

**REMOVAL PROGRAM  
PRELIMINARY ASSESSMENT/  
SITE INVESTIGATION REPORT  
FOR THE  
PROVIDENCE BARREL SITE  
SMITHFIELD, PROVIDENCE COUNTY, RHODE ISLAND  
30 JULY 2020, 17 NOVEMBER 2020,  
9 THROUGH 10 DECEMBER 2020, 23 MARCH 2021,  
AND 5 THROUGH 8 APRIL 2021**

Prepared For:

U.S. Environmental Protection Agency  
Region I  
Superfund and Emergency Management Division  
5 Post Office Square, Suite 100  
Boston, Massachusetts 02109-3912

CONTRACT NO. 68HE0120D0001

TO/AD NO.: TOFP-01-20-07-0048

TASK NO.: 0048

DC NO.: R-50182

Submitted By:

Weston Solutions, Inc.  
Region I  
Superfund Technical Assessment and Response Team  
101 Billerica Avenue, Building 5, Suite 103  
North Billerica, Massachusetts 01862

June 2021

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## I. Preliminary Assessment/Site Investigation Forms



**EPA REGION I  
REMOVAL PRELIMINARY ASSESSMENT**

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**Site Name and Location**

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**Name:** Providence Barrel                      **Location:** 7 Oak Street  
**Town:** Smithfield                      **County:** Providence                      **State:** Rhode Island

**Site Status:**    ☐ **NPL**                      ☒ **NON-NPL**                      ☐ **RCRA**                      ☐ **TSCA**  
                         ☐ **ACTIVE**                      ☒ **ABANDONED**                      ☐ **OTHER**

☐ **Attached USGS Map of Location**                      ☒ **Site I.D. No.:** 01EO

**Latitude:** 41° 52' 33.4" North                      **Longitude:** 71° 30' 11.2" West

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**Referral**

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☐ **Citizen**                      ☐ **City/Town**                      ☒ **State**                      ☐ **Preremedial**                      ☐ **RCRA**  
☐ **Other:**

**Name of referring party:** Jeff Crawford, Rhode Island Department of Environmental Management (RIDEM)

**Address:** 235 Promenade Street  
Providence, RI

**Telephone:** (401) 222-4700

**Contacts Identified**

1) Kirsten Bailey

**Telephone:** (401) 222-4700

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**Source of Information**

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☐ **Verbal:**

☒ **Report:** *Site Investigation Report.* GZA GeoEnvironmental, Inc. August 2013.  
*Memorandum to the Providence Barrel Site File regarding Residential Sampling Activities.* Weston Solutions, Inc. 10 April 2008.  
*Removal Program After Action Report for the Providence Barrel Site, Smithfield, Providence County, Rhode Island.* Weston Solutions, Inc. November 2009.

☐ **Other:**

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**Potential Responsible Parties**

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**Owner:** Oak Street Realty Inc./ Town of Smithfield

**Telephone:**

**Address:**

**Operator:** Town of Smithfield, Kevin Cleary

**Telephone:** 401-233-1041

**Address:**

## REMOVAL PRELIMINARY ASSESSMENT

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### Site Access

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**Authorizing Person:** Randy Rossi, Town Manager

**Date:** June 23, 2020                      **(X) Obtained**                      **( ) Verbal**

**Telephone:** (401) 233-1010                      **( ) Not Obtained**                      **( ) Written**

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### Historical Preservation

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**( ) Site is Historically Significant or Eligible for Historic Preservation**

#### Contacts Identified

**1) State Historical Preservation Officer (SHPO)**

**Name:** J. Paul Loethe

**Telephone:** (401) 222-4130

**2) Tribal Historical Preservation Officer (THPO)**

**Name:** John Brown

**Telephone:** (401) 491-9459

**Comments:**

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### Physical Site Characterization

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**Background Information:**

The Providence Barrel Site (the Site) is located at 7 Oak Street in Smithfield, Providence County, Rhode Island at 41° 52' 33.4" North latitude and 71° 30' 11.2" West longitude. The Site is an approximately 0.89-acre parcel identified by Town of Smithfield Assessor's Office as Parcel ID 25-066B. The Site is bordered to the north and west by residential properties; to the east by Oak Street and residential properties; and to the south by residential and industrial properties. Residential properties on Oak Street, Maple Avenue, and Esmond Street are also considered to be part of the Site for investigation purposes. One parcel on Esmond Street extends from Esmond Street to Oak Street, abutting the northern border of the Site property.

The Site was unimproved prior to 1950. A single-story structure was located in the northeastern portion of the property from 1950 to 1984, when it was demolished by the Town of Smithfield. A soda bottling company operated at the property prior to 1972. From 1972 through 1979, Providence Barrel (a barrel storage and reclamation facility) operated on the property. From 1985 through 1986, the property was used by Gilbert Electric Company for storage of old gasoline pumps and assorted equipment. The property currently consists of a vacant lot containing the remains of the raised slab foundation of the building constructed in 1950, and is owned by Oak Street Realty Trust, who obtained the property on 2 December 1996. However, the Town of Smithfield has taken ownership due to non-payment of property taxes.

On 11 January 1991, on behalf of the U.S. Environmental Protection Agency (EPA), a Screening Site Inspection (SSI) was finalized by NUS Corporation Field Investigation Team (NUS/FIT), which identified chlorinated-solvent contamination of groundwater down-gradient or cross-gradient of the Site.

## REMOVAL PRELIMINARY ASSESSMENT

On 19 October 2004, as part of an Expanded Site Inspection (ESI), RIDEM collected 11 surface soil/source samples and 10 subsurface soil/source samples. Analytical results of the soil samples indicated the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyl (PCBs), and metals.

In November 2004, as part of the ESI, the Rhode Island Department of Environmental Management (RIDEM) collected five groundwater samples from four on-site small-diameter driven wells (SDDWs). Analytical results of the groundwater samples collected from the property indicated the presence of one VOC [trichloroethylene (TCE)] and five metals (aluminum, iron, lead, thallium, and zinc) above reference criteria.

In September 2005, Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START) conducted a reconnaissance of the Site. START personnel observed an area containing stressed vegetation on the southern border of the property, and a relatively small area (approximately 3 feet by 3 feet) of stained soil located on the southeastern corner of the property.

In October 2005, EPA and their contractors excavated five test pits on the Providence Barrel property, and collected six subsurface soil samples for VOC, SVOC, and metals analyses. START personnel also collected 13 surface soil samples and 23 subsurface soil samples from locations throughout the Site. Analytical results indicated the presence of three SVOCs [benzo(a)anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene] and two metals (arsenic and lead) at concentrations exceeding the RIDEM Industrial/Commercial Direct Exposure Criteria (RI I/C-DEC).

**Description of Substances Possibly Present, Known or Alleged:** Chlorinated volatile organic compounds (CVOCs) may still be present in groundwater and subsurface soil.

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### Existing Analytical Data

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#### **( ) Real-Time Monitoring Data:**

#### **(X) Sampling Data:**

In December 2007, START mobilized to the Site to conduct soil gas and subsurface soil sampling activities at residential properties surrounding the Site. START collected soil gas from residential properties, and subsurface soil samples from throughout the southern portion of the Esmond Street Property. Soil gas and soil samples were field screened for VOCs [tetrachloroethylene (PCE) and TCE] by the EPA mobile laboratory. Analytical results of the samples indicated the presence of TCE up to 181 parts per billion per volume (ppb/v) and PCE up to 81 ppb/v in soil gas, and the presence of TCE [38 micrograms per kilogram ( $\mu\text{g/kg}$ )] and PCE (301  $\mu\text{g/kg}$ ) in soil. Analytical results of the soil samples indicated lead and arsenic at concentrations exceeding the RIDEM Direct Exposure Criteria for Residential Soils (RI DEC-R) [maximum concentrations of 350 milligrams per kilogram (mg/kg) and 28 mg/kg, respectively].

In May 2008, additional soil gas and indoor air sampling was conducted at residential properties in vicinity of the Site. PCE and TCE were detected in the indoor air samples collected in the basements of three residences. An Agency for Toxic Substances and Disease Registry (ATSDR) consultation concluded that the results were below their minimum risk levels.

## REMOVAL PRELIMINARY ASSESSMENT

In 2013, GZA GeoEnvironmental, Inc. (GZA) completed a Site Investigation Report on behalf of RIDEM. Investigation activities included subsurface soil sampling, groundwater sampling, and soil gas sampling.

GZA conducted 15 soil test borings, and collected 22 soil samples from beneath the existing concrete slab on the Site and from the former pit area. Five samples were analyzed for VOCs, SVOCs, Total Petroleum Hydrocarbons (TPH), PCBs, cyanide, and metals. The remaining samples were analyzed for VOCs only. No RI R-DEC exceedances were noted. Each of the soil samples with elevated PCE and TCE concentrations were collected from beneath the existing concrete floor slab of the former garage building.

Four soil gas samples were collected from beneath the existing concrete slab. A total of 18 VOCs were detected in the soil gas samples. Results were compared to Connecticut Volatilization Criteria for Soil Vapor, Massachusetts Residential Sub-Slab Soil Gas Screening Values, and EPA's Target Groundwater Concentrations for Scenario Specific Vapor Attenuation Factors, for comparison only. Exceedances of the EPA and/or Massachusetts soil vapor criteria were observed for several compounds, including PCE and TCE, which indicates some potential for vapor intrusion risk if a building were to be constructed in the area of the former slab, and if no mitigation measures were taken.

Two rounds of groundwater samples were collected from three existing monitoring wells, as well as seven newly installed monitoring wells. Analytical results indicated elevated concentrations of TCE in all groundwater samples collected, ranging from 8 to 270 µg/L. Higher TCE concentrations were observed on the southern and western portions of the Site, although no distinct source area was identified. The only other constituents detected in groundwater were PCE (five wells) and cis-1,2-dichloroethene (one well).

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### Potential Threat

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Description of potential hazards to environment and/or population-identify any of the criteria for a Removal Action (from NCP) that may be met by the Site under 40 CFR 300.415 [b] [2].

- i. **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.**
- ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.
- iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.
- iv. **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.**
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vi. Threat of fire or explosion.

## REMOVAL PRELIMINARY ASSESSMENT

- vii. **The availability of other appropriate federal or state response mechanisms to respond to the release.**
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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### Prior Response Activities

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☐ PRP                      ☐ STATE              ☒ FEDERAL              ☐ OTHER

**Brief Description:**

In 2008, EPA conducted a Time-Critical Removal Action at the Site. The purpose of conducting the removal action was to reduce the potential for exposure to VOC- and lead-contaminated soil at the Site, and to address lead contamination in soil at several residential properties in close proximity to the Site. The removal action was conducted in coordination with RIDEM. RIDEM assisted with the application of soil standards and indoor air guidance values, and provided site background information, obtained property access, supported community outreach efforts, and contributed to press releases.

