs (10 + 1 duplicate)									$1,546.38	$1,546.38
	-SVOCs (10 + duplicate)									$3,172.62	$3,172.62
	-RCRA 8 Metals (10 + duplicate)									$1,372.14	$1,372.14
	Well Development/Survey			1	8	8		17	$128.52		$1,768.52
	Investigation Derived Waste Handling			1				1	$73.52	$660.00	$853.52
	Soil Vapor Sampling			1		12		13	$26.04		$1,226.04
	Soil Vapor Analysis (Con-Test)										
	-VOCs (4 + duplicate)									$1,702.80	$1,702.80
	Groundwater Monitoring			1		12		13	$476.04		$1,676.04
	Groundwater Analysis (Con-Test)										
	-VOCs (5 + duplicate + trip blank)									$843.48	$843.48
	-SVOCs (4 + duplicate)									$2,145.00	$2,145.00
	-RCRA 8 Metals (4 + duplicate)									$623.70	$623.70
	-PFAS (4 + duplicate)									$1,980.00	$1,980.00
3	Reporting										
	Data Entry/QA/QC			4		5					$930.00
	Draft Report	2	2	12		24					$4,340.00
	Final Report		1	4		6	3				$1,380.00
TOTALS		**3**	**5**	**40**	**8**	**93**	**3**	**89**	**$1,566.20**	**$19,271.12**	**$36,500.00**
LABOR BILLINGS PER STAFF MEMBER		**$570**	**$900**	**$4,843**	**$800**	**$8,370**	**$180**				

APPENDIX A

UST Closure Documentation

State of Vermont

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Waste Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 241-3296

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

July 17, 1996

ATTN EUGENE O'BRIEN
BARRE REALTY TRUST
C/O MANLEY-BERENSON ASSOCIATES
66 LONG WHARF
BOSTON MA 02110

RE: Petroleum contamination at J.J. Newberry - Barre, VT (Site #96-2006)

Dear Mr. O'Brien:

The Sites Management Section (SMS) has received a site assessment report outlining the subsurface conditions for the above referenced site, submitted by Peter Hack of Griffin International on June 13, 1996. This report summarizes the degree and extent of contamination encountered during the assessment. The tanks removed were a 550 gallon, #2 fuel oil, underground storage tank (UST) (UST #1), and a 1,000 gallon, #2 fuel oil UST (UST #2).

During the tank pull, soils screened at 7 feet below ground surface (bgs) beneath the east end of UST #2 had peak volatile organic compound (VOC) concentrations of 70 parts per million (ppm) as measured by a photoionization detector (PID). The condition of UST #2 was poor as evidenced by the existence of holes on the top, side and bottom of the tank. The soils under UST #2 were obviously contaminated by #2 fuel oil, however, excavation of these soils was not possible due to the location of North Main Street city utilities, building foundations, sidewalks, and the confined work area. All excavated soil from the area of UST #2 was backfilled since the full extent of the contamination was unknown and due to the above noted site conditions. The area of UST #1 was found to have minimal contamination and only the area surrounding the vent pipe had significant contamination (peak reading of 15 ppm). These soils (approx. 0.25 cubic yards) were segregated during the excavation activities and were shipped under a hazardous waste manifest. Other soils screened during the removal of UST #1 contained no VOCs and the soil at 4 feet bgs beneath the vent pipe had 1 ppm. Neither groundwater nor free product were found to be present.

Ordinarily, the SMS would request additional site investigation work which could include the removal of soil with this level of residual contamination. However, due to the hindrances noted and the lack of sensitive receptors, either of these activities could be difficult to perform. The consultant implied that due to the above, the subsurface should be left as is. In response to this report, Reginald Abare - Barre City Engineer, sent the DEC a letter stating that in 1999, North Main Street would be undergoing replacement of the underground utilities and that the grants for this work do not cover the removal/disposal of any contamination of this sort. It appears that in light of this future work it would be a more efficient use of resources to wait until that time to remove any contamination that remains above SMS guideline levels. If contamination is found during the course of the utilities replacement, it will be the responsibility of J.J. Newberry to ensure that any contamination found related to this release is properly dealt with at that time and not the responsibility of the City of Barre.

The USTs at J.J. Newberry are covered by the Petroleum Cleanup Fund (PCF) as set forth in 10 V.S.A. Section 1941 as long as no private insurance exists which would apply to this situation. You must provide proof of no insurance before the PCF can be used to reimburse these expenses. An owner or permittee of a tank, who is not in significant violation of his or her permit, is eligible for reimbursement from the fund. The owner or permittee must pay for the removal or repair of the failed (or abandoned) tank; after that the fund will reimburse the tank owner or permittee for additional cleanup costs up to $1 million. The fund may not pay for cleanup costs which are for cleanup work that is not pre-approved by the Agency. Please refer to the attached guidance document titled, "Procedures for Reimbursement from the Petroleum Cleanup Fund" for further information on this program. Additionally, the Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the J.J. Newberry site if the Secretary concludes that J.J. Newberry is in significant violation of the Vermont Underground Storage Tank Regulations and the Underground Storage Tank statute (10 V.S.A., Chapter 59).

Based on the current conditions at this site, the SMS has determined that this site is now eligible for a SMAC (Site Management Activity Completed) designation. This means that the SMS has determined that:

- the two #2 fuel oil USTs have been removed from the ground, and are no longer a continuing source of petroleum contamination at this site;
- groundwater was not encountered during the removal, however, the area is serviced by the municipal water system;
- all petroleum contaminated soil from UST #2 remains due to the existence of many underground utilities, building foundations, etc. at the former tank pit;
- the City of Barre is planning to upgrade its underground utilities in 1999. Any residual contamination from this UST which is encountered during this work will be the responsibility of J.J. Newberry; and
- based on the Griffin International tank closure assessment, any residual contamination does not pose an unacceptable risk to human health or the environment.

Based on these findings, the SMS has determined that site management activities have been completed. The completion of these activities does not release J.J. Newberry of any past or future liability which may arise from the petroleum contamination discovered to have originated from the UST at the J.J. Newberry site and if during the course of the planned utilities replacement in the area of the former tank pit, contamination is found, the site will be reopened and J.J. Newberry will be responsible for ensuring that contamination above guidelines is removed. For these reasons the SMS is not requiring any additional work be performed in response to the contamination discovered at this site, at this time. If you have any questions or comments, please feel free to contact either me or Tim Cropley at (802)241-3888.

Sincerely,

George Desch, Chief
Sites Management Section

cc: Barre City Board of Alders
Barre City Health Officer
Reginald Abare, Barre City Engineer
DEC Barre Regional Office
Peter Hack, Griffin International

GD/tc/SMS/smac.962006

3745 AUG 0 6 1996

VERMONT UNDERGROUND STORAGE TANK (UST) REMOVAL FORM

This form can only be used when all registered USTs have been removed from the facility.

In compliance with UST Regulations, the registered UST(s) recorded in Book 136, Page 537, in the Town/City Barre City Land Records were removed on 6/11/1996.

OWNERSHIP OF TANKS REMOVED

Name BARRE Realty Trust
Mailing Address c/o MANLEY-BERENSON ASSOC. 66 Long Wharf
City/Town Boston State MA Zip 02110

Tanks registered in the Ownership of:
McCRORY CORPORATION
2955 EAST MARKET STREET
YORK PA 17402
Phone (617) 726-1500
Contact Name Eugene O'Brien

FACILITY LOCATION

Name J.J. NEWBERRY'S #6091
Street Address 145 NORTH MAIN STREET
City/Town BARRE CITY, County WASHINGTON
Land Owner BARRE Realty Trust

Facility ID# 112
Site ID# 96-2006
# of Tanks Registered: one
# of Tanks Removed: two

PAGE 61
VOL 16

CERTIFICATION: I certify under penalty of law that the information provided on this form is true, accurate, and complete to the best of my knowledge.

BARRE Realty Trust
Printed name of owner. If a corporation, add name and title of authorized officer or representative

MANLEY-BERENSON ASSOCIATES, INC.
AGENT FOR BARRE Realty Trust
Signature of owner or owner's representative — Date 7/16/96

LOCAL USE ONLY

Date Recorded July 25, 1996
Book Number 163
Page Number 614
City/Town of Barre Land Records
Eugene G. Stratton clk
filed by: Signature of Town or City Clerk

Agency of Natural Resources
Department of Environmental Conservation
UST Program, West Building
103 South Main Street
Waterbury, VT 05671-0404

STATE USE ONLY

Agency of Natural Resources
Department of Environmental Conservation
Underground Storage Tank Program
Date Approved 7/22/96
By Lyle Middleton UST Program
Signature

BARRE CITY VT. Record Rec. July 25 1996
at 8 o'clock 30 Min A M. Vol. 163 Page 614
Attest Eugene G. Stratton clk

CI/removal.form

VERMONT NOTIFICATION FOR UNDERGROUND STORAGE TANKS

- READ INSTRUCTION PAGE CAREFULLY BEFORE COMPLETING THIS FORM -

PLEASE TYPE OR PRINT IN INK ALL ITEMS EXCEPT "SIGNATURE" IN SECTION VI ON PAGE 2.
SEPARATE NOTIFICATION MUST BE FILED FOR TANKS OWNED AT A DIFFERENT LOCATION.
FOR ADDITIONAL INFORMATION, CALL THE VERMONT UNDERGROUND STORAGE TANK PROGRAM AT (802) 828-3395.

I. OWNERSHIP OF TANKS

NAME (CORPORATION, INDIVIDUAL, PUBLIC AGENCY OR OTHER ENTITY)
McCrory Corporation

STREET ADDRESS
2955 East Market St.

TOWN OR CITY: York
COUNTY:

STATE: Penn.
ZIP CODE: 17402
AREA CODE PHONE NUMBER: (717) 757-8034

II. CONTACT PERSON (PERSON RESPONSIBLE FOR DAY-TO-DAY OPERATION OF TANKS.)

NAME (IF SAME AS IN SECTION I, CHECK BOX HERE ☐)
George Shuman/Joseph McIntyre

JOB TITLE: manager/field main. super.
AREA CODE PHONE NUMBER: (802) 476-4321

MAILING ADDRESS (IF DIFFERENT FROM SECTION I)
STREET ADDRESS
145 North Main St.
TOWN OR CITY
Barre
COUNTY: Washington
STATE: VT
ZIP CODE: 05641

III. SITE LEAK HISTORY (COMPLETE THIS SECTION ONLY IF APPLICABLE)

YEAR OF LEAK:
ESTIMATE OF QUANTITY LEAKED IN GALLONS:
SUBSTANCE LEAKED:

SOURCE OF LEAK (CHECK ALL THAT APPLY)
☐ TANK ☐ PUMP ☐ OVERFILL
☐ PIPING ☐ TRANSFER ☐ OTHER

CONTAMINATION (CHECK ALL THAT APPLY)

	YES	NO	DON'T KNOW
SOIL	☐	☐	☐
GROUNDWATER	☐	☐	☐
SURFACE WATER	☐	☐	☐

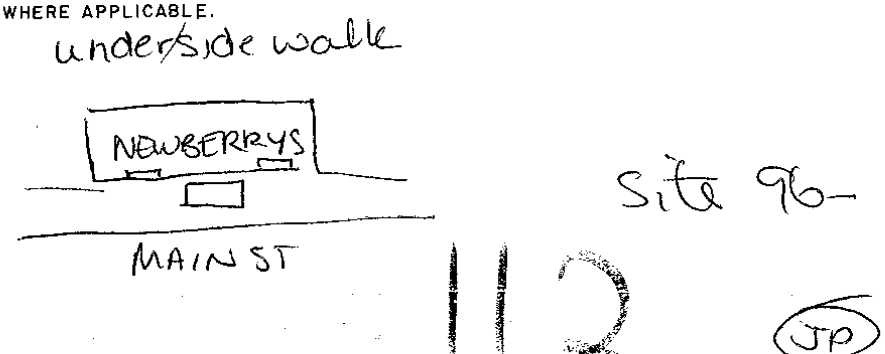
CORRECTIVE ACTION (CHECK ALL THAT APPLY)
☐ PRODUCT RECOVERY WELLS INSTALLED
☐ SURFACE WATER CONTAINMENT USED
☐ CONTAMINATED SOIL EXCAVATED
☐ TANK REPLACED
☐ PIPING REPLACED
☐ NO ACTION TAKEN
☐ OTHER (SPECIFY)

IV. LOCATION OF TANKS

FACILITY NAME OR OTHER SITE IDENTIFIER, AS APPLICABLE
J.J. Newberry's #6091
STREET ADDRESS, STATE ROAD, R.R. #, AS APPLICABLE
145 North Main St.
TOWN OR CITY: Barre
COUNTY: Washington
STATE: VT
ZIP CODE: 05641
NUMBER OF TANKS AT THIS LOCATION: 0
NAME OF LANDOWNER
Katherine Ladd

TYPE OF FACILITY (CHECK ONE)
☐ INSTITUTIONAL ☒ RETAIL/CONVENIENCE STORE
☐ BULK PLANT ☐ INDUSTRIAL/COMMERCIAL
☐ STATE ☐ RESIDENTIAL
☐ TOWN ☐ SERVICE STATION
☐ FARM
☐ FEDERAL (GIVE FACILITY I.D. NO.)
☐ OTHER (SPECIFY)

USE THIS SPACE TO SKETCH AND/OR VERBALLY DESCRIBE FACILITY LOCATION. INCLUDE ESTIMATED DISTANCES TO CENTER LINE OF ROADS, BUILDINGS, STREAMS AND OTHER LANDMARKS. USE DIRECTIONAL DESCRIPTORS (NORTH, SOUTH, ETC.) WHERE APPLICABLE.



LOCAL USE ONLY

FACILITY I.D. NO. ~~00-0009~~ 2 (JP) WAS
RECORDED ON June 15 1988 (DATE) IN
BOOK NO. 136, PAGE 537
OF THE Barre City (TOWN) LAND RECORDS.