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### Priority for Site Investigation

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☒ High                      ☐ Medium                      Low ☐                      None ☐

**Comments:**

Investigation activities at a nearby industrial property indicate that significant CVOC groundwater contamination remains at the Site which may be impacting adjacent residences.

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### Report Generation

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<b>Originator:</b>	Chris Dupree	<b>Date:</b>	20 April 2021
<b>Affiliation:</b>	Weston Solutions, Inc. (START)	<b>Telephone:</b>	(978) 552-2104
<b>Contract No.</b>	68HE0120D0001	<b>Contract Name:</b>	START V
<b>AD No.:</b>	TOFP-01-20-07-0048	<b>Task No.:</b>	0048



**EPA REGION I  
REMOVAL SITE INVESTIGATION**

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**Inspection Information**

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**Site Name:** Providence Barrel                      **Address:** 7 Oak Street  
**Town:** Smithfield                      **County:** Providence                      **State:** Rhode Island  
**Date of Inspection:** 30 July 2020                      **Time of Inspection:** 1000 hours (hrs)  
**Weather Conditions:** 90° Fahrenheit (F), Cloudy  
**Date of Inspection:** 17 November 2020                      **Time of Inspection:** 0900 hrs  
**Weather Conditions:** 48° F, Cloudy  
**Date of Inspection:** 9-10 December 2020                      **Time of Inspection:** 0900 hrs  
**Weather Conditions:** 38° F, Cloudy/Overcast  
**Date of Inspection:** 23 March 2021                      **Time of Inspection:** 1000 hrs  
**Weather Conditions:** 64° F, Overcast  
**Date of Inspection:** 5-8 April 2021                      **Time of Inspection:** 0730 - 1700 hrs  
**Weather Conditions:** 63-68° F, Cloudy, Some sun  
**Site Status at Time of Inspection:**                      ( ) ACTIVE                      (X) INACTIVE  
**Comments:**

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**Agencies/Personnel Performing Inspection**

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	<u><b>Names</b></u>	<u><b>Program</b></u>
(X) EPA:	Alex Sherrin	U.S. Environmental Protection Agency (EPA) Region I, Emergency Planning and Response Branch (EPRB), On-Scene Coordinator (OSC)
(X) EPA NERL:	William Sommers Michele Coombs Jerome Keefe Scott Clifford	EPA New England Regional Laboratory Personnel for Geoprobe operation and Mobile Laboratory chemistry
(X) EPA Contractor:	Eric Ackerman John Burton Chris Dupree Jacques Elias John Kelly Gabriel Yerdon	Weston Solutions, Inc. (WESTON), Superfund Technical Assessment and Response Team V (START)
(X) State:	Jeff Crawford Kirsten Bailey	Rhode Island Department of Environmental Management (RIDEM)

## REMOVAL SITE INVESTIGATION

### Current Owner Based on Field Interview:

#### Physical Site Characteristics

<u>Parameter</u>	<u>Quantities/Extent</u>
( ) Cylinders:	
(X) Drums:	Drum lid found in southern portion of the Site in the suspected former Disposal Pit area during Geoprobe soil sampling activities (April 2021).
(X) Lagoons:	Former (filled in) Disposal pit was located in the southern portion of the Site per historical documents.
( ) Tanks:	( ) Above:
	( ) Below:
( ) Asbestos:	
( ) Piles:	
(X) Stained Soil:	Yellow-stained soil was observed in the southern portion of the Site during Geoprobe soil sampling activities (April 2021).
( ) Sheens:	
( ) Stressed Vegetation:	
( ) Landfill:	
(X) Population in Vicinity:	Several residences abut the site to the west, north, and east. Residences are supplied with municipal water, but may be affected by vapor intrusion from Site contamination.
(X) Wells:	( ) Drinking:
	(X) Monitoring:
	Approximately 10 groundwater monitoring wells are located on the southern Site parcel. One monitoring well (GZ-6) is located on the existing slab.
( ) Other:	

#### Physical Site Observations

##### Comments:

The majority of the Site is grass vegetation with larger trees around the southern border and southeast corner. The southern and eastern walls of the existing slab are edged by trees and shrubs. Smaller trees and shrubs are sparsely located throughout the Site. The Site is used by nearby residents to walk their dogs, leashed and unleashed. The southern portion of the Site abuts the base of a steep slope.

#### Field Sampling and Analysis

<u>Matrix</u>	<u>CGI/O<sub>2</sub> (%)</u>	<u>RAD (μR/hr)</u>	<u>PID (ppm)</u>	<u>Other</u>
Background:	0/20.9	12-15	0	
Air:	0/20.9	12-15	0	

## REMOVAL SITE INVESTIGATION

<b>Matrix</b>	<b>CGI/O<sub>2</sub> (%)</b>	<b>RAD (μR/hr)</b>	<b>PID (ppm)</b>	<b>Other</b>
<b>Soil:</b>	0/20.9	12-15	67.2 (SB-24)	
<b>Surface Water:</b>				
<b>Tanks:</b>				
<b>Drums:</b>				
<b>Vats:</b>				
<b>Lagoons:</b>				
<b>Spillage:</b>				
<b>Run Off:</b>				
<b>Piles:</b>				
<b>Sediments:</b>				
<b>Groundwater:</b>				
<b>Other:</b>				

CGI/O<sub>2</sub> (%) = Combustible Gas Indicator/Oxygen (percentage)  
 PID = PhotoIonization Detector (parts per million)

RAD (μR/hr) = Radiation (microRoentgens per hour)  
 FID (ppm) = Flame Ionization Detector (parts per million)

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### Field Quality Control Procedures

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#### (X) SOP Followed

#### ( ) Deviation from SOP

##### Comments:

Sampling was conducted according to the site Sampling and Analysis Plan (SAP), prepared as a separate document entitled *Sampling and Analysis Plan for the Providence Barrel Site, Smithfield, Providence County, Rhode Island*, dated March 2021.

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### Description of Sampling Conducted

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#### November 2020

On 17 November 2020, EPA OSC Sherrin and START personnel Eric Ackerman, Chris Dupree, and Jacques Elias mobilized to the Site to conduct soil gas sampling activities. EPA and START personnel determined soil gas sampling locations. START advanced temporary soil gas sampling stations at five locations on the slab, 17 locations throughout the Site, and eight locations north of the slab using the Geoprobe® Post-run Tubing (PRT) system. Geoprobe rods were advanced approximately 2 feet below ground surface (bgs) using a manual slide hammer, then tubing was connected to the tip of the rod interior. The tubing was then connected to a MultiRAE instrument, and maximum VOC readings were recorded (maximum reading of 29.9 ppm at location SG-10). At the discretion of OSC Sherrin, soil gas samples were collected in SUMMA canisters from selected locations. A total of 14 soil gas samples, including one duplicate, and one ambient background sample were submitted in 6-Liter SUMMA canisters to the EPA New England Regional Laboratory (NERL) for Volatile Organic Compound (VOC) analysis.

#### December 2020

On 9 and 10 December 2020, EPA OSC Sherrin and START personnel Eric Ackerman, John Burton, and Jacques Elias mobilized to the Site to conduct soil gas sampling and subsurface soil sampling activities. START advanced three locations (PBSG-01 through PBSG-03) northwest of

## REMOVAL SITE INVESTIGATION

the existing slab, and 13 locations (PBSG-100 through PBSG-112) in the southern portion of the Site.

In the northern portion of the Site (part of a property on Esmond Street that extends west to Oak Street), START personnel advanced sampling equipment and conducted soil gas screening and/or sampling collection from five locations (PBSG-04 through PBSG-08) along the northwest Site boundary; six locations (PBSGFL-01 through PBSGFL-06) along the northeastern fence line; and eight locations (PBSG-09 through PBSG-16) throughout the northern portion of the Site.

START personnel also conducted subsurface soil sampling using Geoprobe Macrocore equipment. Soil boring SB-01 was advanced to 2 feet bgs, and samples were collected from four intervals. Soil boring SB-02 was advanced to 3.5 feet bgs, and samples were collected from five intervals. Soil samples were collected for VOC, percent solid, polycyclic aromatic hydrocarbon (PAH) (a subset of SVOCs), and Oil ID analyses.

A total of 16 soil gas samples, including one duplicate, and one background/ambient sample were collected in 6-Liter SUMMA canisters and submitted to NERL for VOC analysis. A total of 11 soil samples, including one duplicate sample for each analysis, were submitted to NERL for VOC, percent solids, PAH, and Oil ID analyses.

### **April 2021**

On 5 through 8 April 2021, EPA OSC Sherrin; NERL Geoprobe Team William Sommer, Michele Coombs, and Jerome Keefe; NERL Field Chemist Scott Clifford; and START personnel Chris Dupree and Gabriel Yerdon mobilized to the Site to conduct soil boring and sampling activities. EPA and START personnel identified sampling locations on the existing slab located in the northwest corner of the Site, and in the suspected former disposal pit area in the southeast portion of the Site.

The Geoprobe team advanced Geoprobe Macrocores using the track-mounted Geoprobe, and advanced locations SB-10 through SB-16, SB-31, and SB-32 on the slab. Boring locations SB-17 through SB-30 were advanced in the southeast portion of the property. Each boring location was advanced to a maximum depth of 20 feet bgs in 4-foot increments (cores), and each core was handed off to START for screening and sampling. START opened each core and conducted MultiRAE screening, collected up to two samples for VOC field screening, and conducted soil classification of the soil within the core. Aliquots of soil were also collected for percent solids analysis for confirmatory selection. A total of 172 VOC samples, including nine duplicates, were collected in 40-milliliter (mL) vials with 10 mL methanol preservative, and handed off to the NERL Mobile Lab for field screening.

At the completion of field screening, the EPA Field Chemist selected 17 samples, including two duplicates, for VOC confirmatory analysis, and aliquots for percent solids analysis were prepared by START. In addition, nine samples were submitted for PAH analysis, and two samples were submitted for Oil ID analysis. Samples were relinquished to the Mobile Laboratory for delivery to NERL.

## REMOVAL SITE INVESTIGATION

Boring location SB-24 contained a significant layer of debris, and high PID readings were observed. Further investigation of the location yielded a drum lid, yellow-stained soil, and debris (rubber tire, leather boot, glass, etc.). Refusal was encountered at 8 feet bgs at location SB-24; a second attempt in the immediate vicinity encountered refusal at 1 foot bgs (SB-N24). Location SB-25 was then advanced northwest of SB-24. Debris and elevated PID readings were observed in SB-N24, SB-25, and SB-26. Elevated PID readings were also observed in SB-18, SB-28, and SB-29.