James F. Milne Clk
SIGNATURE OF TOWN OR CITY OFFICER

STATE USE ONLY

☒ FIRST ☐ AMENDED

FACILITY IDENTIFICATION NUMBER
~~000009~~ 0000112 (JP)
DATE RECEIVED: 6-7-88
APPROVED: 6/14/88 ☐
RECEIVED BY: Julie Prindiville

BARRE CITY VT. Record Rec June 15 1988
at 9 o'clock 10 Min. A M. Vol. 136 Page 537
Attest: James F. Milne Clk

OWNER NAME NEWBERRY'S 6091 IGA RY STORE (FROM SECTION I)

INDICATE NUMBER OF COPIES OF PAGE 2 ATTACHED [1] (UP)

JUN - 7 1988

V. TANK INFORMATION (COMPLETE FOR EACH TANK AT THIS LOCATION)

NUMBER TANKS SEQUENTIALLY (START WITH TANK CLOSEST TO BUILDING, IF POSSIBLE)		TANK NO. 1	TANK NO.	TANK NO.	TANK NO.	TANK NO.
1. STATUS OF TANK (CHECK ONE)	CURRENTLY IN USE	X				
	TEMPORARILY OUT OF USE					
	PERMANENTLY OUT OF USE					
2. ESTIMATED AGE IN YEARS		OVER 20				
3. TOTAL CAPACITY (GALLONS)		1000				
4. MATERIAL OF CONSTRUCTION (CHECK ONE)	STEEL	X				
	CONCRETE					
	FIBERGLASS REINFORCED PLASTIC					
	OTHER (SPECIFY)					
	UNKNOWN					
5. INTERNAL PROTECTION (CHECK ALL THAT APPLY)	LINING (E.G. EPOXY RESINS)					
	OTHER (SPECIFY)					
	NONE					
	UNKNOWN					
6. EXTERNAL PROTECTION (CHECK ALL THAT APPLY)	CATHODIC PROTECTION					
	PAINTED COATING (E.G. ASPHALTIC)					
	FIBERGLASS REINFORCED PLASTIC COATED					
	OTHER (SPECIFY)					
	NONE					
	UNKNOWN	X				
7. SECONDARY CONTAINMENT (CHECK ONE)	DOUBLE-WALL TANK					
	CONCRETE VAULT					
	IMPERVIOUS LINER					
	OTHER (SPECIFY)					
	NONE					
	UNKNOWN	X				
8. LEAK DETECTION (CHECK ALL THAT APPLY)	DAILY INVENTORY CONTROL					
	CONTINUOUS SENSOR					
	ELECTRONIC IN-TANK SYSTEM					
	GROUNDWATER MONITORING WELL					
	*PRECISION TEST (ENTER MO./YR. IF WITHIN LAST 5 YRS.)	/	/	/	/	/
* A PRECISION TEST IS NOT AN AIR PRESSURE TEST. BY DEFINITION, A PRECISION TEST IS ACCURATE TO .05 GAL./HR.	OTHER (SPECIFY)					
	NONE	X				
9. PIPING (CHECK ALL THAT APPLY)	BARE STEEL					
	GALVANIZED STEEL					
	BLACK IRON	X				
	FIBERGLASS REINFORCED PLASTIC					
	CATHODICALLY PROTECTED					
	OTHER (SPECIFY)					
	UNKNOWN					
10. SUBSTANCE CURRENTLY OR LAST STORED IN GREATEST QUANTITY BY VOLUME (CHECK ALL THAT APPLY)	GASOLINE (INCL. ALCOHOL BLENDS)					
	DIESEL					
	Heat NOS. 2 OR 4 FUEL OIL	X				
	NOS. 5 OR 6 FUEL OIL					
	AVIATION FUEL					
	KEROSENE					
	USED OIL					
	OTHER PETROLEUM SUBSTANCE (SPECIFY)					
	HAZARDOUS SUBSTANCE (GIVE NAME OR CAS. NO.)					
	MIXTURE OF SUBSTANCES					
	UNKNOWN					
11. ADDITIONAL INFORMATION FOR TANKS TAKEN PERMANENTLY OUT OF SERVICE	(A) ESTIMATED DATE LAST USED (MO./YR.)	/	/	/	/	/
	(B) ESTIMATED QUANTITY LEFT STORED (GAL.)					

removed 1/89

VI. SIGNATURE

I CERTIFY UNDER PENALTY OF LAW THAT THE INFORMATION PROVIDED ON THIS FORM AND ALL ATTACHED DOCUMENTS IS TRUE, ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

J. F. McINTYRE — FIELD MAINTENANCE SUPERVISOR

PRINTED NAME AND OFFICIAL TITLE OF OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

J. F. McIntyre — 6-1-88

SIGNATURE — DATE SIGNED

GRIFFIN INTERNATIONAL INC.

June 13, 1996

Ms. Susan Thayer
State of Vermont
Department of Environmental Conservation
HMMD
103 South Main St.
Waterbury, VT 05671-0404

RE: Tank Pull Inspection, J.J. Newberry, Barre, VT

Dear Ms. Thayer:

On June 11, 1996, I inspected the permanent closure of one 550 gallon and one 1000 gallon fuel oil USTs at the J.J. Newberry Store on Main Street in Barre, Vermont. Due to contamination detected in the excavations, I have prepared this formal report detailing my observations on site, including tank closure forms and photographs.

Please call if you have any questions regarding this project.

Sincerely,

Peter G. Hack, EIT

c: Great Northern Environmental Services
Manley-Berenson Associates, owner

P.O. Box 943 • Williston, VT 05495 • 802-865-4288

TANK CLOSURE INSPECTION REPORT

J.J. Newberry
145 North Main Street
Barre, Vermont

June 11, 1996

Prepared for:

Great Northern Environmental Services
P.O. Box 175
Bath, NH 03740-0175

Prepared by:

P.O. Box 943
Williston, VT 05495
(802) 865-4288

GI Job # 6964849

INTRODUCTION

On June 11, 1996, Peter Hack of Griffin International, Inc. (Griffin) inspected the closure of two underground storage tanks (USTs) at the J.J. Newberry Store at 145 North Main Street in Barre, Vermont. The USTs were a 550 gallon capacity, single walled steel fuel oil tank (UST #1), and a 1,000 gallon capacity single-walled steel fuel oil tank (UST #2), installed in separate areas. The USTs had been in use up to the present time, and the original installation dates are not known. No replacement tanks were installed. This report has been prepared in accordance with state regulations, and includes completed Tank Closure Forms, a summary of Mr. Hack's observations on site, site map, photographs, and conclusions.

TANK REMOVAL AND INSPECTION

Great Northern Environmental Services of Bath New Hampshire excavated, cleaned, and removed the two USTs, as well as removed the wastes generated during the removal. Mr. Hack supervised and inspected the UST removal.

Both USTs were located immediately adjacent to the building's north side foundation, under the concrete sidewalk. Several water and sewer lines servicing the buildings along Main Street were also present in the vicinity of the two excavations. The sidewalk was removed by jackhammering.

The first fuel oil tank, UST #1, was located outside of a vacant portion of the building. This UST was reported to have recently released fuel oil from the vent pipe which was located next to the building and extended a few inches above the sidewalk. The date, cause, and amount of the release is not known.

After the concrete sidewalk was removed, Mr. Hack screened the soils above UST #1 for Volatile Organic Compounds (VOCs) with a calibrated HNU Model HW-101 photo-ionization device (PID). The average VOC concentration in several soil samples collected from above the UST was 0.0 parts per million (ppm). However, soils directly beneath the vent pipe contained an average VOC concentration of 6 ppm, with a peak of 15 ppm. The contaminated soils were segregated as they were removed from the excavation. After removal of the UST, Mr. Hack screened additional soils collected from beside and under the tank, at approximately five to six feet below grade. Soil samples collected from these areas did not contain any VOCs, as measured with the PID. Soil samples collected at four feet below grade in the vicinity of the vent pipe contained 1.0 ppm. No significant odors or soil stains were present in the entire excavation. The soils surrounding the UST were predominantly coarse sands and silt.

The UST #1 was in fair to good condition with surface rust, and no holes or evidence of leaks were observed. All contaminated soils were placed into one 55 gallon drum for disposal. This disposal option was reportedly approved on site by Mr. Ted Unkles of the VTDEC, prior to Griffin's arrival on site.

The second fuel oil tank, UST #2, was also below the sidewalk, and after the concrete was removed and the tank was exposed, Mr. Hack screened the soils above and beside the tank to a depth of four feet for VOCs. No VOCs were detected in the soils surrounding UST #2. After removal, UST #2 was observed to be in poor condition with several holes visible on the top, sides and bottom of the UST. Mr. Hack then screened soils collected from under UST #2, at approximately five to seven feet below grade. Dark stained, damp silty sand at the east end of the pit contained an average VOC concentration of 50 ppm with a peak of 70 ppm, as measured with the PID. The soils surrounding UST #2 were sands and silt. Additional excavation was not possible due to the confined work area, concrete sidewalk, foundations, and utilities in the immediate vicinity. Mr. Hack phoned Mr. Ted Unkles of the VTDEC to report the project status, stating that the excavation could not progress and the contaminated soils would be backfilled. Mr. Unkles agreed with these recommended actions.

Groundwater was not encountered below either UST.

CONCLUSIONS

In summary, UST#1 was in good condition, and all contaminated soils were removed from this pit. UST #2 was in poor condition, and had leaked fuel oil into the subsurface. Contaminated soils remain at the bottom of the excavation for UST #2.

One 55 gallon drum of contaminated soils (average PID reading of 10 ppm), one drum of tank bottoms/sludge, and approximately 380 gallons of liquid waste were generated during the removal of both USTs. Disposal of these wastes were coordinated by Great Northern Environmental Services.

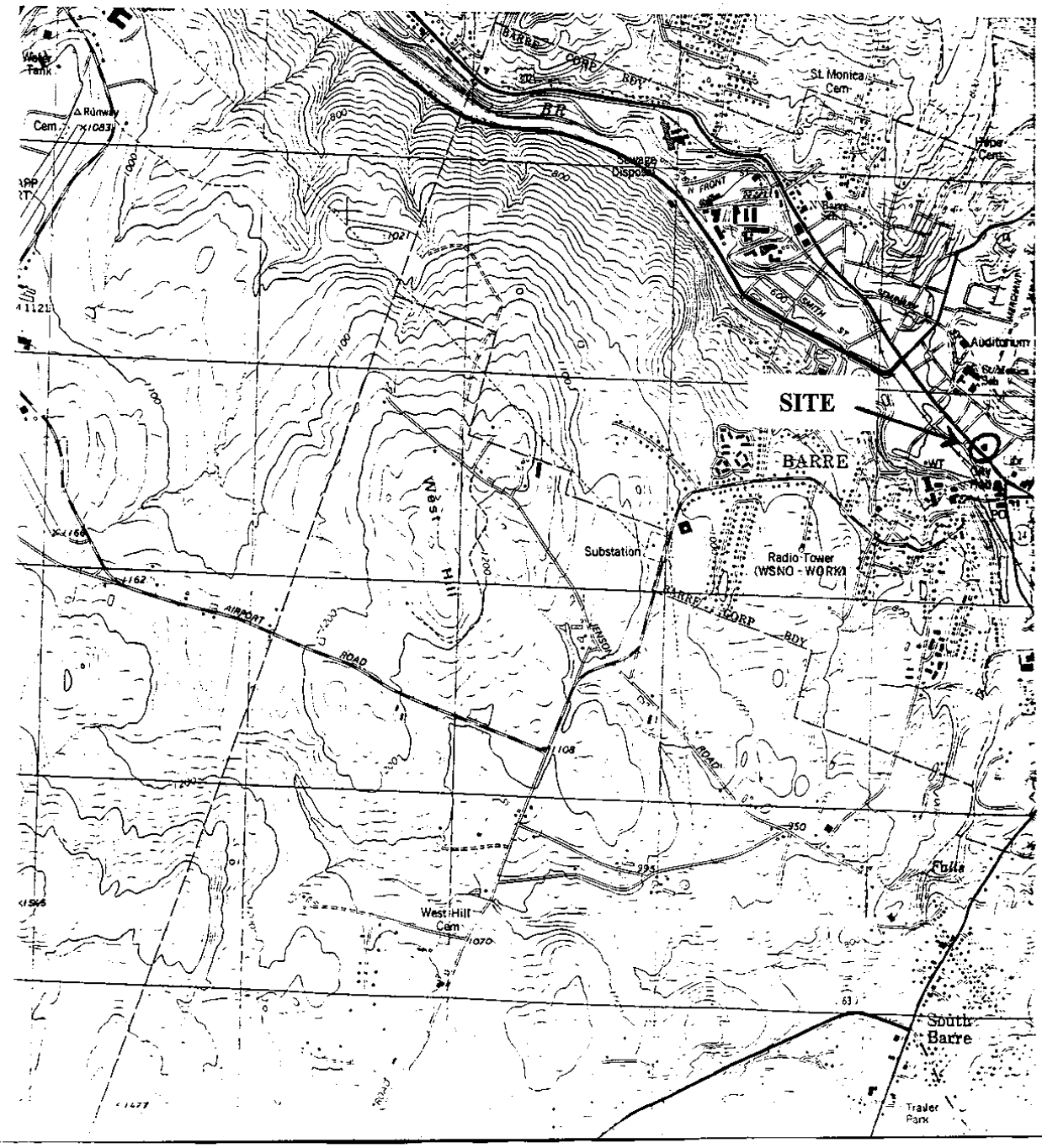
During this tank closure, Griffin searched the immediate area to identify potential sensitive receptors of subsurface contamination. The adjacent basements at the subject site were screened with a PID and no significant vapors were detected in the ambient air. The basement floors were wet due to the recent high groundwater level. Municipal drinking water for the City of Barre is supplied by a reservoir located several miles to the east, and no supply wells are known to exist in the area. No other potential receptors were observed.

RECOMMENDATIONS

Based on this inspection, it does not appear that there were any significant releases of petroleum from UST#1, but there was likely a release(s) from UST#2, based on the holes in the tank and contaminated soils beneath the tank. However, there does not appear to be an immediate or significant threat to the environment or public health and safety.