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### Analyses

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Analytical Parameter	Media	Laboratory
<input checked="" type="checkbox"/> VOC	<input type="checkbox"/> AIR	<input checked="" type="checkbox"/> NERL
<input type="checkbox"/> PCB	<input type="checkbox"/> WATER	<input type="checkbox"/> CLP
<input type="checkbox"/> PESTICIDE	<input checked="" type="checkbox"/> SOIL	<input type="checkbox"/> PRIVATE
<input type="checkbox"/> METALS	<input type="checkbox"/> SOURCE	<input type="checkbox"/> DAS
<input type="checkbox"/> CYANIDE	<input type="checkbox"/> SEDIMENT	<input type="checkbox"/> SOW
<input checked="" type="checkbox"/> SVOC	<input type="checkbox"/> SOIL GAS	<input checked="" type="checkbox"/> FIELD
<input type="checkbox"/> TOXICITY		
<input type="checkbox"/> DIOXIN		
<input type="checkbox"/> ASBESTOS		
<input checked="" type="checkbox"/> OTHER		
(percent solids, Oil ID)		

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### Receptors

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		<u>Comments</u>
<input type="checkbox"/> Drinking Water:	<input type="checkbox"/> Private:	
	<input type="checkbox"/> Municipal:	
<input checked="" type="checkbox"/> Groundwater:		Potential groundwater contamination was initially reported based on results during a pre-sale Environmental Site Assessment (ESA) at a nearby industrial property. Groundwater is approximately 20 feet bgs.
<input checked="" type="checkbox"/> Unrestricted Access:		The majority of the Site is not fenced, and access is not restricted. Nearby residents use the property to walk their dogs.
<input checked="" type="checkbox"/> Population in Proximity:		The Site is surrounded by residential properties to the north, west, and east.
<input type="checkbox"/> Sensitive Ecosystem:		
<input type="checkbox"/> Other:		

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### Additional Procedures for Site Determination

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<input type="checkbox"/> Biological Evaluation	<input type="checkbox"/> ATSDR	<input checked="" type="checkbox"/> None
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## REMOVAL SITE INVESTIGATION

To be determined by the On-Scene Coordinator (OSC).

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### Site Determination

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Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

- i. **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.**
- ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.
- iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.
- iv. **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.**
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vi. Threat of fire or explosion.
- vii. **The availability of other appropriate federal or state response mechanisms to respond to the release.**
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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### Report Generation

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<b>Originator:</b>	Chris Dupree	<b>Date:</b>	21 April 2021
<b>Affiliation:</b>	Weston Solutions, Inc. (START)	<b>Telephone:</b>	(978) 552-2104
<b>Contract No.</b>	68HE0120D0001	<b>Contract Name:</b>	START V
<b>AD No.:</b>	TOFP-01-20-07-0048	<b>Task No.:</b>	0048

## II. Narrative Chronology

## **Narrative Chronology**

### **Introduction**

The Providence Barrel Site (the Site) is located at 7 Oak Street in Smithfield, Providence County, Rhode Island at 41° 52' 33.4" north latitude and 71° 30' 11.2" west longitude (see Appendix A, Figure 1) [1]. The Site is an approximately 0.89-acre parcel identified by Town of Smithfield Assessor's Office as Parcel ID 25-066B. The Site is bordered to the north and west by residential properties; to the east by Oak Street and residential properties; and to the south by residential and industrial properties (see Appendix A, Figure 2) [2]. Residential properties on Oak Street, Maple Avenue, and Esmond Street are also considered to be part of the Site for investigation purposes. One parcel on Esmond Street extends from Esmond Street to Oak Street, abutting the northern border of the Site property.

The Site was unimproved prior to 1950. A single-story structure was located in the northeastern portion of the property from 1950 to 1984, when it was demolished by the Town of Smithfield. A soda bottling company operated at the property prior to 1972. From 1972 through 1979, Providence Barrel (a barrel storage and reclamation facility) operated on the property. From 1985 through 1986, the property was used by Gilbert Electric Company for storage of old gasoline pumps and assorted equipment. The property currently consists of a vacant lot, containing the remains of the raised slab foundation of the building constructed in 1950, and is owned by Oak Street Realty Trust, who obtained the property on 2 December 1996 [3]. However, the Town of Smithfield has taken ownership due to non-payment of property taxes.

On 11 January 1991, on behalf of the U.S. Environmental Protection Agency (EPA), a Screening Site Inspection (SSI) was finalized by NUS Corporation Field Investigation Team (NUS/FIT), which identified chlorinated-solvent contamination of groundwater down-gradient or cross-gradient of the Site [3].

On 19 October 2004, as part of an Expanded Site Inspection (ESI), RIDEM collected 11 surface soil/source samples and 10 subsurface soil/source samples. Analytical results of the soil samples indicated the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyl (PCBs), and metals [3].

In November 2004, as part of the ESI, the Rhode Island Department of Environmental Management (RIDEM) collected five groundwater samples from four on-site small-diameter driven wells (SDDWs). Analytical results of the groundwater samples collected from the property indicated the presence of one VOC [trichloroethylene (TCE)] and five metals (aluminum, iron, lead, thallium, and zinc) above reference criteria [4].

In September 2005, the Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START) conducted a reconnaissance of the Site. START personnel observed an area containing stressed vegetation on the southern border of the property, and a relatively small area of stained soil (approximately 3 feet by 3 feet) located on the southeastern corner of the property [4].

In October 2005, EPA and their contractors excavated five test pits on the Providence Barrel property, and collected six subsurface soil samples for VOC, SVOC, and metals analyses. START personnel also collected 13 surface soil samples and 23 subsurface soil samples from locations throughout the Site. Analytical results indicated the presence of three SVOCs [benzo(a)anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene] and two metals (arsenic and lead) at concentrations exceeding RIDEM Industrial/Commercial Direct Exposure Criteria (RI I/C-DEC) [4].

In December 2007, START mobilized to the Site to conduct soil gas and subsurface soil sampling activities at residential properties surrounding the Site. START collected soil gas from residential properties, and subsurface soil samples from throughout the southern portion of the Esmond Street property that abuts the northern border of the Site property. Soil gas and soil samples were field screened for VOCs [tetrachloroethylene (PCE) and TCE] by the EPA mobile laboratory. Analytical results of the samples indicated the presence of TCE up to 181 parts per billion per volume (ppb/v) and PCE up to 81 ppb/v in soil gas, and the presence of TCE [38 micrograms per kilogram ( $\mu\text{g/kg}$ )] and PCE (301  $\mu\text{g/kg}$ ) in soil. Analytical results of the soil samples indicated lead and arsenic at concentrations exceeding the RIDEM Direct Exposure Criteria for Residential Soils (RI DEC-R) [maximum concentrations of 350 milligrams per kilogram (mg/kg) and 28 mg/kg, respectively].

In May 2008, additional soil gas and indoor air sampling was conducted at residential properties in the vicinity of the Site [3].

In 2008, EPA conducted a Time-Critical Removal Action at the Site. The purpose of conducting the removal action was to reduce the potential for exposure to VOC- and lead-contaminated soil at the Site, and to address lead contamination in soil at several residential properties in close proximity to the Site. The removal action was conducted in coordination with the RIDEM. RIDEM assisted with the application of soil standards and indoor air guidance values, and provided Site background information, obtained property access, supported community outreach efforts, and contributed to press releases [3].

In 2013, GZA GeoEnvironmental, Inc. (GZA) completed a Site Investigation Report on behalf of RIDEM. Investigation activities included subsurface soil sampling, groundwater sampling, and soil gas sampling [4].

GZA conducted 15 soil test borings, and collected 22 soil samples from beneath the existing concrete slab on the Site and from the former pit area. Five samples were analyzed for VOCs, SVOCs, Total Petroleum Hydrocarbons (TPH), PCBs, cyanide, and metals. The remaining samples were analyzed for VOCs only. No RI R-DEC exceedances were noted. Each of the soil samples with elevated PCE and TCE concentrations were collected from beneath the existing concrete floor slab of the former garage building [4].

Four soil gas samples were collected from beneath the existing concrete slab. A total of 18 VOCs were detected in the soil gas samples. Results were compared to Connecticut Volatilization Criteria for Soil Vapor, Massachusetts Residential Sub-Slab Soil Gas Screening Values, and EPA's Target Groundwater Concentrations for Scenario Specific Vapor Attenuation Factors, for comparison only. Exceedances of the EPA and/or Massachusetts soil vapor criteria were observed

for several compounds, including PCE and TCE, which indicates some potential for vapor intrusion risk if a building were to be constructed in the area of the former slab, and if no mitigation measures were taken [4].

Two rounds of groundwater samples were collected from three existing monitoring wells, as well as seven newly installed monitoring wells. Analytical results indicated elevated concentrations of TCE in all groundwater samples collected, ranging from 8 to 270 µg/L. Higher TCE concentrations were observed on the southern and western portions of the Site, although no distinct source area was identified on Site. The only other constituents detected in groundwater were PCE (five wells) and cis-1,2-Dichloroethene (one well) [4].

In July 2020, RIDEM requested EPA assistance with evaluating potential VOC contamination that may be impacting properties in the Site vicinity. Elevated concentrations of VOCs were detected at a nearby commercial/industrial property during pre-sale Environmental Site Assessment (ESA) studies.

### **Site Activities**

On 30 July 2020, a Site walk was conducted with EPA On-Scene Coordinator (OSC) Alex Sherrin; RIDEM personnel Jeff Crawford and Kirsten Bailey; and Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START) member Chris Dupree. Personnel discussed the Site history and the ESA conducted at a nearby industrial property, and the potential for indoor air or vapor intrusion in the residential properties. RIDEM expressed concern that the contamination detected during the ESA may be migrating from the Site to the other nearby properties. EPA OSC Sherrin requested that RIDEM provide a target list of matrices (soil, groundwater, etc.), and a target list of residential properties for investigation. During the Site visit, START photodocumented Site conditions and features (see Appendix C).

Due to concerns with the COVID-19 pandemic, it was determined that no indoor air sampling would be conducted during EPA's Site investigation activities.

### **November 2020**

On 17 November 2020, EPA OSC Sherrin and START personnel Eric Ackerman, Chris Dupree, and Jacques Elias mobilized to the Site to conduct soil gas sampling activities. START personnel conducted the tailgate safety meeting and discussed Site hazards. START personnel reviewed and discussed the health and safety plan (HASP), entitled *Weston Solutions, Inc., Region I START V Health and Safety Plan (HASP) for the Providence Barrel Site*. Following the completion of the safety briefing, START prepared RAE Systems, Inc. MultiRAE multigas meter with oxygen (O<sub>2</sub>), carbon monoxide (CO), hydrogen sulfide (H<sub>2</sub>S), lower explosive limit (LEL), and VOC sensors. Readings on the two instruments were as follows: O<sub>2</sub> = 20.9%, CO = 0 parts per million (ppm), H<sub>2</sub>S = 0 ppm, LEL = 0%, and VOC = 0 ppm [6].