SITE LOCATION MAP

J.J. NEWBURY
Main Street, Barre, VT



TANK PULL PHOTOGRAPHS

J.J. Newbury
Barre, VT

General Site

TANK PULL PHOTOGRAPHS

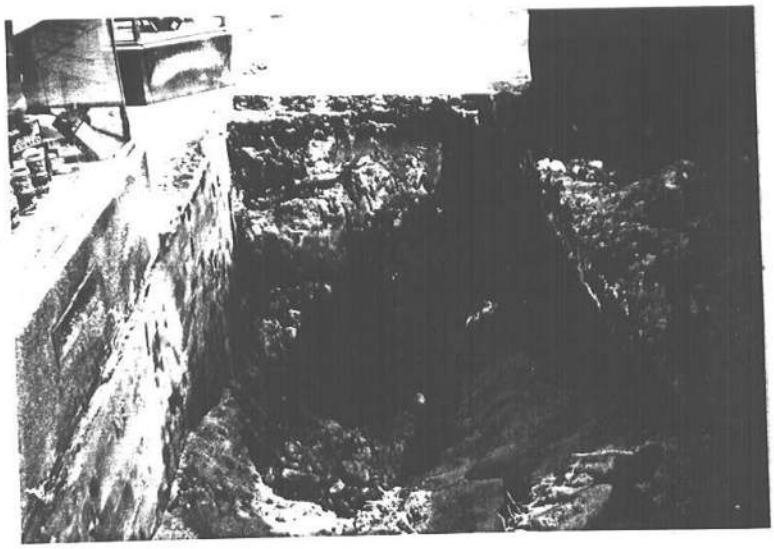
J.J. Newbury
Barre, VT

UST#1 - 550 GALLON FUEL OIL TANK

TANK PULL PHOTOGRAPHS

J.J. Newbury
Barre, VT

UST #2 - 1,000 GALLON FUEL OIL TANK



UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

Agency Use Only
Sched. closure date: _____
Facility Name: _____
Facility Town: _____
Facility ID#: _____
DEC Official: _____

VERMONT AGENCY OF NATURAL RESOURCES
DEPT. OF ENVIRONMENTAL CONSERVATION
HAZARDOUS MATERIALS MANAGEMENT DIV.
103 SOUTH MAIN STREET, WEST BUILDING
WATERBURY, VERMONT 05671-0404
TELEPHONE: (802) 241-3888

Company conducting site assessment: Griffin Int'l
Person conducting site assessment: Peter Hack
Telephone number of company (or person): 985 4288
Date of UST closure: 6/11/96
Date of site assessment: 6/11/96

This Closure Form may only be used for the facility and date indicated in the upper left hand corner. Changes in the scheduled closure date should be phoned in at least 48 hours in advance. Both the yellow and white copies must be returned to the above address within 72 hours of tank closure, the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel - including training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statutes, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

Section A. Facility Information:

Name of Facility: JJ Newberry Number of Employees: 2 (est.).
Street address of facility: 145 North Main St, Barre, VT
Owner of UST(s) to be closed: Barre Realty Trust, c/o Manley-Berenson Associates
Name of Contact ~~and telephone number if different from owner~~: Eugene O'Brien
Mailing address of owner: 66 Long Wharf, Boston MA 02110
Telephone number of owner: 617 726 1500

Section B. UST Closure Information:

USTs undergoing permanent closure. Include condition and if leaks were found:

UST#	Product	Size (gallons)	Tank age	Piping age	Tank condition	Piping condition
1	Fuel Oil	550	unknown	unknown	good	good
2	Fuel Oil	1000	unknown	unknown	poor	good

USTs not closed. Include all USTs, regardless of size, and status, whether "abandoned", "in use", "to be installed" or otherwise. (Most new installations require permits and advance notice to this office.)

UST#	Product	Size (gallons)	Tank age	Piping age	Tank Status	Piping Status
none						

Location, method and date of disposal/destruction of removed UST(s). (With limited exceptions, USTs may never be used): USTs cut on site by Great Northern Env. Services, 6/11/96

Reason for initiating UST Closure: ___ Suspected Leak ___ Liability ___ Replacement of UST
X Abandoned ___ Replacement of Product Lines

Amount (gal.) and type of waste generated from USTs: 350 gallons liquid, 55 gallons tank bottoms, 55 g. soil
Tank cleaning company (must be trained in confined space entry): Great Northern Env. Services
Certified hazardous waste hauler (tank contents are hazardous waste unless recovered and usable product): same
Hazardous waste generator ID number: Not applicable

Section C. Initial site characterization:

Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form. 1-75
Excavation size (ft²): 2-100 Excavation depth (ft): 7 Soil type: sand + silt Bedrock depth (ft): unknown
OVD Information: Make HNU Model PID 101

PID Calibration Information: Date 6/11/96 Time 10:00 AM Type of Gas Isobutylene
Contamination detected with PID (ppm): Peak 70 Depth of peak (ft) 7 Avg 50

Soil samples collected for laboratory analysis? Yes____ No X If yes, number____ (show locations and depth of all readings and samples on diagram).
Have limits of contamination been defined? Yes____ No X

Have soils been polyencapsulated on site? Yes____ amount (cu. yds.):_____ Avg. PID _____ No X
Have any soils been transported off site? Yes X amount (cu. yds.): .25 Avg. PID 10 No____
Location transported to: coord by Great Northern, (1) 55 gallon drum
Name of DEC official granting approval to transport soils: Ted Unles
Amount of soils backfilled? (cu. yds.): 20, Avg. PID 250
Are you aware of any other contaminants which may be present? Yes _____ No X
Comments:_____

Free phase product encountered? Yes____ No X Thickness_____

Groundwater encountered? Yes____ No X Depth (ft)____
Were there existing monitoring wells on site? Yes____ No X If yes, how many?____
Have new monitoring wells been installed? Yes____ No X If yes, how many?____
Have samples been taken from any monitoring wells for lab analysis? Yes____ No X (include well locations, headspace readings, and laboratory results if applicable in a separate report and on the diagram)

Is there a water supply well or spring on site? Yes____ No X
If yes, check type: shallow____ rock____ spring____
How many public water supply wells are located within a 0.5 mile radius? 0 min. distance (ft):_____
How many private water supply wells are located within a 0.5 mile radius? 0 min. distance (ft):_____

What receptors have been impacted? X soil ___indoor air ___groundwater ___surface water ___water supply

Section D. Statements of UST closure compliance:
As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility, I hereby certify that all of the information provided on this form is true and correct to the best of my knowledge.

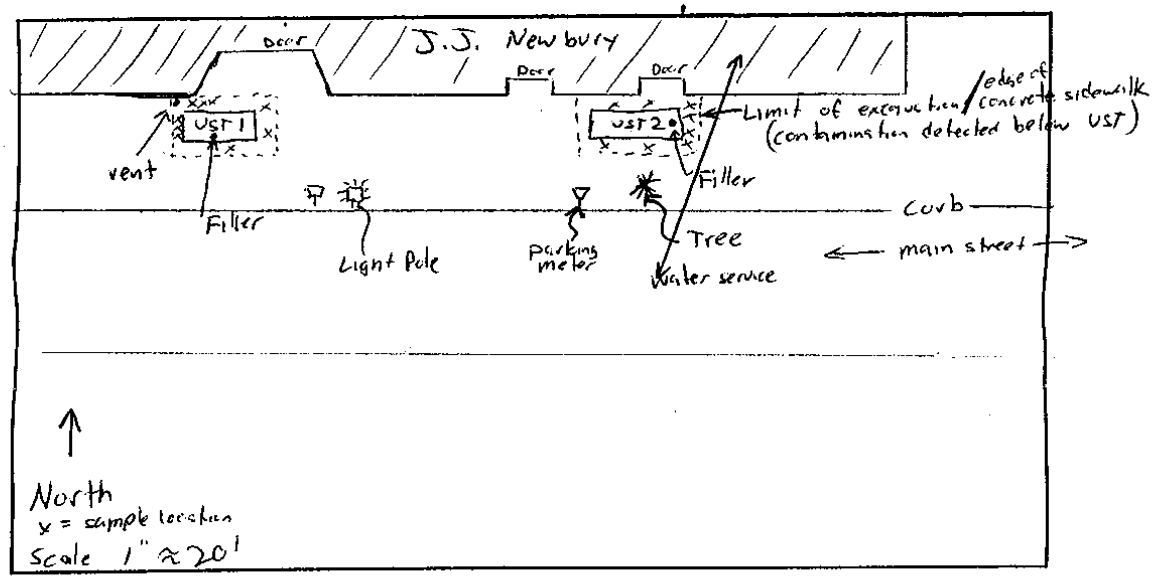
_____ Date:_____
Signature of UST owner or owner's authorized representative

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and all applicable regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

Robert Hart Date: 6/12/96
Signature of Environmental Consultant

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination, potential receptors and any pertinent site information. Indicate North arrow and major street names or route number.



Return form along with complete narrative report and photographs to the Department of Environmental Conservation, Underground Storage Tank Program within 72 hours of closure.

112

REFERRAL OF A PETROLEUM SITE

TO: CS ~~Richard St, Acting~~ Supervisor, Sites Management Section

THRU: June Middleton, Permit Administrator, UST Program

FROM: ST ,UST Program

DATE: 6/19/96

On 6/14/96 the Management & Prevention Section was notified of a Leak/LUST found during a routine UST monitoring/closure at JJ NEWBERRY'S. The petroleum contamination was reported by PETER HAER of GRIFFIN

PHONE # of person reporting release (203)8654288

Name and Phone # of facility owner (contact) EUGENE O'BRIEN OF MANLEY-BERENSON ASSOC.

Facility ID# 12

Responsible Party:

Was Land Owner DIRECTED by DEC to remove tank(s)? (NO) ~~YES~~

Is Land Owner eligible for reimbursement for cost of removing tank(s)? (NO) ~~YES~~

Were tank(s) permitted for operation at any time? ~~YES~~ (NO)

If tank(s) abandoned, year of abandonment: _____

USE OF TANK(s) at time of abandonment? farm/residential/(commercial)/service station/retail/state/federal

UST Financial Responsibility:

Petroleum Clean Up Fund Assessment # N/A

PCF Eligible	NO	(YES)
Deductible	(NO)	YES
Cost Recovery applicable	NO	YES

on premises heating <1100

If yes, reason _____

Insurance Company _____

Self Insured	NO	YES
Federal Insured	NO	YES

This site is believed to involve:

Soil Contamination	NO	(YES)	MAYBE
Groundwater Contamination	NO	YES	MAYBE
Free Product Contamination	NO	YES	MAYBE
Vapor Impact on Buildings	NO	YES	MAYBE
Threatened/Impacted Water Supply	NO	YES	MAYBE
Surface Water Impact	NO	YES	MAYBE

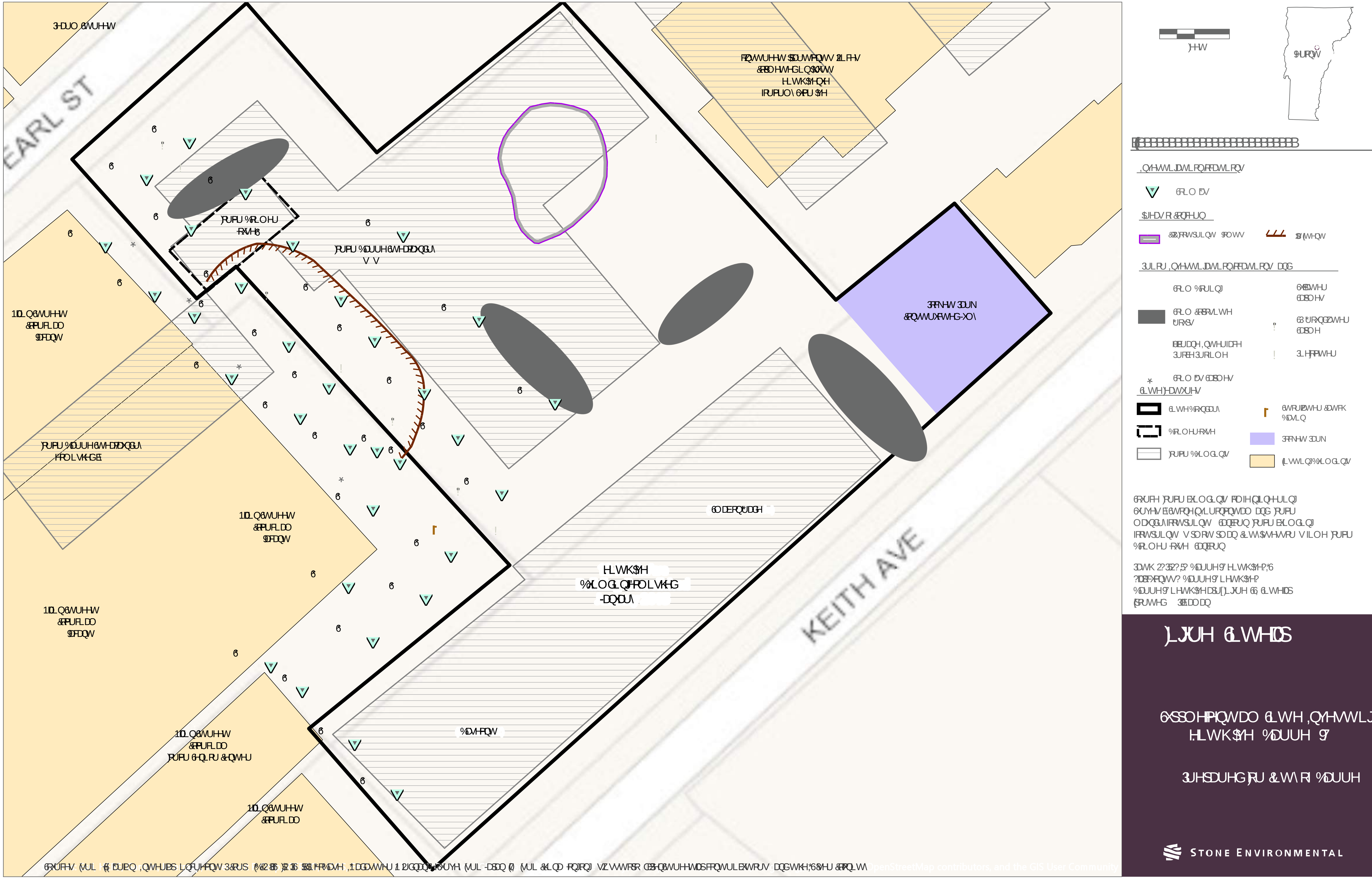
Attached is a copy of the Pull Form. _____Trip Report Enclosed

COMMENTS: 1000 GALLON TANK IN POOR CONDITION - SEVERAL HOLES - PE PID 70ppm.

PARADOX DATA BASE DOES NOT SHOW 550 GAL TANK

APPENDIX B

Historical Data Tables and Logs – Stone Environmental (SMS Site No. 2014-4500)


EARL ST
KEITH AVE
STONE ENVIRONMENTAL
OpenStreetMap contributors, and the GIS User Community

PEARL ST

KEITH AVE

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6RXUFH 6WUHDP/RFDWLRQV 6WRQH)LHOG5HSRUW

3DWK 2I3E? 5? %UUH9 HLWK$YH P;6
?DE>RQWV? %UUH9 LHWK$YH P?
%UUH9 LHWK$YHDSU[ )LJUH 6RLO DV 3[(5HVXOWV
(5RWHG 3EDDQ

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6XSSOHPHQWDO 6LWH ,QYHVWLJDWLRQ
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STONE ENVIRONMENTAL

3-DJO 6WUHHW

EARL ST

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&RDHWHGLQ3OQW
H.LWK3HQH
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}RUFU 6DERQG DGH

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1DL.Q&WUHHW
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KEITH AVE

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9URQW9RV IRU 7(3HWLGHQWLDO —JP ,QGXVWULDO —JP

6RXUFH 6DERHAFDWLRQV 6WRQH)LHOGBRWHV

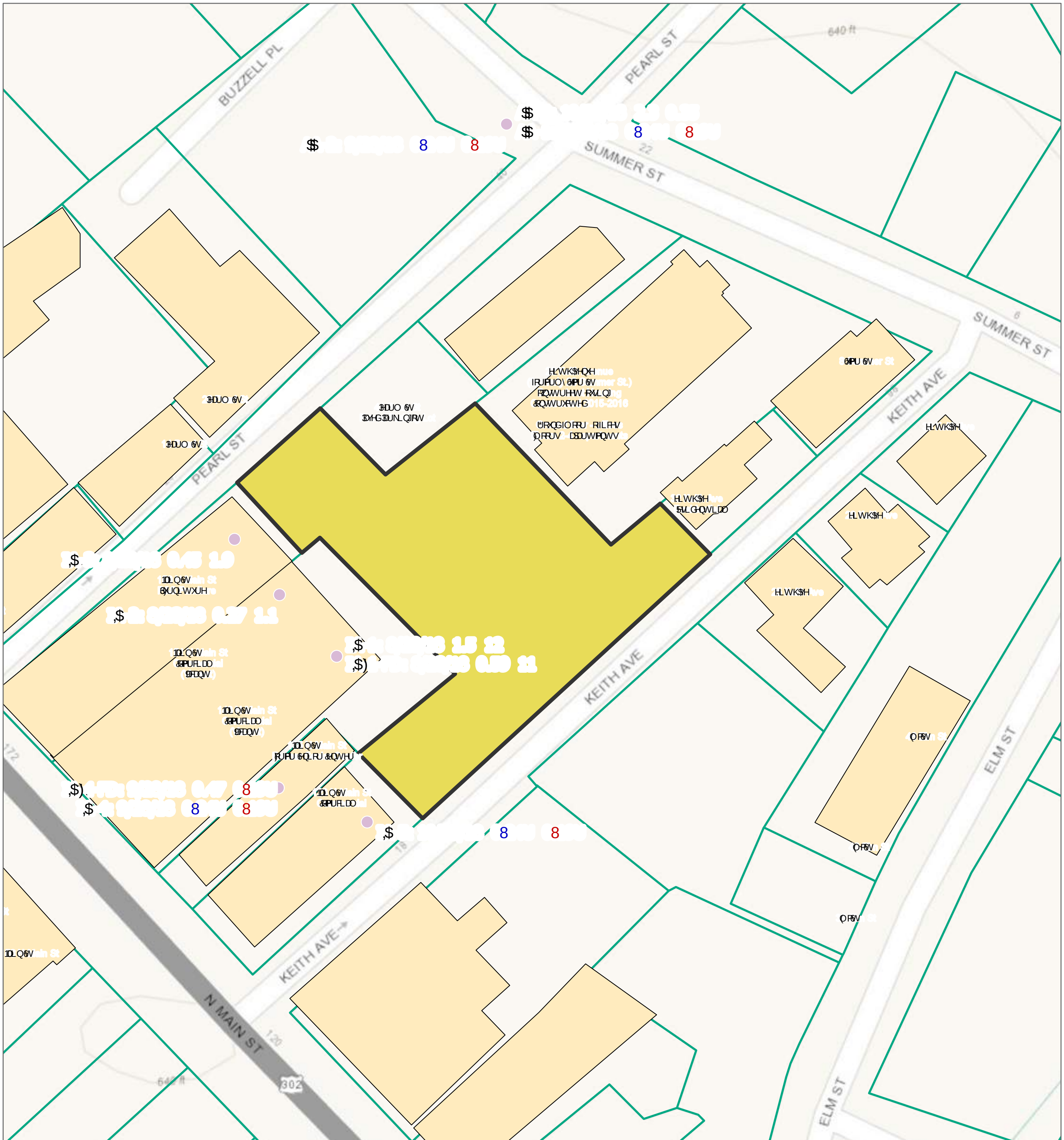
3DWK 2'3E2?5? %UUHG9 H.LWK$H?;6
?DBEXRQW? %UUHG9 L.LWK$H?
%UUHG9 L.LWK$HDSU[.JUH 6RLO DV 7(3HXOWV
(SRWHG 3EDDQ

}.JUH 6RLO 9DSRU 7(5HVXOWV

6XSSOHPHQWDO 6LWH ,QYHVWLJDWLRQ
H.LWK$H %UUHG 9

3UHSDUHG JRU &W\ RI %UUH

STONE ENVIRONMENTAL



$LU 6DPSOH &RQFHQWUDWLRQ XJ/P
6DPSOH,'\'DWH 3&(7&(
8 1RW'HWHFWHG
7DUJHW 3URSHUW\ %RXQGDU\
3DUFHOV
([LVWLQJ %XLOGLQJV

9HUPRQW $LU 3&(5HVLGHQWLDO —J/P ,QGXVWULDO —J/P
9HUPRQW $LU 7&(5HVLGHQWLDO —J/P ,QGXVWULDO —J/P
6RXUFH (VUL RUOG,PDJHU\ 9&*, 6WRQH)LHOG 1RWHV
3DWK 2?352-(&76?%DUUH?9?.HLWK$YH?(6$?'RFXPHQWV?%DUUH9.HLWK$YH
?%DUUH9.HLWK$YHDSU)LJXUH 66,9DSRU,QWUXVLRQ$LU.mxd 3'(

)LJXUH 9DSRU,QWUXVLRQ $LU

6XSSOHPHQWDO 6LWH,QYHVWLJDWLRQ
.HLWK $YH %DUUH 97

3UHSDUHG IRU &LW\ RI %DUUH

STONE ENVIRONMENTAL

Table B4: Quality Control / Quality Assurance Duplicate and Confirmation Analysis Summary, Onsite Soil Gas

Sample Name	SG-103		SG-103-FD		RPD	SG-121		SG-121-FD		RPD
Analysis Date	6/11/18 13:57	N	6/11/18 14:14	FD		6/12/18 15:17	N	6/12/18 15:37	FD	
Chloromethane	100	UQ	100	UQ	-	100	UQ	100	UQ	-
Vinyl Chloride	*100*	U	*100*	U	-	*100*	U	*100*	U	-
1,1-Dichloroethene	50	U	50	U	-	50	U	50	U	-
Methylene Chloride	20	U	20	U	-	20	U	20	U	-
trans-1,2-Dichloroethene	20	U	20	U	-	20	U	20	U	-
1,1-Dichloroethane	20	U	20	U	-	20	U	20	U	-
cis-1,2-Dichloroethene	20	U	20	U	-	20	U	20	U	-
Chloroform	*20*	U	*20*	U	-	*20*	U	*20*	U	-
1,1,1-Trichloroethane	20	U	20	U	-	20	U	20	U	-
Carbon Tetrachloride	20	U	20	U	-	20	U	20	U	-
Benzene	20	U	20	U	-	**53.8**		**52**		3%
1,2-Dichloroethane	*20*	U	*20*	U	-	*20*	*U*	*20*	U	-
Trichloroethene	**20.9**		**21.1**		1%	20	U	***37.2***		-
Toluene	**25.9**		**26.4**		2%	**99.2**		**98.7**		1%
1,1,2-Trichloroethane	20	U	20	U	-	20	U	20	U	-
Tetrachloroethene	***583***		***524***		11%	***304***		***313***		3%
Ethylbenzene	20	U	20	U	-	**26.5**		**26.6**		0.4%
m,p-Xylenes	**22.7**		**24.1**		6%	**68.4**		**68.6**		0.3%
o-Xylene	20	U	20	U	-	**32**		**32.3**		1%
1,3,5-Trimethylbenzene	20	U	20	U	-	20	U	20	U	-
1,2,4-Trimethylbenzene	20	U	20	U	-	20	U	20	U	-
Naphthalene	*20*	U	*20*	U	-	*20*	U	*20*	U	-

Key:

Results in µg/m3 - micrograms of contaminant per cubic meter of air
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the enforcement standard(s)
Italicized values indicate exceedences of multiple enforcement standards

QC By: DTC 01/16/19

Table B3
Concentrations of Volatile Organic Compounds in Indoor and Ambient Air by TO-15