EPA and START personnel then determined soil gas sampling locations, and prepared sampling materials. START advanced temporary soil gas sampling stations using the Geoprobe® Post-run Tubing (PRT) system. Using a manual slide-hammer, a 1.25-inch rod with a point holder and

expendable drive point was advanced to approximately 2.5 feet below ground surface (bgs), then withdrawn approximately 6 inches (rod end at 2 feet bgs). The expendable point was then removed from the holder by tapping it with a thin rod inserted in the probe rod. Tubing connected to a reverse-thread adapter was fed into the probe rod and threaded into the point holder at the bottom of the probe rod. The tubing was then connected to the MultiRAE instrument, and maximum VOC readings were recorded. At the discretion of OSC Sherrin, soil gas samples were collected in SUMMA canisters from selected locations. When sampling occurred, the tubing was purged for a minimum of 1 minute using the MultiRAE prior to sampling. SUMMA canisters were then submitted to the EPA New England Regional Laboratory (NERL) for VOC analysis.

START advanced the PRT system and conducted screening with the PID at a total of 30 soil gas locations (see Appendix A, Figure 3). Screenings for five soil gas locations (SG-16 through SG-20) were collected from beneath the existing concrete slab. START personnel bored a hole through the slab using a powered rotary hammer prior to advancing the PRT rod into the ground.

SUMMA canisters were collected from locations SG-01, SG-08, SG-10 and SG-11, SG-16 through SG-21, and SG-28 through SG-30. In addition, a background (field blank) sample was collected from the ambient air (AMB-01), and one duplicate sample was collected (SG-107, duplicate of SG-17).

All sampling locations were documented using a Global Positioning System (GPS) instrument. Sampling activities were performed in accordance with the Site Sampling and Analysis Plan (SAP), which has been prepared as a separate document, entitled *Sampling and Analysis Plan for the Providence Barrel Site, Smithfield, Providence County, Rhode Island* [7]. All samples were documented in a SCRIBE-generated Chain-of-Custody form (COC) (see Appendix D).

## **December 2020**

On 9 December 2020, EPA OSC Sherrin and START personnel Ackerman, Elias, and John Burton mobilized to the Site to conduct soil gas sampling activities. START personnel conducted the tailgate safety meeting and discussed Site hazards. START personnel reviewed and discussed the HASP, entitled *Weston Solutions, Inc., Region I START V Health and Safety Plan (HASP) for the Providence Barrel Site*. Following the completion of the safety briefing, START prepared RAE Systems, Inc. MultiRAE multigas meter with O<sub>2</sub>, CO, H<sub>2</sub>S, LEL, and VOC sensors. Readings on the two instruments were as follows: O<sub>2</sub> = 20.9%, CO = 0 ppm, H<sub>2</sub>S = 0 ppm, LEL = 0%, and VOC = 0 ppm.

EPA and START personnel identified sampling locations and began advancing Geoprobe PRT rods into the ground for soil gas sampling. START advanced three locations (PBSG-01 through PBSG-03) northwest of the existing slab, then moved to the southern portion of the Site to advance 10 locations (PBSG-100 through PBSG-109) (refusal was encountered at PBSG-103). Field personnel proceeded to the north portion of the Site, and advanced PBSG-04 through PBSG-08 along the northwest property boundary (see Appendix A, Figure 4A). Each location was screened with the MultiRAE instrument, and maximum VOC readings were recorded. At the direction of the OSC, soil gas samples from selected locations were collected in 6-Liter SUMMA canisters for VOC analysis.

Sampling activities were performed in accordance with the revised Site SAP, which has been prepared as a separate document, entitled *Sampling and Analysis Plan for the Providence Barrel Site, Smithfield, Providence County, Rhode Island* [8].

On 10 December 2020, EPA and START personnel returned to the Site to resume sampling activities. Personnel advanced six soil gas locations along the northeastern fence line (PBSGFL-01 through PBSGFL-06), and eight locations throughout the northern portion of the Site (PBSG-09 through PBSG-16). START then returned to sample location PBSG-103, where refusal was previously encountered. In addition, the PRT system was advanced at one location (PBSG-110) west of the previous southern locations.

START personnel then conducted subsurface soil sampling using Geoprobe Macrocore equipment (see Appendix A, Figure 4B). Soil boring SB-01 was advanced to 2 feet bgs, and samples were collected from four intervals. Soil boring SB-02 was advanced to 3.5 feet bgs, and samples were collected from five intervals. Soil samples were collected for VOC, percent solid, polycyclic aromatic hydrocarbon (PAH) (a subset of SVOCs), and Oil ID analyses [9]. Duplicate samples were collected from boring SB-02.

Two additional soil gas locations (PBSG-111 and PBSG-112) were then advanced with the PRT system, and screened with the MultiRAE instrument. Summa canisters were collected from both locations for laboratory analysis.

Samples were documented in SCRIBE, and COC documentation was generated (see Appendix D). START photodocumented sampling locations and Site conditions (see Appendix C). A total of 11 soil samples (including one duplicate sample for each analysis) and 16 soil gas samples (including one duplicate and one background/ambient sample) were delivered to NERL for analysis.

## **March 2021**

On 23 March 2021, EPA OSC Sherrin; NERL Geoprobe Team William Sommer and Michele Coombs; and START member Chris Dupree mobilized to the Site to conduct a Site walk. Personnel observed Site conditions and discussed proposed soil boring activities, including Site access for the Geoprobe track machine, and boring locations on the existing slab and in the suspected former disposal pit area.

## **April 2021**

On 5 April 2021, EPA OSC Sherrin; NERL Geoprobe Team Sommer, Coombs, and Jerome Keefe; NERL Mobile Chemist Scott Clifford; and START personnel Dupree and Gabriel Yerdon mobilized to the Site to conduct soil boring and sampling activities. START personnel conducted the tailgate safety meeting and discussed Site hazards, and all personnel reviewed and discussed the HASP, entitled *Weston Solutions, Inc., Region I START V Health and Safety Plan (HASP) for the Providence Barrel Site*. Following the completion of the safety briefing, the NERL Geoprobe Team prepared equipment for advancement of soil borings, and START prepared the soil classification area. START prepared a RAE Systems, Inc. MultiRAE multigas meter with O<sub>2</sub>, CO,

H<sub>2</sub>S, LEL, and VOC sensors. Readings on the instrument were as follows: O<sub>2</sub> = 20.9%, CO = 0 ppm, H<sub>2</sub>S = 0 ppm, LEL = 0%, and VOC = 0 ppm.

EPA and START personnel identified sampling locations on the existing slab located in the northwest corner of the southern property parcel. The Geoprobe team began advancing Geoprobe Macrocores using the track-mounted Geoprobe, and advanced borings at locations SB-10 through SB-13 on the slab (see Appendix A, Figure 5A). Each boring location was advanced to a maximum depth of 20 feet bgs in 4-foot increments (cores), and each core was handed off to START for screening and sampling. START opened each core and conducted MultiRAE screening, collected up to two samples for VOC field screening by the EPA NERL Mobile Laboratory, and conducted soil classification of the soil within the core (see Appendix E, Boring Logs). Aliquots of soil were also collected for percent solids analysis for confirmatory selection. VOC samples were collected by START in 40-milliliter (mL) vials with 10 mL methanol preservative, and handed off to the NERL Mobile Laboratory for field screening. All sampling was performed in accordance with the revised SAP, which has been prepared as a separate document, entitled *Sampling and Analysis Plan for the Providence Barrel Site, Smithfield, Providence County, Rhode Island* [10].

On 6 April 2021, EPA and START personnel returned to the Site to resume sampling activities. The Geoprobe team advanced borings at locations SB-14 through SB-16 on the slab. EPA and START then determined sampling locations in the presumed former disposal pit area in the southeast portion of the Site. The Geoprobe team advanced borings at locations SB-17 and SB-18 (see Appendix A, Figure 5B).

On 7 April 2021, EPA and START personnel returned to the Site to resume sampling activities. The Geoprobe team advanced borings at locations SB-19 through SB-25 in the presumed former disposal pit area in the southeast portion of the Site. Boring location SB-24 contained a significant layer of debris, and high PID readings were observed. Further investigation of the location yielded a drum lid, yellow-stained soil, and debris (rubber tire, leather boot, glass, etc.). Refusal was encountered at 8 feet bgs at location SB-24; a second attempt in the immediate vicinity encountered refusal at 1 foot bgs (SB-N24). Location SB-25 was then advanced northwest of SB-24. Debris and elevated PID readings were observed in SB-N24 and SB-25.

On 8 April 2021, EPA and START personnel returned to the Site to resume sampling activities. The Geoprobe team advanced borings at locations SB-26 through SB-30 in the presumed former disposal pit area in the southeast portion of the Site, and SB-31 and SB-32 at the western side of the slab. After discussion of the completed borings and classifications, it was determined that borings SB-27 and onward would only be advanced to 8 or 12 feet bgs; boring SB-26 was advanced to 20 feet bgs. Due to time limitations with the Mobile Lab, only one sample was collected from the 0- to- 4-foot core at locations SB-30 through SB-32, and no samples were collected from further cores at those locations. At the completion of boring activities, the NERL Geoprobe Team and OSC Sherrin departed the Site.

EPA Mobile Chemist Clifford and START member Dupree reviewed sample results for the 172 samples (including nine duplicates) and discussed selection of confirmatory samples. A total of 17 samples, including two duplicates, were selected for VOC confirmatory analysis, and aliquots for percent solids analysis were prepared. In addition, nine samples were submitted for PAH analysis,

and two samples were submitted for Oil ID analysis. START entered all samples into the SCRIBE database, and COCs were generated (see Appendix D). Samples were relinquished to the Mobile Laboratory for delivery to NERL.

### **Analytical Data Summaries**

#### **Soil Gas Samples (See Figures 6A through 6C)**

##### **November 2020**

On 24 November 2020, START received the analytical results from the November soil gas sampling event. These data are summarized in Appendix B, Table 1 [11].

A total of 22 VOCs were detected in the submitted soil gas samples. The following three VOCs were detected in one or more samples at concentrations greater than their respective EPA Vapor Intrusion Screening Level (VISL) [maximum concentration in parentheses]: 1,3-butadiene [930 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )]; TCE (1,200  $\mu\text{g}/\text{m}^3$ ); and PCE (19,000  $\mu\text{g}/\text{m}^3$ ).

##### **December 2020**

On 7 January 2021, START received the soil gas analytical results from NERL for the December sampling event. These data are summarized in Appendix B, Table 2 [12].

A total of 23 VOCs were detected in the submitted soil gas samples. One VOC (PCE) was detected at a concentration greater than the EPA VISL, at a maximum concentration of 31,000  $\mu\text{g}/\text{m}^3$  in sample PBSG-103.

#### **Soil Samples (See Figures 7A and 7B)**

##### **December 2020**

In January 2021, START received the subsurface soil analytical results from NERL for the December sampling event. These data are summarized in Appendix B, Table 3 [13-15].

A total of seven VOCs and 17 PAHs were detected in the submitted soil samples. No VOCs were detected at concentrations greater than the EPA standards or RI DEC-R values. The following three PAHs were detected in one or more samples at concentrations greater than their respective RI DEC-R values (maximum concentration in parentheses): chrysene (700  $\mu\text{g}/\text{m}^3$ ); benzo(b)fluoranthene (910  $\mu\text{g}/\text{m}^3$ ); and benzo(a)pyrene (700  $\mu\text{g}/\text{m}^3$ ).

## April 2021

### *Field Screening*

During the April 2021 soil boring sampling, the EPA NERL Mobile Laboratory conducted field screening for VOCs, including PCE and TCE. These data are summarized in Appendix B, Table 4 [16].

PCE was detected at a maximum concentration of 23,000 µg/kg, and TCE was detected at a maximum concentration of 980 µg/kg, both in sample SB-24M, collected from the debris layer of the 0- to 4-foot core. No sample concentrations exceeded the applicable standards for TCE. Two samples (SB-24M and SB-25B) showed concentrations exceeding the RI DEC-R value for PCE. In addition, several other VOCs, including 1,1,1-trichloroethane, toluene, chlorobenzene, ethylbenzene, and xylenes, were also detected in several soil samples.

### *Confirmatory Analysis*

In May 2021, START received the subsurface soil analytical results from NERL for the April sampling event. These data are summarized in Appendix B, Table 5 [17-19].

A total of 14 VOCs and 14 PAHs were detected in the soil samples submitted for analysis. The following four VOCs were detected at concentrations greater than the EPA standards or RI DEC-R values (maximum concentration in parentheses): chlorobenzene (280,000 µg/kg); PCE (73,000 µg/kg); ethylbenzene (120,000 µg/kg); and m/p xylenes (350,000 µg/kg). No PAHs were detected at concentrations above comparison values.

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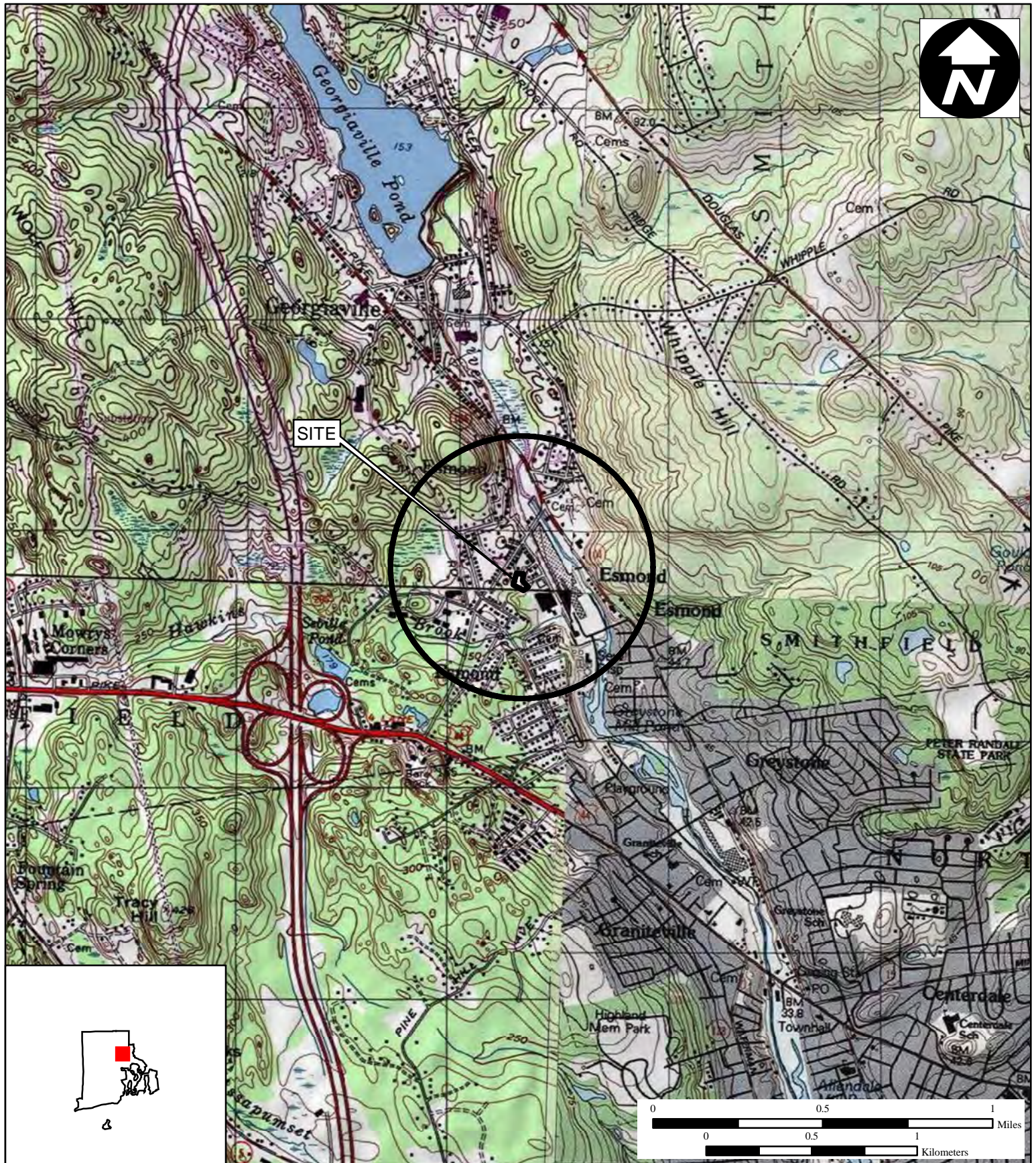
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- [19] U.S. Environmental Protection Agency. 5 May 2021. Laboratory Services and Applied Sciences Division (LSASD). Laboratory Report. Project No. 21040007. Providence Barrel - Smithfield, RI. Oil Identification.

### III. Appendices

## Appendix A

### Figures

Figure 1	-	Site Location Map
Figure 2	-	Site Diagram
Figure 3	-	Soil Gas Sample Location and Results Map – November 2020
Figure 4A	-	Soil Gas Sample Location and Results Map – December 2020
Figure 4B	-	Soil Boring Sample Location and Results Map – December 2020
Figure 5A	-	Soil Boring Sample Location and Results Map, Slab Area – April 2021
Figure 5B	-	Soil Boring Sample Location and Results Map, Southeast Area – April 2021
Figure 6A	-	PID Concentrations – Soil Gas Sampling
Figure 6B	-	BTEX Concentrations – Soil Gas Sampling, SUMMA
Figure 6C	-	PCE Concentrations – Soil Gas Sampling, SUMMA
Figure 7A	-	Maximum PCE Concentrations – Soil Samples
Figure 7B	-	Maximum BTEX Concentrations – Soil Samples



**Figure 1**

**Site Location Map**

**Providence Barrel Site  
Oak Street  
Smithfield, Rhode Island**

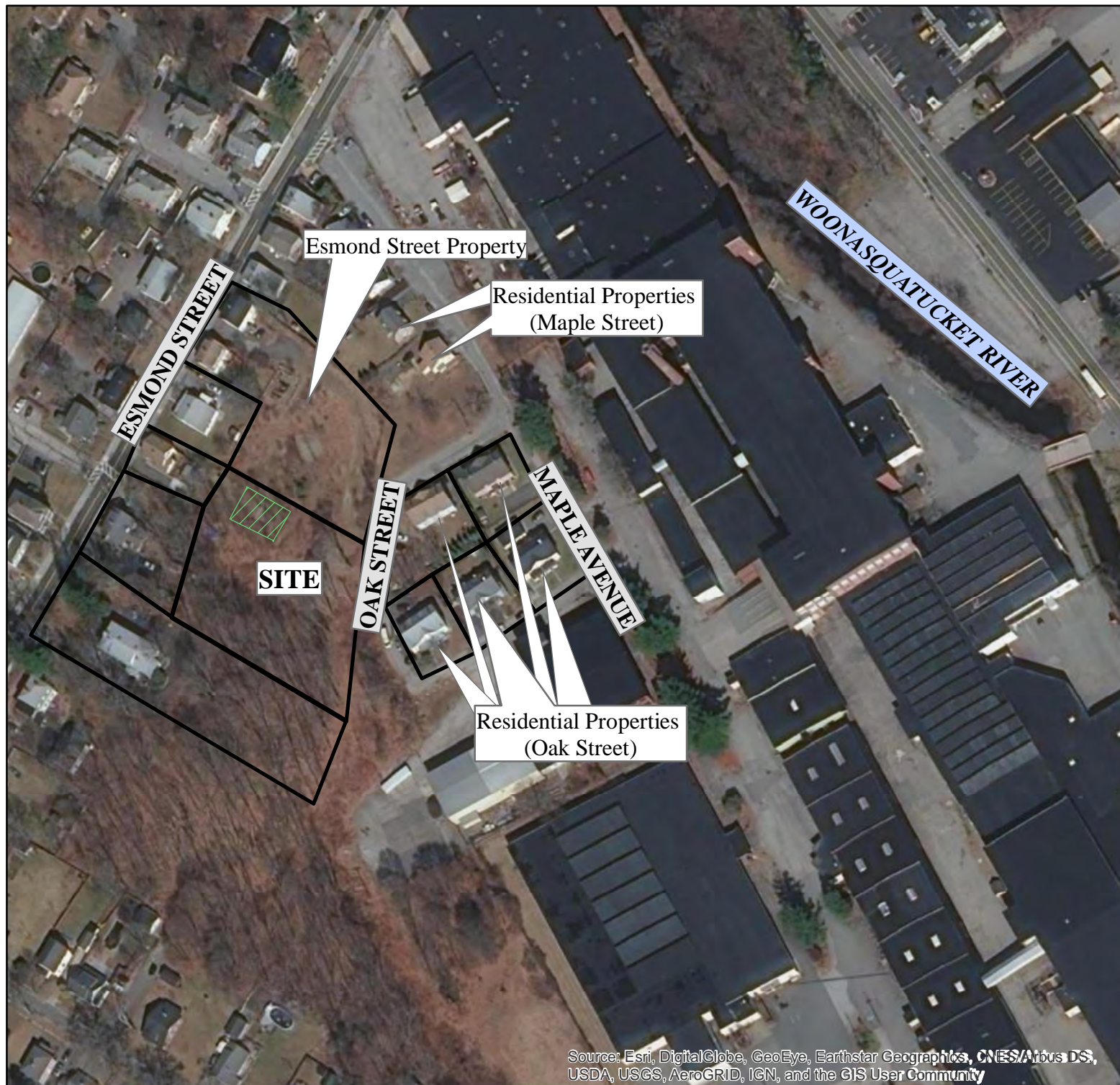
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Superfund Technical Assessment and  
Response Team (START) V  
Contract No. 68HE0120D0001**

AD Number: TOFP-01-20-07-0048  
Created by: C. Dupree  
Created on: 20 November 2020  
Modified by: C. Dupree  
Modified on: 14 May 2021

**Data Sources:**

Topos: MicroPath/USGS/USA Topo Maps  
Quadrangle Name(s):  
All other data: START