Sample ID		ASL Residential	ASL Industrial	AA-1		IA-1		IA-1-FD		IA-2		IA-3		AA-2	
Sample Date	CAS#			8/23/2018	Q	8/23/2018	Q	8/23/2018	Q	8/23/2018	Q	8/23/2018	Q	9/28/2018	Q
		(µg/m3)	(µg/m3)												
1,1,1-Trichloroethane	**71-55-6**	5200	22000	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
1,1,2,2-Tetrachloroethane	79-34-5	0.048	0.21	*1.4*	U	*1.4*	U	*1.4*	U	*1.4*	U	*1.4*	U	*1.4*	U
1,1,2-Trichloroethane	79-00-5	0.18	0.77	*1.1*	U	*1.1*	U	*1.1*	U	*1.1*	U	*1.1*	U	*1.1*	U
1,1-Dichloroethane	75-34-3	1.8	7.7	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U
1,1-Dichloroethene	75-35-4	210	880	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	120-82-1	2.1	8.8	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U	3.7	U
1,2,4-Trimethylbenzene	95-63-6	7.3	31	0.98	U	**2.6**		0.98	U	0.98	U	0.98	U	0.98	U
1,2-Dibromoethane	106-93-4	0.0047	0.02	*1.5*	U	*1.5*	U	*1.5*	U	*1.5*	U	*1.5*	U	*1.5*	U
1,2-Dichlorobenzene	95-50-1	210	880	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
1,2-Dichloroethane	107-06-2	0.11	0.47	*0.81*	U	*0.81*	U	*0.81*	U	*0.81*	U	*0.81*	U	*0.81*	U
1,2-Dichloroethene, Total	540-59-0	NE	NE	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
1,2-Dichloropropane	78-87-5	0.28	1.2	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U
1,2-Dichlorotetrafluoroethane	76-14-2	NE	NE	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
1,3,5-Trimethylbenzene	108-67-8	NE	NE	0.98	U	**0.47**	J	0.98	U	0.98	U	0.98	U	0.98	U
1,3-Butadiene	106-99-0	0.094	0.41	*0.44*	U	*0.44*	U	*0.44*	U	*0.44*	U	*0.44*	U	*0.44*	U
1,3-Dichlorobenzene	541-73-1	NE	NE	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dichlorobenzene	106-46-7	0.26	1.1	*1.2*	U	*1.2*	U	*1.2*	U	*1.2*	U	**0.43**	J	*1.2*	U
1,4-Dioxane	123-91-1	0.56	2.5	*18*	U	*18*	U	*18*	U	*18*	U	*18*	U	*18*	U
2,2,4-Trimethylpentane	540-84-1	NE	NE	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U	0.93	U
2-Chlorotoluene	95-49-8	NE	NE	1	U	1	U	1	U	1	U	1	U	1	U
3-Chloropropene	107-05-1	0.47	2	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
4-Ethyltoluene	622-96-8	NE	NE	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
4-Isopropyltoluene	99-87-6	NE	NE	1.1	U	**0.61**	J	1.1	U	1.1	U	**0.96**	J	1.1	U
Acetone	67-64-1	32000	140000	12	U	**6.4**	J	**6.3**	J	**7**	J	**9.1**	J	**10**	J
Benzene	71-43-2	0.13	1.05	0.48	J	**0.24**	J	**0.27**	J	0.64	U	**0.35**	J	**0.5**	J
Benzyl chloride	100-44-7	0.057	0.25	*1*	U	*1*	U	*1*	U	*1*	U	*1*	U	*1*	U
Bromodichloromethane	75-27-4	0.076	0.33	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Bromoethene(Vinyl Bromide)	593-60-2	0.088	0.38	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U	0.87	U
Bromoform	75-25-2	2.6	11	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
Bromomethane	74-83-9	5.2	22	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U
Carbon disulfide	75-15-0	730	3100	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Carbon tetrachloride	56-23-5	0.47	2	**0.36**		**0.42**		**0.41**		**0.49**		***3.1***		**0.46**	
Chlorobenzene	108-90-7	52	220	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U
Chloroethane	75-00-3	10000	44000	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Chloroform	67-66-3	0.12	0.53	**0.46**	J	***0.54***	J	***0.56***	J	***0.58***	J	***0.74***	J	**0.27**	J
Chloromethane	74-87-3	94	390	1	U	1	U	1	U	1	U	1	U	**2.6**	
cis-1,2-Dichloroethene	156-59-2	NE	NE	0.16	U	**0.39**		**0.35**		0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U
Cumene	98-82-8	420	1800	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
Cyclohexane	110-82-7	6300	26000	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
Dibromochloromethane	124-48-1	NE	NE	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Dichlorodifluoromethane	75-71-8	100	440	**1.9**	J	**2.2**	J	**2.1**	J	**2.2**	J	**2.3**	J	**2.6**	
Ethylbenzene	100-41-4	1.1	4.9	0.87	U	0.87	U	0.87	U	0.87	U	**0.33**	J	0.87	U
Freon 22	75-45-6	52000	220000	**1**	J	**1.6**	J	**2**		**9.6**		**7.7**		**2.2**	
Freon TF	76-13-1	31000	130000	**0.45**	J	**0.41**	J	**0.43**	J	**0.44**	J	**0.44**	J	**0.53**	J
Hexachlorobutadiene	87-68-3	0.13	0.56	*2.1*	U	*2.1*	U	*2.1*	U	*2.1*	U	*2.1*	U	*2.1*	U
Isopropyl alcohol	67-63-0	210	880	12	U	12	U	12	U	12	U	12	U	12	U
m,p-Xylene	179601-23-1	NE	NE	**0.66**	J	**0.77**	J	2.2	U	2.2	U	**0.99**	J	**0.86**	J
Methyl Butyl Ketone (2-Hexanone)	591-78-6	31	130	2	U	2	U	2	U	2	U	2	U	2	U
Methyl Ethyl Ketone	78-93-3	5200	22000	1.5	U	**2.1**		1.5	U	1.5	U	**1.5**		**0.81**	J
methyl isobutyl ketone	108-10-1	3100	13000	2	U	2	U	2	U	2	U	2	U	2	U
Methyl methacrylate	80-62-6	730	3100	2	U	2	U	2	U	2	U	2	U	2	U
Methyl tert-butyl ether	1634-04-4	11	47	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U
Methylene Chloride	75-09-2	100	1200	1.7	U	1.7	U	1.7	U	1.7	U	**1.1**	J	**3**	
Naphthalene	91-20-3	0.03	0.24	*2.6*	U	***2.6***		*2.6*	U	*2.6*	U	***4.7***		*2.6*	U
n-Butane	106-97-8	NE	NE	1.2	U	1.2	U	**1.3**		1.2	U	1.2	U	**2.1**	
n-Butylbenzene	104-51-8	NE	NE	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
n-Heptane	142-82-5	NE	NE	0.82	U	0.82	U	0.82	U	0.82	U	**0.64**	J	0.82	U
n-Hexane	110-54-3	730	3100	**1.1**		**0.9**		**1.2**		**0.81**		**1**		**1.8**	
n-Propylbenzene	103-65-1	1000	4400	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
sec-Butylbenzene	135-98-8	NE	NE	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Styrene	100-42-5	1000	4400	0.85	U	0.85	U	0.85	U	**0.39**	J	**0.7**	J	0.85	U
tert-Butyl alcohol	75-65-0	NE	NE	15	U	15	U	15	U	15	U	15	U	15	U
tert-Butylbenzene	98-06-6	NE	NE	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Tetrachloroethene	127-18-4	0.63	5.11	0.24	U	**1.5**		**0.59**		**0.27**		**0.45**		0.24	U
Tetrahydrofuran	109-99-9	2100	8800	15	U	15	U	15	U	15	U	15	U	15	U
Toluene	108-88-3	5200	22000	**1**		**0.56**	J	**0.55**	J	**0.87**		**0.97**		**1.2**	
trans-1,2-Dichloroethene	156-60-5	NE	NE	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U
Trichloroethene	79-01-6	0.2	0.7	0.19	U	***12***		***11***		***1.1***		***1.9***		0.19	U
Trichlorofluoromethane	75-69-4	NE	NE	**1.1**		**1**	J	**1.1**		**1.1**		**1.5**		**1.3**	
Vinyl chloride	75-01-4	0.11	1.86	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U
Xylene (total)	1330-20-7	100	440	**1.04**	J	**1.30**	J	3	U	3	U	**1.4**	J	**1.2**	J
Xylene, o-	95-47-6	NE	NE	**0.38**	J	**0.48**	J	0.87	U	0.87	U	**0.41**	J	**0.35**	J

Key:
ASL: Vermont/EPA Air Screening Level
µg/m^3 - micrograms of contaminant per cubic meter of air
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of an enforcement standard
Italicized values indicate exceedences of multiple enforcement standards
U - Not detected above laboratory reporting limits; reporting limit provided
NE - screening level not established
NA - Compound not analyzed for this sample
J - Estimated value

Created By: DTC 01/16/19
QC By: DTC 01/16/19

Sample ID		ASL Residential	ASL Industrial	IA-4		IA-4-FD		AA-3		IA-5		
Sample Date	CAS#			9/28/2018	Q	9/28/2018	Q	10/5/2018	Q	10/5/2018	Q	
		(µg/m3)	(µg/m3)									
1,1,1-Trichloroethane	71-55-6	5200	22000	1.1	U	1.1	U	NA		NA		
1,1,2,2-Tetrachloroethane	79-34-5	0.048	0.21	*1.4*	U	*1.4*	U	NA		NA		
1,1,2-Trichloroethane	79-00-5	0.18	0.77	*1.1*	U	*1.1*	U	NA		NA		
1,1-Dichloroethane	75-34-3	1.8	7.7	0.81	U	0.81	U	NA		NA		
1,1-Dichloroethene	75-35-4	210	880	0.14	U	0.14	U	NA		NA		
1,2,4-Trichlorobenzene	120-82-1	2.1	8.8	3.7	U	3.7	U	NA		NA		
1,2,4-Trimethylbenzene	95-63-6	7.3	31	0.98	U	0.98	U	NA		NA		
1,2-Dibromoethane	106-93-4	0.0047	0.02	*1.5*	U	*1.5*	U	NA		NA		
1,2-Dichlorobenzene	95-50-1	210	880	1.2	U	1.2	U	NA		NA		
1,2-Dichloroethane	107-06-2	0.11	0.47	*0.81*	U	*0.81*	U	NA		NA		
1,2-Dichloroethene, Total	540-59-0	NE	NE	1.6	U	1.6	U	NA		NA		
1,2-Dichloropropane	78-87-5	0.28	1.2	0.92	U	0.92	U	NA		NA		
1,2-Dichlorotetrafluoroethane	76-14-2	NE	NE	1.4	U	1.4	U	NA		NA		
1,3,5-Trimethylbenzene	108-67-8	NE	NE	0.98	U	0.98	U	NA		NA		
1,3-Butadiene	106-99-0	0.094	0.41	*0.44*	U	*0.44*	U	NA		NA		
1,3-Dichlorobenzene	541-73-1	NE	NE	1.2	U	1.2	U	NA		NA		
1,4-Dichlorobenzene	106-46-7	0.26	1.1	*1.2*	U	*1.2*	U	NA		NA		
1,4-Dioxane	123-91-1	0.56	2.5	*18*	U	*18*	U	NA		NA		
2,2,4-Trimethylpentane	540-84-1	NE	NE	0.93	U	0.93	U	NA		NA		
2-Chlorotoluene	95-49-8	NE	NE	1	U	1	U	NA		NA		
3-Chloropropene	107-05-1	0.47	2	1.6	U	1.6	U	NA		NA		
4-Ethyltoluene	622-96-8	NE	NE	0.98	U	0.98	U	NA		NA		
4-Isopropyltoluene	99-87-6	NE	NE	1.1	U	1.1	U	NA		NA		
Acetone	67-64-1	32000	140000	**8.1**	J	**8.5**	J	NA		NA		
Benzene	71-43-2	0.13	1.05	**0.43**	J	**0.45**	J	NA		NA		
Benzyl chloride	100-44-7	0.057	0.25	*1*	U	*1*	U	NA		NA		
Bromodichloromethane	75-27-4	0.076	0.33	*1.3*	U	*1.3*	U	NA		NA		
Bromoethene(Vinyl Bromide)	593-60-2	0.088	0.38	*0.87*	U	*0.87*	U	NA		NA		
Bromoform	75-25-2	2.6	11	2.1	U	2.1	U	NA		NA		
Bromomethane	74-83-9	5.2	22	0.78	U	0.78	U	NA		NA		
Carbon disulfide	75-15-0	730	3100	1.6	U	1.6	U	NA		NA		
Carbon tetrachloride	56-23-5	0.47	2	**0.45**		**0.49**		NA		NA		
Chlorobenzene	108-90-7	52	220	0.92	U	0.92	U	NA		NA		
Chloroethane	75-00-3	10000	44000	1.3	U	1.3	U	NA		NA		
Chloroform	67-66-3	0.12	0.53	**0.38**	J	**0.41**	J	NA		NA		
Chloromethane	74-87-3	94	390	**1**		**1.2**		NA		NA		
cis-1,2-Dichloroethene	156-59-2	NE	NE	0.16	U	0.16	U	**0.25**		0.16	U	
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.91	U	0.91	U	NA		NA		
Cumene	98-82-8	420	1800	0.98	U	0.98	U	NA		NA		
Cyclohexane	110-82-7	6300	26000	0.69	U	0.69	U	NA		NA		
Dibromochloromethane	124-48-1	NE	NE	1.7	U	1.7	U	NA		NA		
Dichlorodifluoromethane	75-71-8	100	440	**2.5**		**2.5**		NA		NA		
Ethylbenzene	100-41-4	1.1	4.9	0.87	U	0.87	U	NA		NA		
Freon 22	75-45-6	52000	220000	**2**		**1.6**	J	NA		NA		
Freon TF	76-13-1	31000	130000	**0.49**	J	**0.52**	J	NA		NA		
Hexachlorobutadiene	87-68-3	0.13	0.56	*2.1*	U	*2.1*	U	NA		NA		
Isopropyl alcohol	67-63-0	210	880	**6.2**	J	12	U	NA		NA		
m,p-Xylene	179601-23-1	NE	NE	**0.72**	J	**0.66**	J	NA		NA		
Methyl Butyl Ketone (2-Hexanone)	591-78-6	31	130	2	U	2	U	NA		NA		
Methyl Ethyl Ketone	78-93-3	5200	22000	**0.74**	J	**0.62**	J	NA		NA		
methyl isobutyl ketone	108-10-1	3100	13000	2	U	2	U	NA		NA		
Methyl methacrylate	80-62-6	730	3100	2	U	2	U	NA		NA		
Methyl tert-butyl ether	1634-04-4	11	47	0.72	U	0.72	U	NA		NA		
Methylene Chloride	75-09-2	100	1200	**4.3**		**2**		NA		NA		
Naphthalene	91-20-3	0.03	0.24	*2.6*	U	*2.6*	U	NA		NA		
n-Butane	106-97-8	NE	NE	**2.7**		**2.6**		NA		NA		
n-Butylbenzene	104-51-8	NE	NE	1.1	U	1.1	U	NA		NA		
n-Heptane	142-82-5	NE	NE	0.82	U	0.82	U	NA		NA		
n-Hexane	110-54-3	730	3100	**2.6**		**1.2**		NA		NA		
n-Propylbenzene	103-65-1	1000	4400	0.98	U	0.98	U	NA		NA		
sec-Butylbenzene	135-98-8	NE	NE	1.1	U	1.1	U	NA		NA		
Styrene	100-42-5	1000	4400	0.85	U	0.85	U	NA		NA		
tert-Butyl alcohol	75-65-0	NE	NE	15	U	15	U	NA		NA		
tert-Butylbenzene	98-06-6	NE	NE	1.1	U	1.1	U	NA		NA		
Tetrachloroethene	127-18-4	0.63	5.11	0.24	U	**0.47**		**2.3**	*	0.24	U	*
Tetrahydrofuran	109-99-9	2100	8800	15	U	15	U	NA		NA		
Toluene	108-88-3	5200	22000	**1.2**		**1.2**		NA		NA		
Total Xylene	1330-20-7	100	440	0.87	U	0.87	U	NA		NA		
trans-1,2-Dichloroethene	156-60-5	NE	NE	0.79	U	0.79	U	0.79	U *	0.79	U	*
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.91	U	0.91	U	NA		NA		
Trichloroethene	79-01-6	0.2	0.7	0.19	U	0.19	U	**0.35**		0.19	U	
Trichlorofluoromethane	75-69-4	NE	NE	**1.4**		**1.4**		NA		NA		
Vinyl chloride	75-01-4	0.11	1.86	0.51	U	0.51	U	0.51	U	0.51	U	
Xylene (total)	1330-20-7	100	440	**0.72**	J	**0.66**	J	NA		NA		
Xylene, o-	95-47-6	NE	NE	0.87	U	0.87	U	NA		NA		

Key:
ASL: Vermont/EPA Air Screening Level
µg/m3 - micrograms of contaminant per cubic meter of air
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of an enforcement standard
Italicized values indicate exceedences of multiple enforcement standards
U - Not detected above laboratory reporting limits; reporting limit provided
NE - screening level not established
NA - Compound not analyzed for this sample
J - Estimated value

Created By: DTC 01/16/19
QC By: DTC 01/16/19

Table B2
Concentrations of Volatile Organic Compounds in Soil Gas by TO-15 - Fixed-Based Laboratory Results