**Figure 2**

**Site Diagram**


**Providence Barrel  
Oak Street  
Smithfield, Rhode Island**

**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) V  
Contract No. 68HE0120D0001  
AD Number: TOFP-01-20-07-0048  
Created by: C. Dupree  
Created on: 6 November 2020  
Modified by: C. Dupree  
Modified on: 14 June 2021**

**LEGEND**

-  Property Boundaries
-  Former Building Foundation (Slab)

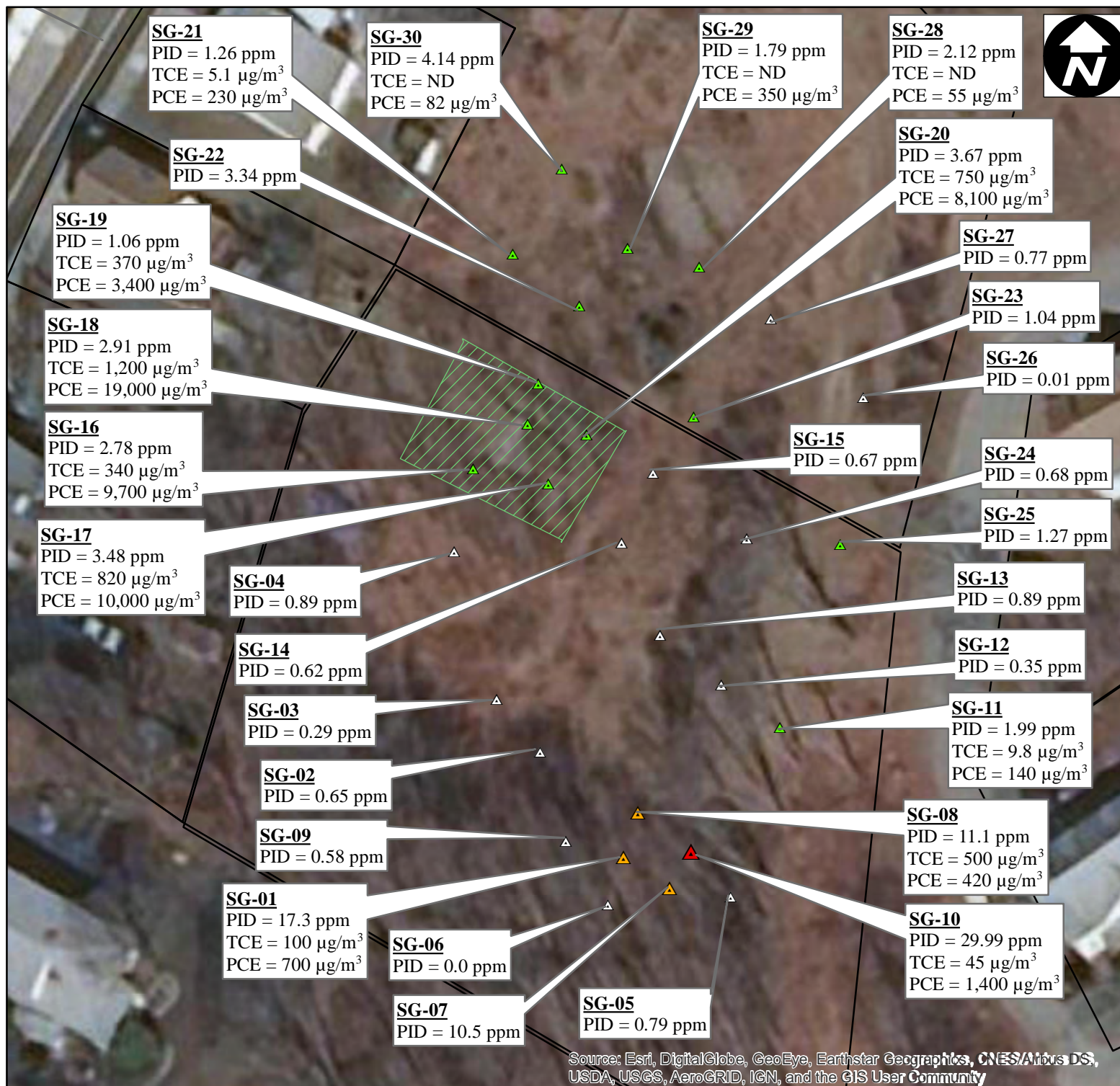


0 25 50 100 150  
 Feet

**Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS  
 AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 3**  
**Soil Gas Sample Location and Results Map - November 2020**

**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number:** TOFP-01-20-07-0048  
**Created by:** C. Dupree  
**Created on:** 6 November 2020  
**Modified by:** C. Dupree  
**Modified on:** 13 May 2021

### **LEGEND**

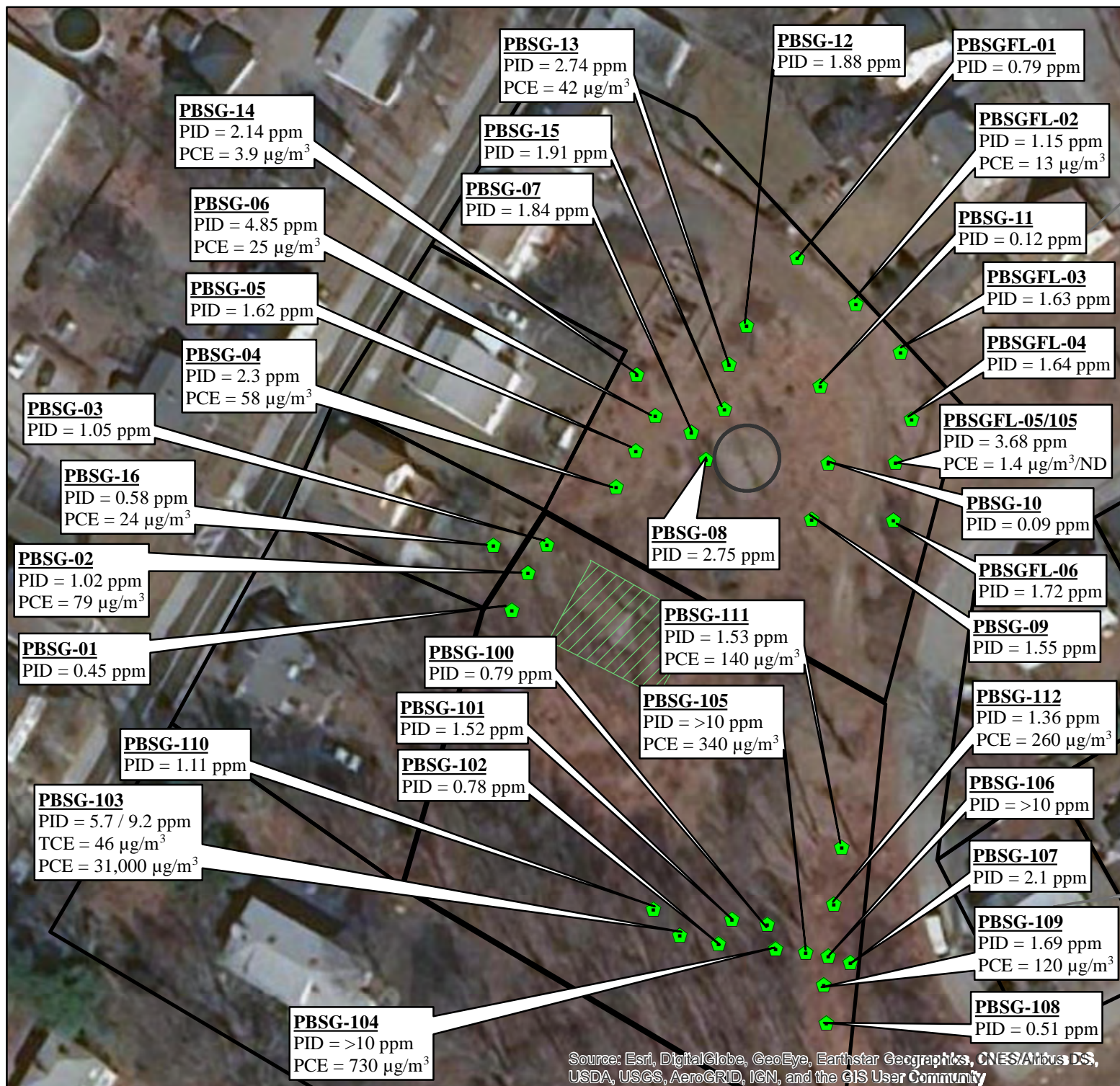
△ < 1 ppm  
 ▲ < 5 ppm  
 ▲ > 10 ppm  
 ▲ > 20 ppm  
 □ Property Boundaries  
 ▨ Former Building Foundation (Slab)

PID = Photoionization detector  
 ppm = parts per million  
 ND = Not Detected  
 TCE = Trichloroethylene  
 PCE = Tetrachloroethylene  
 $\mu\text{g}/\text{m}^3$  = Micrograms per cubic meter  
 EPA Vapor Intrusion Screening Level (VISL) for Soil Gas, PCE = 4,170  $\mu\text{g}/\text{m}^3$   
 TCE = 209  $\mu\text{g}/\text{m}^3$

### **Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 4A**  
**Soil Gas Sample Location and**  
**Results Map - December 2020**

**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 26 May 2021**

### LEGEND

- Soil Gas Sample
- Site Boundary
- Former Building Foundation (Slab)

PID = Photoionization detector  
 ppm = parts per million  
 TCE = Trichloroethylene  
 PCE = Tetrachloroethylene  
 $\mu\text{g}/\text{m}^3$  = Micrograms per cubic meter  
 > = greater than

Drainage Swale

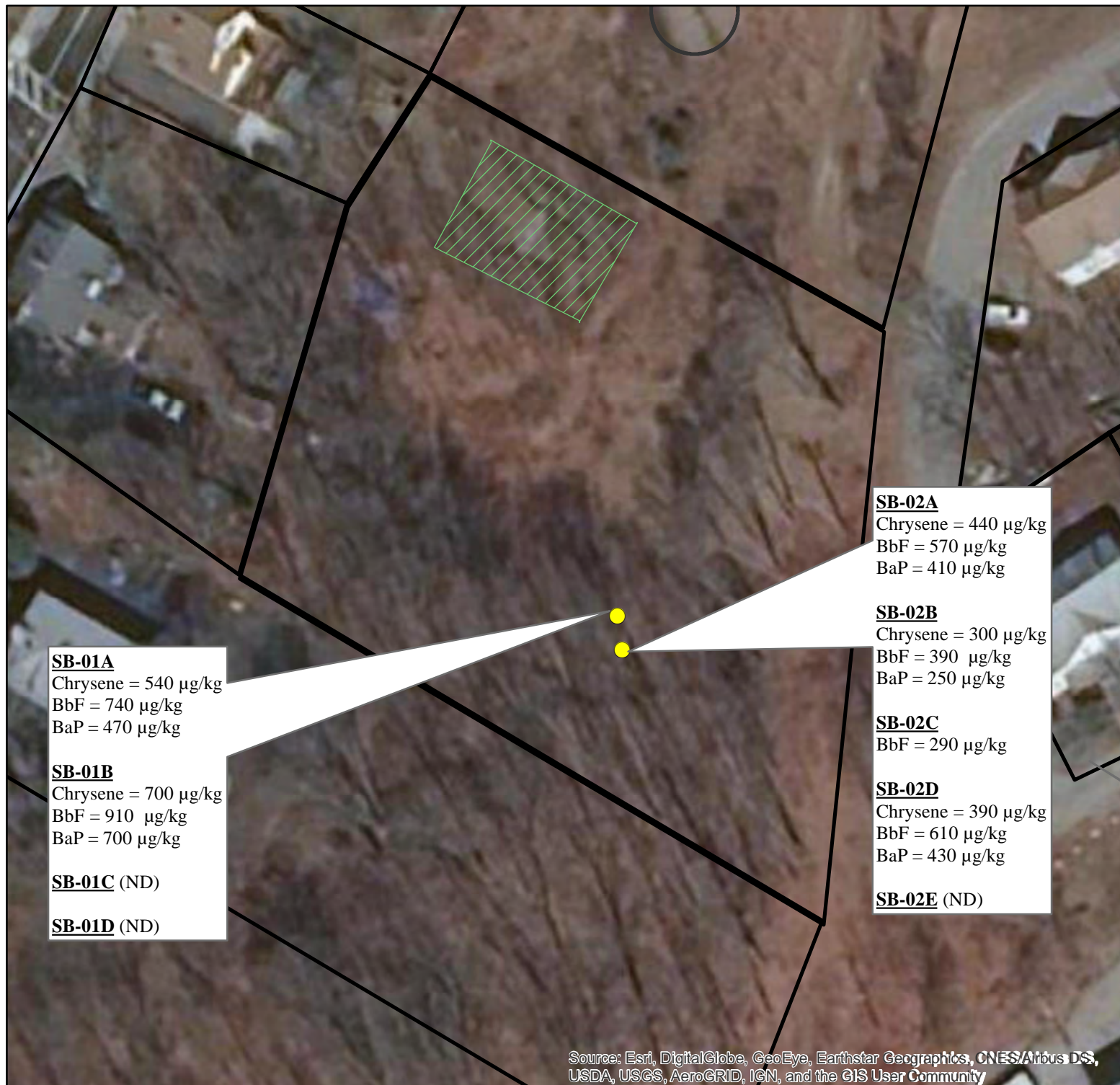


0 25 50  
 Feet

### Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS  
 AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 4B**  
**Soil Boring Sample Location and**  
**Results Map - December 2020**

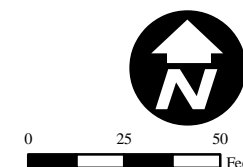
**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and**  
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**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 13 May 2021**

### **LEGEND**

- Soil Sample
- Property Boundaries
- Former Building Foundation (Slab)

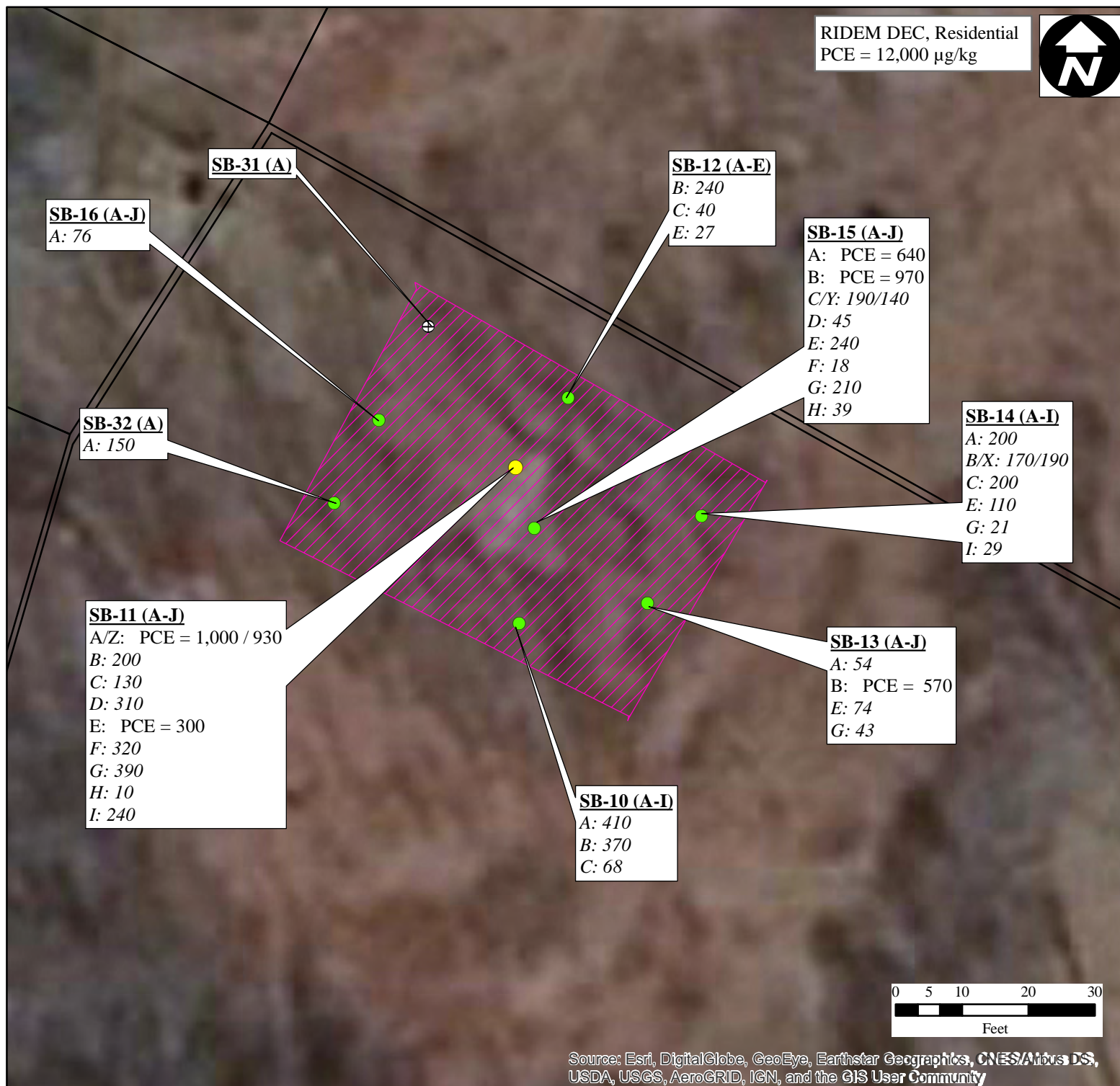
BbF = Benzo(b)fluoranthene  
 BaP = Benzo(a)pyrene  
 µg/kg = Micrograms per kilogram  
 ND = Not detected



### **Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS  
 AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 5A**  
**Soil Boring Sample Location and Results Map - Slab Area**  
**April 2021**  
**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number:** TOFP-01-20-07-0048  
**Created by:** C. Dupree  
**Created on:** 6 November 2020  
**Modified by:** C. Dupree  
**Modified on:** 14 May 2021

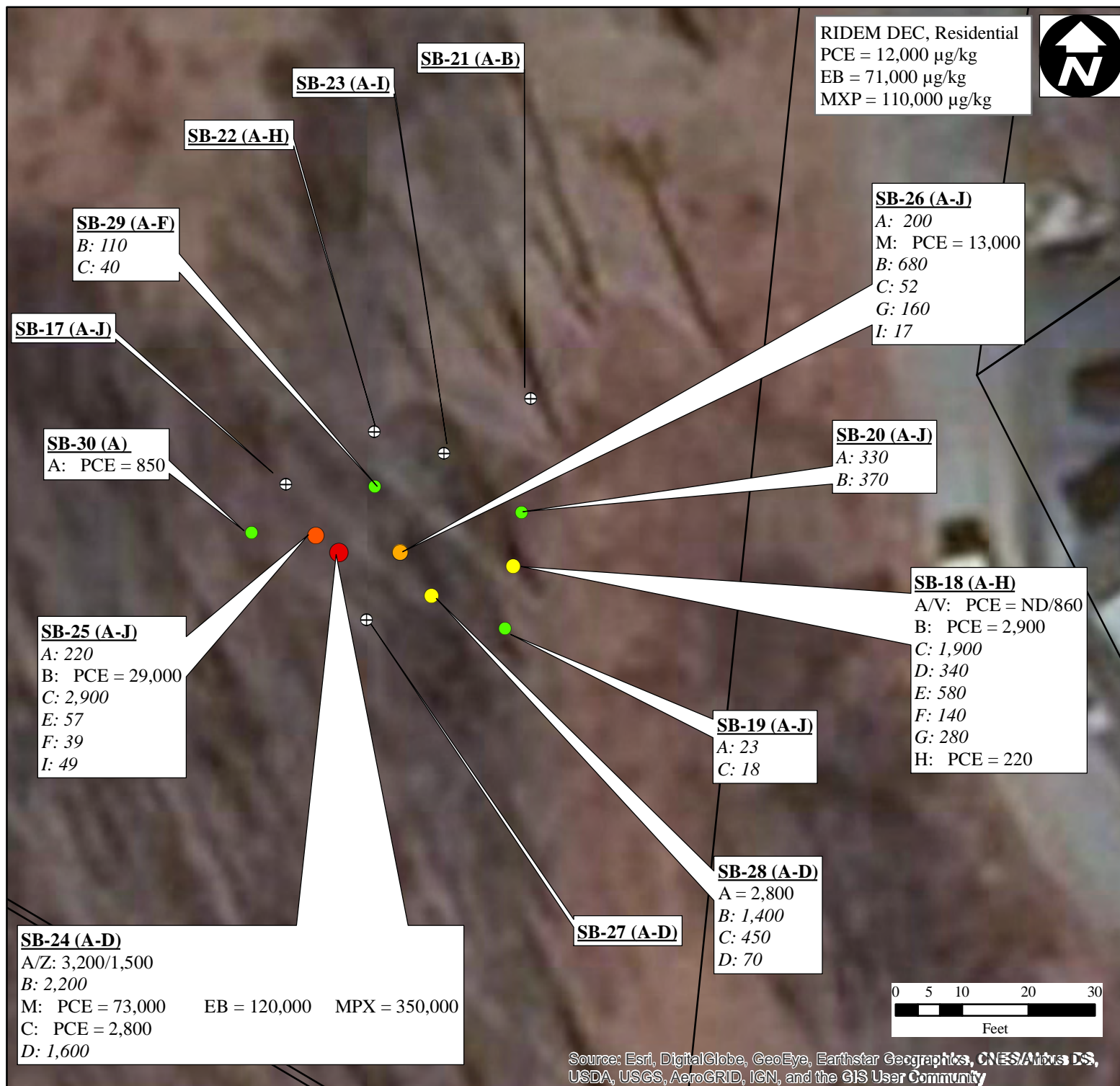
**LEGEND**

- ⊕ Not Detected
- PCE < 1,000 µg/kg
- PCE < 5,000 µg/kg
- PCE < 25,000 µg/kg
- PCE < 50,000 µg/kg
- PCE > 50,000 µg/kg
- Property Boundary
- ▨ Former Building Foundation (Slab)