Sample ID		VISV Residential	VISV Industrial	SG-118-TA		SG-130-TA	
Sample Date		(µg/m3)	(µg/m3)	6/12/2018	Q	6/12/2018	Q
1,1,1-Trichloroethane	**71-55-6**	170000	730000	8.7	U	**3.2**	J
1,1,2,2-Tetrachloroethane	79-34-5	1.6	7	*11*	U	*11*	U
1,1,2-Trichloroethane	79-00-5	5.8	26	8.7	U	8.7	U
1,1-Dichloroethane	75-34-3	58	260	6.5	U	**1.8**	J
1,1-Dichloroethene	75-35-4	7000	29000	6.3	U	**2**	J
1,2,4-Trichlorobenzene	120-82-1	70	290	30	U	30	U
1,2,4-Trimethylbenzene	95-63-6	240	1000	7.9	U	7.9	U
1,2-Dibromoethane	106-93-4	0.16	0.68	*12*	U	*12*	U
1,2-Dichlorobenzene	95-50-1	7000	29000	9.6	U	9.6	U
1,2-Dichloroethane	107-06-2	3.6	16	6.5	U	6.5	U
1,2-Dichloroethene, Total	540-59-0	NE	NE	13	U	13	U
1,2-Dichloropropane	78-87-5	9.4	41	7.4	U	**5.3**	J
1,2-Dichlorotetrafluoroethane	76-14-2	NE	NE	11	U	11	U
1,3,5-Trimethylbenzene	108-67-8	NE	NE	7.9	U	7.9	U
1,3-Butadiene	106-99-0	3.1	14	3.5	U	**2.2**	J
1,3-Dichlorobenzene	541-73-1	NE	NE	9.6	U	9.6	U
1,4-Dichlorobenzene	106-46-7	8.5	37	9.6	U	9.6	U
1,4-Dioxane	123-91-1	19	82	140	U	140	U
2,2,4-Trimethylpentane	540-84-1	NE	NE	7.5	U	7.5	U
2-Chlorotoluene	95-49-8	NE	NE	8.3	U	8.3	U
3-Chloropropene	107-05-1	16	68	13	U	13	U
4-Ethyltoluene	622-96-8	NE	NE	7.9	U	7.9	U
4-Isopropyltoluene	99-87-6	NE	NE	8.8	U	8.8	U
Acetone	67-64-1	1100000	4500000	**120**		**150**	
Benzene	71-43-2	4.3	35	6.1		**4.1**	J
Benzyl chloride	100-44-7	1.9	8.3	*8.3*	U	*8.3*	U
Bromodichloromethane	75-27-4	2.5	11	*11*	U	*11*	U
Bromoethene(Vinyl Bromide)	593-60-2	2.9	13	7	U	**2.2**	J
Bromoform	75-25-2	85	370	17	U	17	U
Bromomethane	74-83-9	170	730	6.2	U	**2.1**	J
Carbon disulfide	75-15-0	24000	100000	12	U	**4.6**	J
Carbon tetrachloride	56-23-5	16	68	10	U	**3.3**	J
Chlorobenzene	108-90-7	1700	7300	7.4	U	7.4	U
Chloroethane	75-00-3	350000	1500000	11	U	11	U
Chloroform	67-66-3	4.1	18	7.8	U	**3.9**	J
Chloromethane	74-87-3	3100	13000	8.3	U	8.3	U
cis-1,2-Dichloroethene	156-59-2	NE	NE	6.3	U	**2.2**	J
cis-1,3-Dichloropropene	10061-01-5	NE	NE	7.3	U	7.3	U
Cumene	98-82-8	14000	58000	7.9	U	7.9	U
Cyclohexane	110-82-7	210000	880000	**15**		**2.2**	J
Dibromochloromethane	124-48-1	NE	NE	14	U	14	U
Dichlorodifluoromethane	75-71-8	3500	15000	**380**		**1700**	E
Ethylbenzene	100-41-4	37	160	6.9	U	**2.8**	J
Freon 22	75-45-6	1700000	7300000	14	U	14	U
Freon TF	76-13-1	1000000	4400000	**4.1**	J	**8.6**	J
Hexachlorobutadiene	87-68-3	4.3	19	17	U	17	U
Isopropyl alcohol	67-63-0	7000	29000	98	U	98	U
m,p-Xylene	179601-23-1	NE	NE	**3.1**	J	**4.6**	J
Methyl Butyl Ketone (2-Hexanone)	591-78-6	1000	4400	16	U	16	U
Methyl Ethyl Ketone	78-93-3	170000	730000	**26**		**24**	
methyl isobutyl ketone	108-10-1	100000	440000	16	U	16	U
Methyl methacrylate	80-62-6	24000	10000	16	U	16	U
Methyl tert-butyl ether	1634-04-4	360	1600	5.8	U	**2.3**	J
Methylene Chloride	75-09-2	3400	41000	**5.8**	J	**7.4**	J
Naphthalene	91-20-3	1	8	*21*	U	*21*	U
n-Butane	106-97-8	NE	NE	**13**		**7.6**	J
n-Butylbenzene	104-51-8	NE	NE	8.8	U	8.8	U
n-Heptane	142-82-5	NE	NE	**8.5**		**5.1**	J
n-Hexane	110-54-3	24000	100000	**10**		**5**	J
n-Propylbenzene	103-65-1	35000	150000	7.9	U	7.9	U
sec-Butylbenzene	135-98-8	NE	NE	8.8	U	8.8	U
Styrene	100-42-5	35000	150000	6.8	U	6.8	U
tert-Butyl alcohol	75-65-0	NE	NE	120	U	120	U
tert-Butylbenzene	98-06-6	NE	NE	8.8	U	8.8	U
Tetrachloroethene	127-18-4	21	170	***850***		***180***	
Tetrahydrofuran	109-99-9	70000	290000	120	U	120	U
Toluene	108-88-3	170000	730000	**29**		**32**	
Total Xylene	1330-20-7	3500	15000	6.9	U	6.9	U
trans-1,2-Dichloroethene	156-60-5	NE	NE	6.3	U	6.3	U
trans-1,3-Dichloropropene	10061-02-6			7.3	U	7.3	U
Trichloroethene	79-01-6	6.7	23	***29***		***540***	
Trichlorofluoromethane	75-69-4			9	U	**7.6**	J
Vinyl chloride	75-01-4	3.7	62	4.1	U	**1.5**	J
Xylene (total)	1330-20-7	3500	15000	**3.1**		**4.6**	
Xylene, o-	95-47-6			6.9	U	6.9	U

Key:
VISV: Vermont Sub-Slab Vapor Intrusion Screening Value
µg/m^3 - micrograms of contaminant per cubic meter of air.
Bold results indicate detections of the analyte at a concentration above the laboratory reporting limit. Shaded results indicate an exceedence of the VISV for residential properties.
Italicized values indicate an exceedance of the VISV for industrial properties.
U: Not detected above laboratory reporting limit; reporting limit provided
NE: Not established
J: Estimated value

QC By: DTC 01/16/19

Table B1:VOC Concentration Results in Soil Gas by EPA SW846 Method 8260, June 11 and 12, 2018

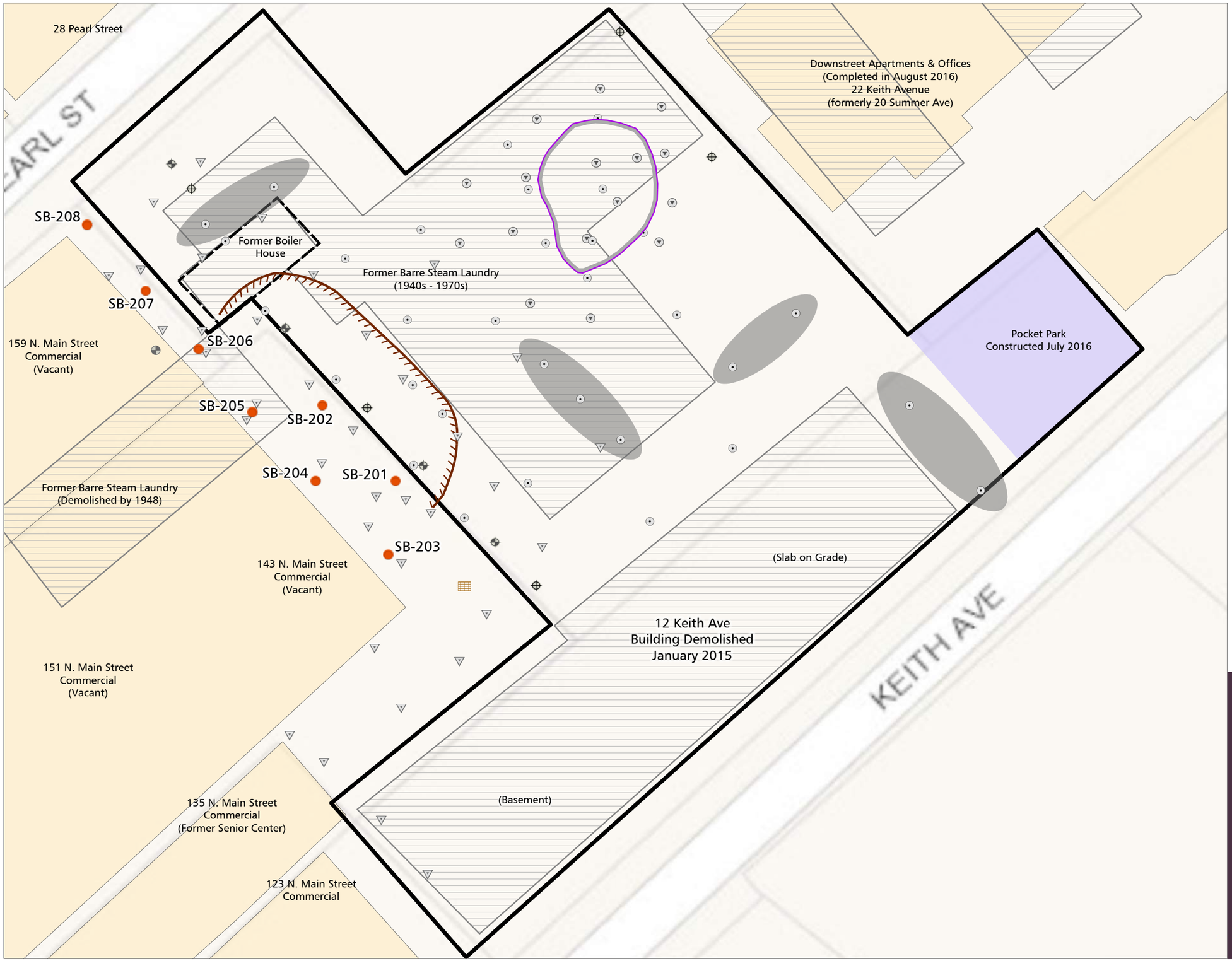
Sample Name	CAS #	VISV		SG-EB1	SG-EB2	SG-101	SG-102	SG-103	SG-103-FD	SG-104	SG-105	SG-106	SG-107	SG-108	SG-109	SG-110	SG-111	SG-112	SG-113	SG-114	SG-115
Analysis Date		Residential	Industrial	6/11/18 13:05 EB	6/12/18 16:34 EB	6/11/18 13:22 N	6/11/18 13:39 N	6/11/18 13:57 N	6/11/18 14:14 FD	6/11/18 14:32 N	6/11/18 14:52 N	6/11/18 15:09 N	6/11/18 15:27 N	6/11/18 15:45 N	6/11/18 16:02 N	6/11/18 16:20 N	6/11/18 16:38 N	6/11/18 16:58 N	6/11/18 17:16 N	6/11/18 17:33 N	6/11/18 17:51 N
Chloromethane	74-87-3	3,100	13,000	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ
Vinyl Chloride	75-01-4	3.7	62	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*
1,1-Dichloroethene	75-35-4	7,000	29,000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methylene Chloride	75-09-2	3,400	41,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
trans-1,2-Dichloroethene	156-60-5	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,1-Dichloroethane	75-34-3	58	260	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
cis-1,2-Dichloroethene	156-59-2	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Chloroform	67-66-3	4.1	18	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	***24.3***	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*
1,1,1-Trichloroethane	71-55-6	170,000	730,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Carbon Tetrachloride	56-23-5	16	68	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	71-43-2	4.3	35	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**20**	20 U	**221**	20 U	20 U
1,2-Dichloroethane	107-06-2	3.6	16	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*
Trichloroethene	79-01-6	6.7	23	20 U	20 U	***272***	***23***	**20.9**	**21.1**	***23.9***	***24.2***	***27.6***	20 U	***55.5*** J	**20.4**	***37.8***	20 U	***34.4***	20 U	***288***	***56*** J
Toluene	108-88-3	170,000	730,000	20 U	**26.2**	**133**	**52.6**	**25.9**	**26.4**	**43.1**	**26.4**	**25**	**28.2**	**40.4**	**546**	**73.2**	**43.5**	**37.2**	**195**	**30.5**	**66.4**
1,1,2-Trichloroethane	79-00-5	5.8	26	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Tetrachloroethene	127-18-4	21	170	20 U	20 U	***371***	***711***	***583***	***524***	**22.6**	***376***	***401***	**52.1**	**21.6**	20 U	20 U	20 U	**22.8**	20 U	**27**	20 U
Ethylbenzene	100-41-4	37	160	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**24.8**
m,p-Xylenes	179601-23-1	3,500	15,000	20 U	20 U	**30.5**	**23.6**	**22.7**	**24.1**	**21**	20 U	20 U	**21.4**	**22.6**	**26.1**	**22.2**	20 U	20 U	**50.5**	**22.1**	**95**
o-Xylene	95-47-6	3,500	15,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**32.5**	20 U	**41.6**
1,3,5-Trimethylbenzene	108-67-8	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2,4-Trimethylbenzene	95-63-6	240	1,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Naphthalene	91-20-3	1	8	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*

Sample Name	CAS #	VISV		SG-116	SG-117	SG-118	SG-119	SG-120	SG-121	SG-121-FD	SG-122	SG-124	SG-126	SG-127	SG-128	SG-129	SG-130	SG-131	SG-132	SG-133
Analysis Date		Residential	Industrial	6/11/18 18:08 N	6/12/18 12:10 N	6/12/18 12:28 N	6/12/18 12:48 N	6/12/18 14:58 N	6/12/18 15:17 N	6/12/18 15:37 FD	6/12/18 14:39 N	6/12/18 18:55 N	6/12/18 17:12 N	6/12/18 18:15 N	6/12/18 17:33 N	6/12/18 14:20 N	6/12/18 16:53 N	6/12/18 18:36 N	6/12/18 15:56 N	6/12/18 16:15 N
Chloromethane	74-87-3	3,100	13,000	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	100 UQ	113 Q	100 UQ	100 UQ	100 UQ	100 UQ
Vinyl Chloride	75-01-4	3.7	62	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*	*100 U*
1,1-Dichloroethene	75-35-4	7,000	29,000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Methylene Chloride	75-09-2	3,400	41,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
trans-1,2-Dichloroethene	156-60-5	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**33.5**	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,1-Dichloroethane	75-34-3	58	260	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
cis-1,2-Dichloroethene	156-59-2	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**124**	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Chloroform	67-66-3	4.1	18	*20 U*	*20 U*	*20 U*	***34.5***	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*
1,1,1-Trichloroethane	71-55-6	170,000	730,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Carbon Tetrachloride	56-23-5	16	68	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	71-43-2	4.3	35	***42.8***	20 U	20 U	20 U	20 U	***53.8***	***52***	**25.2**	20 U	**27.7**	***41.3***	**29.2**	20 U	20 U	**23.7**	20 U	***39***
1,2-Dichloroethane	107-06-2	3.6	16	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*
Trichloroethene	79-01-6	6.7	23	***99.8***	***44.5***	***53.4***	***25.8***	**21.7**	20 U	***37.2***	20 U	20 U	20 U	***118***	***134***	***74.9***	***1100***	***34.5***	***107***	***31.8***
Toluene	108-88-3	170,000	730,000	58	**26.2**	**31.6**	**22.1**	**42.4**	**99.2**	**98.7**	**49.2**	**36.6**	**26**	**245**	**77.2**	**24.3**	**40.7**	**37.9**	**24.7**	**59.9**
1,1,2-Trichloroethane	79-00-5	5.8	26	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Tetrachloroethene	127-18-4	21	170	***2330***	***4760***	***1520***	***812***	**32.1**	***304***	***313***	20 U	**30.3**	**72.4**	***2890***	***15700*** E	***3410***	***377***	***1700***	***6500*** E	***212***
Ethylbenzene	100-41-4	37	160	20 U	20 U	20 U	20 U	20 U	**26.5**	**26.6**	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
m,p-Xylenes	179601-23-1	3,500	15,000	**28.9**	**21.2**	**21.9**	**23.2**	**24.5**	**68.4**	**68.6**	**26.1**	**21.5**	20 U	**45.3**	**38.7**	20 U	**21.2**	**23.2**	20 U	**28.8**
o-Xylene	95-47-6	3,500	15,000	**20.8**	20 U	20 U	20 U	20 U	**32**	**32.3**	20 U	20 U	20 U	**28.8**	**24.8**	20 U	20 U	20 U	20 U	20 U
1,3,5-Trimethylbenzene	108-67-8	NS	NS	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2,4-Trimethylbenzene	95-63-6	240	1,000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Naphthalene	91-20-3	1	8	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*	*20 U*

Key:

U: Compound non-detect at laboratory reporting limit. J: Estimated value. NS: No standard established
VISV: Vermont Sub-Slab Vapor Intrusion Screening Value
µg/m3 - micrograms of contaminant per cubic meter of air.
Bold results indicate detections of the analyte at a concentration above the laboratory reporting limit.
Shaded results indicate an exceedence of the VISV for residential properties.
Italicized values indicate an exceedance of the VISV for industrial properties.

QC By: DTC 01/16/19



N

0 10 20

Feet

LEGEND

Proposed Investigation Locations

- Soil Boring

Areas of Concern

- CVOC Footprint (5 Volts) (2014)
- NAPL Extent (2014)

Prior Investigation Locations (2014 and 2018)

- Soil Boring
- Sump Water Samples
- Soil Composite Groups
- SP-22 Groundwater Sample
- Membrane Interface Probe Profile
- Piezometer
- Soil Gas Samples

Site Features

- Site Boundary
- Stormwater Catch Basin
- BoilerHouse
- Pocket Park
- Former Buildings
- Existing Buildings

Source: Former buildings - DeWolfe Engineering 2014; Surveys by Stone Environmental 2014 and 2017; Former laundry footprint - 1910 Sanborn; Former building footprint - 1970s plot plan, City Assessor's file; Former Boiler House - 1964 Sanborn

Path: O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\GIS\MapDocuments\14-021 Barre VT 12 Kieth Ave\14-021 Barre VT 12 Kieth Ave.aprx Figure 3 SSI Site Map
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Figure 3: Site Map with Proposed Investigation Locations

Soil Quality Assessment
143/151 & 159 North Main Street
Barre, Vermont

Prepared For City of Barre

STONE ENVIRONMENTAL

Table C-1
Indoor Air VOLATILE ORGANIC COMPOUNDS Sample Analytical Results

Sample ID		ASL Residential	ASL Industrial	135 N.MAIN		135 N.MAIN FD		159 N.MAIN BASEMENT		159 N.MAIN FIRST FLOOR		AMBIENT	
Sample Date	CAS#			3/8/2019	Q	3/8/2019	Q	3/8/2019	Q	3/8/2019	Q	3/8/2019	Q
		(µg/m3)	(µg/m3)										
1,1,1-Trichloroethane	**71-55-6**	5200	22000	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	79-34-5	0.048	0.21	*0.27*	U	*0.27*	U	*0.27*	U	*0.27*	U	*0.27*	U
1,1,2-Trichloroethane	79-00-5	0.18	0.77	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethane	75-34-3	1.8	7.7	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethene	75-35-4	210	880	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dibromoethane	106-93-4	0.0047	0.02	*0.31*	U	*0.31*	U	*0.31*	U	*0.31*	U	*0.31*	U
1,2-Dichloroethane	107-06-2	0.11	0.47	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dichloroethene, Total	540-59-0	NE	NE	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dichloropropane	78-87-5	0.28	1.2	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
1,3,5-Trimethylbenzene	108-67-8	NE	NE	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
1,3-Butadiene	106-99-0	0.094	0.41	0.18	U	0.18	U	0.18	U	0.18	U	**0.23**	
2,2,4-Trimethylpentane	540-84-1	NE	NE	0.19	U	0.19	U	**0.96**		**0.34**		**0.19**	
3-Chloropropene	107-05-1	0.47	2	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
4-Ethyltoluene	622-96-8	NE	NE	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzene	71-43-2	0.13	1.05	0.73		**0.72**		***1.1***		**0.77**		***1.2***	
Bromodichloromethane	75-27-4	0.076	0.33	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Bromoethene(Vinyl Bromide)	593-60-2	0.088	0.38	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
Bromoform	75-25-2	2.6	11	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromomethane	74-83-9	5.2	22	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Carbon tetrachloride	56-23-5	0.47	2	**0.41**		**0.40**		**0.47**		**0.36**		**0.35**	
Chloroethane	75-00-3	10000	44000	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chloroform	67-66-3	0.12	0.53	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
cis-1,2-Dichloroethene	156-59-2	NE	NE	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Cyclohexane	110-82-7	6300	26000	0.14	U	0.14	U	**0.41**		**0.15**		0.14	U
Dibromochloromethane	124-48-1	NE	NE	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Dichlorodifluoromethane	75-71-8	100	440	**2.1**		**2.0**		**2.1**		**1.8**		**2.0**	
Ethylbenzene	100-41-4	1.1	4.9	0.17	U	0.17	U	**0.41**		**0.27**		0.17	U
Methyl tert-butyl ether	1634-04-4	11	47	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
Methylene Chloride	75-09-2	100	1200	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
m-Xylene & p-Xylene	179601-23-1	NE	NE	**0.38**		0.35	U	**1.5**		**1.0**		**0.51**	
n-Heptane	142-82-5	NE	NE	**0.20**		**0.19**		**0.67**		**0.43**		**0.19**	
n-Hexane	110-54-3	730	3100	**0.44**		0.28	U	**1.6**		**0.66**		**0.33**	
o-Xylene	95-47-6	NE	NE	0.17	U	0.17	U	**0.59**		**0.26**		**0.18**	
Tetrachloroethene	127-18-4	0.63	5.11	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Toluene	108-88-3	5200	22000	**0.65**		**0.61**		**2.7**		**1.6**		**1.2**	
Total Xylene	1330-20-7	100	440	0.17	U	0.17	U	**0.59**		**0.26**		**0.18**	
trans-1,2-Dichloroethene	156-60-5	NE	NE	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Trichloroethene	79-01-6	0.2	0.7	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Trichlorofluoromethane	75-69-4	NE	NE	**1.2**		**1.1**		**1.2**		**1**		**1.1**	
Vinyl chloride	75-01-4	0.11	1.86	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Xylenes, Total	1330-20-7	100	440	**0.53**		**0.48**		**2.1**		**1.3**		**0.68**	

Key:
ASL: Vermont/EPA Air Screening Level
µg/m^3 - micrograms of contaminant per cubic meter of air
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of an enforcement standard
Italicized values indicate exceedences of multiple enforcement standards
NE - screening level not established
NA - Compound not analyzed for this sample.
U - Analyte not detected; limit of quantitation listed

Table C-2
Soil VOLATILE ORGANIC COMPOUNDS Sample Analytical Results

SampleID		Vermont Screening Levels - Resident Soil	EPA Residential Regional Screening Level	EPA Industrial Regional Screening Level	SB-201-8.0		SB-202-8.0		SB-202-8.0 FD		SB-203-8.0		SB-204-8.0		SB-205-4.0		RPD
Sample Date	CAS#				3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	
		(mg/kg)	(mg/kg)	(mg/kg)													
1,1,1,2-Tetrachloroethane	630-20-6	NE	2	8.8	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,1,1-Trichloroethane	71-55-6	NE	8100	36000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,1,2,2-Tetrachloroethane	79-34-5	NE	0.6	2.7	0.0033	U	0.0032	U	0.0031	U	0.0029	U	0.0031	U	0.0029	U	--
1,1,2-Trichloroethane	79-00-5	NE	1.1	5	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,1-Dichloroethane	75-34-3	NE	3.6	16	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,1-Dichloroethene	75-35-4	NE	230	1000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,1-Dichloropropene	563-58-6	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2,3-Trichlorobenzene	87-61-6	NE	63	930	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2,3-Trichloropropane	96-18-4	0.00324	NE	0.11	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2,4-Trichlorobenzene	120-82-1	NE	24	110	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2,4-Trimethylbenzene	95-63-6	NE	58	240	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2-Dibromo-3-chloropropane	96-12-8	0.00327	NE	0.064	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2-Dibromoethane	106-93-4	NE	0.036	0.16	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2-Dichlorobenzene	95-50-1	NE	1800	9300	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2-Dichloroethane	107-06-2	0.175	NE	2	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,2-Dichloropropane	78-87-5	NE	1	4.4	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,3,5-Trimethylbenzene	108-67-8	NE	780	12000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,3-Dichloropropane	142-28-9	NE	1600	23000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
1,4-Dichlorobenzene	106-46-7	NE	2.6	11	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
2,2-Dichloropropane	594-20-7	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
2-Chlorotoluene	95-49-8	NE	1600	23000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
2-Hexanone	591-78-6	NE	200	1300	0.0280	U	0.0260	U	0.026	U	0.0240	U	0.0260	U	0.0240	U	--
2-Isopropyltoluene	527-84-4	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
4-Chlorotoluene	106-43-4	NE	1600	23000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
4-Methyl-2-pentanone	108-10-1	NE	33000	140000	0.028	U	0.0260	U	0.0260	U	0.0240	U	0.0260	U	0.0240	U	--
Acetone	67-64-1	39900	NE	670000	0.2800	U	0.2600	U	0.2600	U	0.2400	U	0.2600	U	0.2400	U	--
Acrylonitrile	107-13-1	NE	0.25	1.1	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Benzene	71-43-2	0.442		5.1	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Bromobenzene	108-86-1	NE	290	1800	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Bromochloromethane	74-97-5	129	NE	630	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Bromodichloromethane	75-27-4	NE	0.29	1.3	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Bromoform	75-25-2	NE	19	86	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Bromomethane	74-83-9	NE	6.8	30	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Carbon Disulfide	75-15-0	NE	770	3500	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Carbon tetrachloride	56-23-5	0.247	NE	2.9	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Chlorobenzene	108-90-7	273	NE	1300	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Chloroethane	75-00-3	NE	14000	57000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Chloroform	67-66-3	NE	0.32	1.4	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Chloromethane	74-87-3	NE	110	460	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
cis-1,2-Dichloroethene	156-59-2	146	NE	2300	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
cis-1,3-Dichloropropene	10061-01-5	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Dibromochloromethane	124-48-1	NE	8.3	39	0.0033	U	0.0032	U	0.0031	U	0.0029	U	0.0031	U	0.0029	U	--
Dibromomethane	74-95-3	NE	24	99	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Dichlorodifluoromethane	75-71-8	NE	87	370	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Ethylbenzene	100-41-4	2.21	NE	25	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Hexachlorobutadiene	87-68-3	NE	1.2	5.3	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Isopropylbenzene	98-82-8	NE	1900	9900	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
m&p-Xylene	179601-23-1	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Methyl Ethyl Ketone	78-93-3	26000	NE	190000	0.0330	U	0.0320	U	0.0310	U	0.0290	U	0.0310	U	0.0290	U	--
Methyl t-butyl ether (MTBE)	1634-04-4	NE	47	210	0.0110	U	0.0110	U	0.0100	U	0.0097	U	0.0100	U	0.0096	U	--
Methylene chloride	75-09-2	NE	57	1000	0.0110	U	0.0110	U	0.0100	U	0.0097	U	0.0100	U	0.0096	U	--
Naphthalene	91-20-3	1.42	NE	17	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
n-Butylbenzene	104-51-8	NE	3900	58000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
n-Propylbenzene	103-65-1	NE	3800	24000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
o-Xylene	95-47-6	NE	650	2800	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
p-Isopropyltoluene	99-87-6	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
sec-Butylbenzene	135-98-8	NE	7800	120000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Styrene	100-42-5	NE	6000	35000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
tert-Butylbenzene	98-06-6	NE	7800	120000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Tetrachloroethene	127-18-4	1.46	NE	100	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Tetrahydrofuran (THF)	109-99-9	NE	18000	94000	0.0110	U	0.0110	U	0.0100	U	0.0097	U	0.0100	U	0.0096	U	--
Toluene	108-88-3	4640	NE	47000	0.0056	U	**0.1600**		0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Total Trimethylbenzene	25551-13-7	264	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Total Xylene	1330-20-7	575	NE	2500	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Total Xylenes	1330-20-7	575	NE	2500	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
trans-1,2-Dichloroethene	156-60-5	1460	NE	23000	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
trans-1,3-Dichloropropene	10061-02-6	NE	NE	NE	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
trans-1,4-dichloro-2-butene	110-57-6	NE	0.0074	0.032	0.0110	U	0.0110	U	0.0100	U	0.0097	U	0.0100	U	0.0096	U	--
Trichloroethene	79-01-6	0.442	NE	6	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--
Trichlorofluoromethane	75-69-4	NE	23000	350000	**0.4600**		**0.3900**		**0.5400**		**0.7600**		**0.6500**		**0.4200**		32.26%
Trichlorotrifluoroethane	76-13-1	NE	40000	170000	0.0110	U	0.0110	U	0.0100	U	0.0097	U	0.0100	U	0.0096	U	--
Vinyl chloride	75-01-4	NE	0.059	1.7	0.0056	U	0.0053	U	0.0052	U	0.0049	U	0.0052	U	0.0048	U	--

SampleID		Vermont Screening Levels - Resident Soil	EPA Residential Regional Screening Level	EPA Industrial Regional Screening Level	SB-206-8.0		SB-207-6.0		SB-208-7.0		TRIP BLANK HIGH		TRIP BLANK LOW			
Sample Date	CAS#				3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	3/29/2019	Q	3/29/2019	Q		
		(mg/kg)	(mg/kg)	(mg/kg)												
1,1,1,2-Tetrachloroethane	630-20-6	NE	2	8.8	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,1,1-Trichloroethane	71-55-6	NE	8100	36000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,1,2,2-Tetrachloroethane	79-34-5	NE	0.6	2.7	0.1900	U	0.0028	U	0.0030	U	0.2500	U	0.0030	U		
1,1,2-Trichloroethane	79-00-5	NE	1.1	5	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,1-Dichloroethane	75-34-3	NE	3.6	16	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,1-Dichloroethene	75-35-4	NE	230	1000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,1-Dichloropropene	563-58-6	NE	NE	NE	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2,3-Trichlorobenzene	87-61-6	NE	63	930	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2,3-Trichloropropane	96-18-4	0.00324	NE	0.11	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2,4-Trichlorobenzene	120-82-1	NE	24	110	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2,4-Trimethylbenzene	95-63-6	NE	58	240	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2-Dibromo-3-chloropropane	96-12-8	0.00327	NE	0.064	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2-Dibromoethane	106-93-4	NE	0.036	0.16	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2-Dichlorobenzene	95-50-1	NE	1800	9300	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2-Dichloroethane	107-06-2	0.175	NE	2	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,2-Dichloropropane	78-87-5	NE	1	4.4	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,3,5-Trimethylbenzene	108-67-8	NE	780	12000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,3-Dichloropropane	142-28-9	NE	1600	23000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
1,4-Dichlorobenzene	106-46-7	NE	2.6	11	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
2,2-Dichloropropane	594-20-7	NE	NE	NE	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
2-Chlorotoluene	95-49-8	NE	1600	23000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
2-Hexanone	591-78-6	NE	200	1300	0.0330	U	0.0230	U	0.0250	U	1.3000	U	0.0250	U		
2-Isopropyltoluene	527-84-4	NE	NE	NE	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
4-Chlorotoluene	106-43-4	NE	1600	23000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
4-Methyl-2-pentanone	108-10-1	NE	33000	140000	0.0330	U	0.0230	U	0.0250	U	1.3000	U	0.0250	U		
Acetone	67-64-1	39900	NE	670000	0.3300	U	0.2300	U	0.2500	U	5.0000	U	0.2500	U		
Acrylonitrile	107-13-1	NE	0.25	1.1	0.0065	U	0.0047	U	0.0050	U	0.5000	U	0.0050	U		
Benzene	71-43-2	0.442	NE	5.1	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Bromobenzene	108-86-1	NE	290	1800	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Bromochloromethane	74-97-5	129	NE	630	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Bromodichloromethane	75-27-4	NE	0.29	1.3	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Bromoform	75-25-2	NE	19	86	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Bromomethane	74-83-9	NE	6.8	30	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Carbon Disulfide	75-15-0	NE	770	3500	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Carbon tetrachloride	56-23-5	0.247	NE	2.9	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Chlorobenzene	108-90-7	273	NE	1300	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Chloroethane	75-00-3	NE	14000	57000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Chloroform	67-66-3	NE	0.32	1.4	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Chloromethane	74-87-3	NE	110	460	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
cis-1,2-Dichloroethene	156-59-2	146	NE	2300	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
cis-1,3-Dichloropropene	10061-01-5	NE	NE	NE	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Dibromochloromethane	124-48-1	NE	8.3	39	0.0039	U	0.0028	U	0.0030	U	0.2500	U	0.0030	U		
Dibromomethane	74-95-3	NE	24	99	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Dichlorodifluoromethane	75-71-8	NE	87	370	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Ethylbenzene	100-41-4	2.21	NE	25	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Hexachlorobutadiene	87-68-3	NE	1.2	5.3	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Isopropylbenzene	98-82-8	NE	1900	9900	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
m&p-Xylene	179601-23-1	NE	NE	NE	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Methyl Ethyl Ketone	78-93-3	26000	NE	190000	0.0390	U	0.0280	U	0.0300	U	3.0000	U	0.0300	U		
Methyl t-butyl ether (MTBE)	1634-04-4	NE	47	210	0.0130	U	0.0094	U	0.0100	U	0.2500	U	0.0100	U		
Methylene chloride	75-09-2	NE	57	1000	0.0130	U	0.0094	U	0.0100	U	0.5000	U	0.0100	U		
Naphthalene	91-20-3	1.42	NE	17	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
n-Butylbenzene	104-51-8	NE	3900	58000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
n-Propylbenzene	103-65-1	NE	3800	24000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
o-Xylene	95-47-6	NE	650	2800	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
p-Isopropyltoluene	99-87-6	NE	NE	NE	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
sec-Butylbenzene	135-98-8	NE	7800	120000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Styrene	100-42-5	NE	6000	35000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
tert-Butylbenzene	98-06-6	NE	7800	120000	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Tetrachloroethene	127-18-4	1.46	NE	100	**0.2800**		0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Tetrahydrofuran (THF)	109-99-9	NE	18000	94000	0.0130	U	0.0094	U	0.0100	U	0.5000	U	0.0100	U		
Toluene	108-88-3	4640	NE	47000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Total Trimethylbenzene	25551-13-7	264	NE	NE	0.3200	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Total Xylene	1330-20-7	575	NE	2500	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Total Xylenes	1330-20-7	575	NE	2500	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
trans-1,2-Dichloroethene	156-60-5	1460	NE	23000	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
trans-1,3-Dichloropropene	10061-02-6	NE	NE	NE	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
trans-1,4-dichloro-2-butene	110-57-6	NE	0.0074	0.032	0.6500	U	0.0094	U	0.0100	U	0.5000	U	0.0100	U		
Trichloroethene	79-01-6	0.442	NE	6	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		
Trichlorofluoromethane	75-69-4	NE	23000	350000	**0.4100**		**0.5400**		**0.4500**		**0.5300**		**0.9000**			
Trichlorotrifluoroethane	76-13-1	NE	40000	170000	0.0130	U	0.0094	U	0.0100	U	0.2500	U	0.0100	U		
Vinyl chloride	75-01-4	NE	0.059	1.7	0.0065	U	0.0047	U	0.0050	U	0.2500	U	0.0050	U		

Key:
Vermont Screening Levels, Appendix A Soil Screening Values, IRule, July 2017.
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2016.
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the enforcement standard(s)
NE - screening level not established
U- Analyte was not detected and is reported as less than the reported quantitation limit.

Table C-3
Soil TOTAL PETROLEUM HYDROCARBONS Sample Analytical Results

SampleID		Vermont Screening Levels - Resident Soil	EPA Residential Regional Screening Level	EPA Industrial Regional Screening Level		SB-201-8.0		SB-202-8.0		SB-202-8.0 FD		SB-203-8.0		SB-204-8.0		SB-205-4.0	
Sample Date						**3/29/2019**	**Q**	**3/29/2019**	**Q**	**3/29/2019**	**Q**	**3/29/2019**	**Q**	**3/29/2019**	**Q**	**3/29/2019**	**Q**
		(mg/Kg)	**(mg/Kg)**	**(mg/Kg)**													
Diesel Range Organics (C10-C28)	PHNX - DRO	NE	96	440	NE	64	U	58	U	59	U	66	U	**72**		280	U
Sample ID		**Vermont Screening Levels - Resident Soil**	**EPA Residential Regional Screening Level**	**EPA Industrial Regional Screening Level**		**SB-206-8.0**		**SB-207-6.0**		**SB-208-7.0**							
Sample Date						**3/29/2019**	**Q**	**3/29/2019**	**Q**	**3/29/2019**	**Q**						
		(mg/Kg)	**(mg/Kg)**	**(mg/Kg)**													
Diesel Range Organics (C10-C28)	PHNX - DRO		96	440		59	U	59	U	59	U						

Key:
Vermont Screening Levels, Appendix A Soil Screening Values, IRule, July 2017.
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2016.
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the enforcement standard(s)
NE - screening level not established
U- Analyte was not detected and is reported as less than the reported quantitation limit.

Soil Boring Log
BORING NO. SB-201
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/19 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		0.6 @2.0'			Gray, SAND, fine to medium grained, little silt, no odor, no staining, moist.	
		0.2 @4.0'			Black, SAND, coarse to very coarse grained, with gravel, no odor, no staining, dry.	
-5		1.0 @6.5'			Tan, SAND, fine to medium grained, trace silt, no odor, no staining, moist to wet, NAPL globules noted at 8.0'.	
		2.0 @8.0'				
-10						

Soil Boring Log
BORING NO. SB-202
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/2019 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		1.5 @1.0'			Black, GRAVEL, medium to coarse grained, angular, well sorted, trace silt, no odor, dry, mottled, coal ash.	
		0.5 @2.5'				
-5		0.1 @5.0'			Tan gray, SILT, very coarse grained, angular, no odor, no staining, moist, compact dense silt.	
		0.0 @6.0'			Brown and tan, SAND, medium to coarse grained, trace gravel, no odor, hydrocarbon staining, wet, NAPL noted at 8.0'.	
		0.0 @8.0'				
-10						

Soil Boring Log
BORING NO. SB-203
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/2019 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		0.2 @2.0'			Tan and brown, SAND, fine to medium grained, rounded, trace silt, no odor, no staining, moist.	
-5		0.1 @4.0'			Tan, SAND, fine to medium grained, no odor, no staining, moist.	
		0.1 @6.5'				
		1.1 @8.0'			Tan, SAND, very fine to fine grained, some silt, no odor, no staining, moist to wet, trace amounts of staining at 8.0'.	
					Tan, SAND, medium to coarse grained, no odor, no staining, wet.	
-10						

Soil Boring Log
BORING NO. SB-204
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/2019 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		0.0 @1.0'			Black, GRAVEL, fine grained, rounded, well sorted, trace silt, no odor, no staining, moist, mottled, asphalt.	
					Tan gray, SAND, medium to coarse grained, angular, with gravel, no odor, no staining, moist.	
		0.2 @4.0'				
-5					Brown, SAND, medium to coarse grained, trace gravel, no odor, hydrocarbon staining, wet, NAPL beginning around 8.0', NAPL globules and sheen in sample.	
		4.5 @6.0'				
		10.1 @8.0'				
-10						

Soil Boring Log
BORING NO. SB-205
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/2019 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		0.0 @1.0'			Black, GRAVEL, fine grained, rounded, well sorted, trace silt, no odor, no staining, moist, mottled, asphalt.	
					Tan gray, SAND, medium to coarse grained, angular, with gravel, no odor, no staining, moist.	
		0.2 @4.0'				
-5					Brown, SAND, medium to coarse grained, trace gravel, no odor, no staining, wet.	
		0.1 @6.0'				
		0.0 @8.0'				
-10						

Soil Boring Log
BORING NO. SB-206
12 Keith Ave, Barre, Vermont

DATE DRILLED: 03/29/2019 DRILLING METHOD: Direct Push - Macro Core
DRILLER: Absolute Spill Response LOGGED BY: B. Diezel
DRILLING CONTRACTOR: Absolute Spill Response
COMMENT:

SOURCE: Field boring log
LOG PREPARED BY: D. Curran 04/15/19
O:\PROJ-14\I&R\14-021 Barre VT 12 Keith Ave\Data\Boring Logs\143-159 North Main Street

STONE ENVIRONMENTAL

DEPTH (Feet)	WELL CONSTRUCTION *AND BACKFILL MATERIAL*	PID (ppm v/v)	SAMPLE INTERVAL	RECOVERY	SOIL DESCRIPTION / LITHOLOGY	USCS
0		0.1 @2.0'			Dark brown, GRAVEL, fine grained, rounded, well sorted, with sand, no odor, no staining, moist, asphalt at 2.5'.	
-5		0.0 @4.0'			Tan and black, SAND, medium to coarse grained, trace gravel, trace silt, wet.	
		0.0 @6.0'				
		0.0 @8.0'				
-10						