*Italicized values are field screening results for PCE.*  
A-I, T-Z = Sample sub-location duplicate (interval). Intervals are only shown if a result was greater than the detection limit. All results are in micrograms per kilogram (µg/kg).  
PCE = Tetrachloroethylene  
RIDEM = Rhode Island Department of Environmental Management  
DEC-R = Direct Exposure Criteria

**Data Sources:**  
Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
Topos: USA TopoMaps  
All other data: START





**Figure 5B**  
**Soil Boring Sample Location and Results Map - Southeast Area**  
**April 2021**  
**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 12 May 2021**

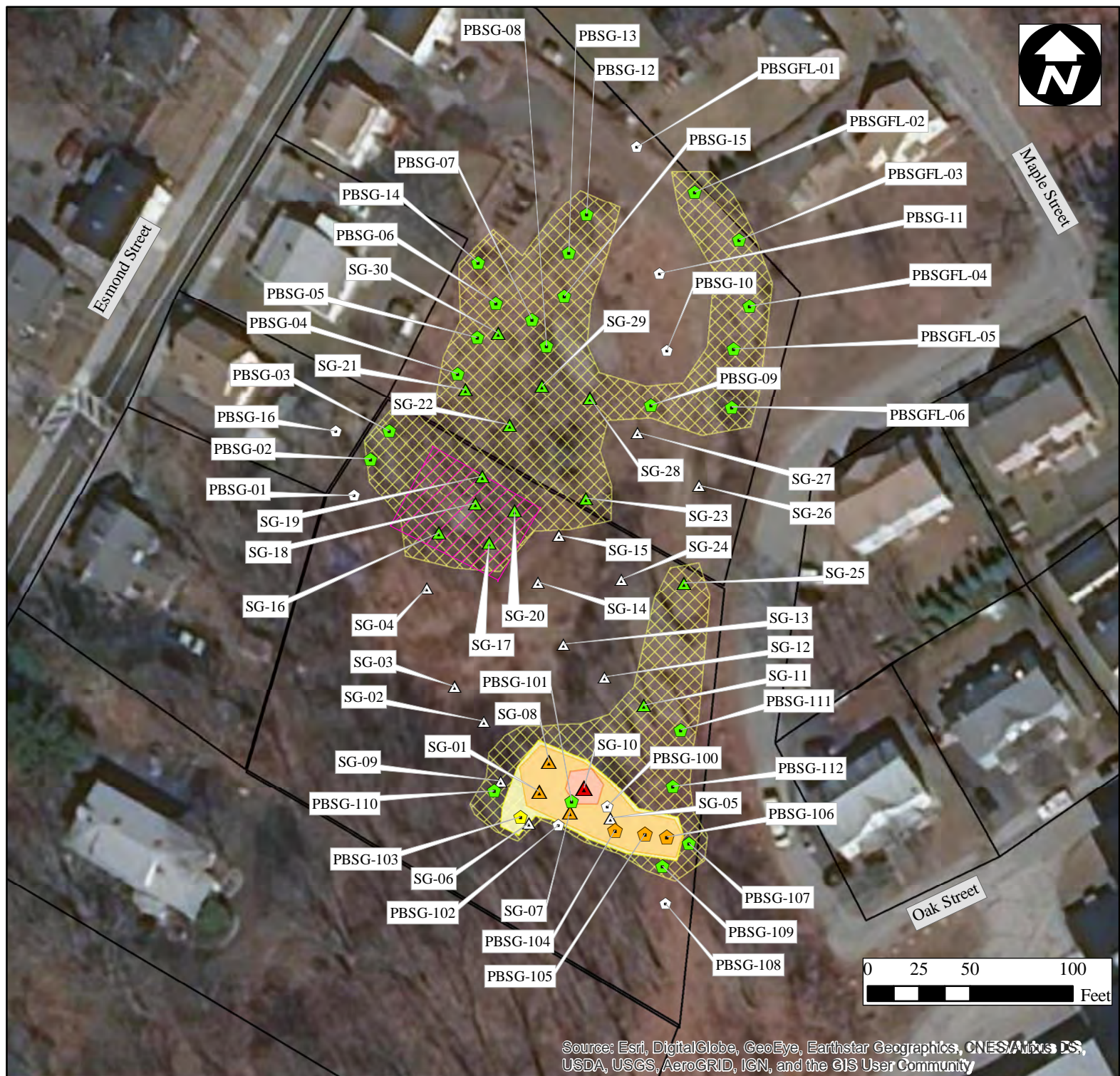
**LEGEND**

- ⊕ Not Detected
- PCE < 1,000 µg/kg
- PCE < 5,000 µg/kg
- PCE < 25,000 µg/kg
- PCE < 50,000 µg/kg
- PCE > 50,000 µg/kg
- Property Boundary

*Italicized values are field screening results for PCE.*  
A-I, T-Z = Sample sub-location duplicate (interval). Intervals are only shown if a result was greater than the detection limit.  
All results are in micrograms per kilogram (µg/kg).  
PCE = Tetrachloroethylene  
EB = Ethyl Benzene  
MPX = m/p Xylenes  
Results for EB and MPX are only shown if results exceed the Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil (DEC-R).

**Data Sources:**  
Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
Topos: USA TopoMaps  
All other data: START





**Figure 6A**  
**PID Concentrations**  
**Soil Gas Sampling**

**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 13 May 2021**

### LEGEND

- △ November 2020 Sample Location
- ◻ December 2020 Sample Location
- ▲ > 20 ppm
- ▲ 10 to 20 ppm
- ▲ 5 to 10 ppm
- ▲ 1 to 5 ppm
- △ 0 to 1 ppm
- ▨ Former Building Foundation (Slab)
- > 20 ppm
- 10 to 20 ppm
- 5 to 10 ppm
- 1 to 5 ppm
- Property Boundaries

PID = Photoionization detector

ppm = parts per million

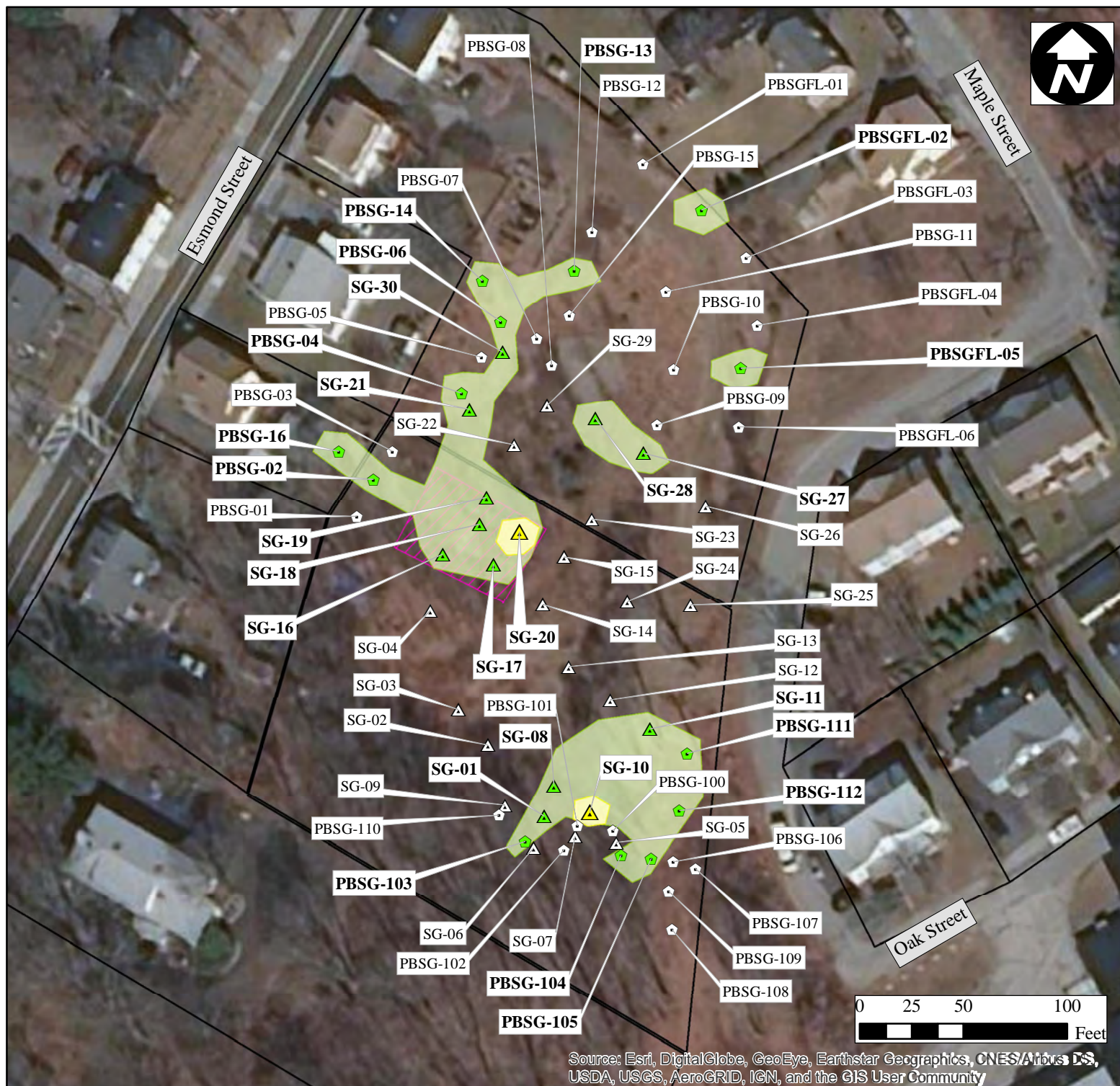
ND = Not Detected

All Soil Gas Samples collected from 2 feet  
 below ground surface using Geoprobe  
 Post-run tubing System.

### Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS  
 AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 6B**  
**BTEX Concentrations**  
**Soil Gas Sampling - SUMMA**

**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 17 May 2021**

### LEGEND

- △ November 2020 Sample Location
- ◻ December 2020 Sample Location
- ◻ PID Field Screening Only
- ◻ 0 to 500 µg/m<sup>3</sup>
- ◻ 500 to 1,200 µg/m<sup>3</sup>
- ◻ 500 to 1,200 µg/m<sup>3</sup>
- ◻ 0 to 500 µg/m<sup>3</sup>
- ◻ Former Building Foundation (Slab)
- ◻ Property Boundaries

BTEX = Benzene, Toluene, Ethylbenzene, and Xylene Compounds (combined value)  
 µg/m<sup>3</sup> = micrograms per cubic meter.

**Bolded** locations indicate SUMMA sample collection. Unbolded locations were field screening only.

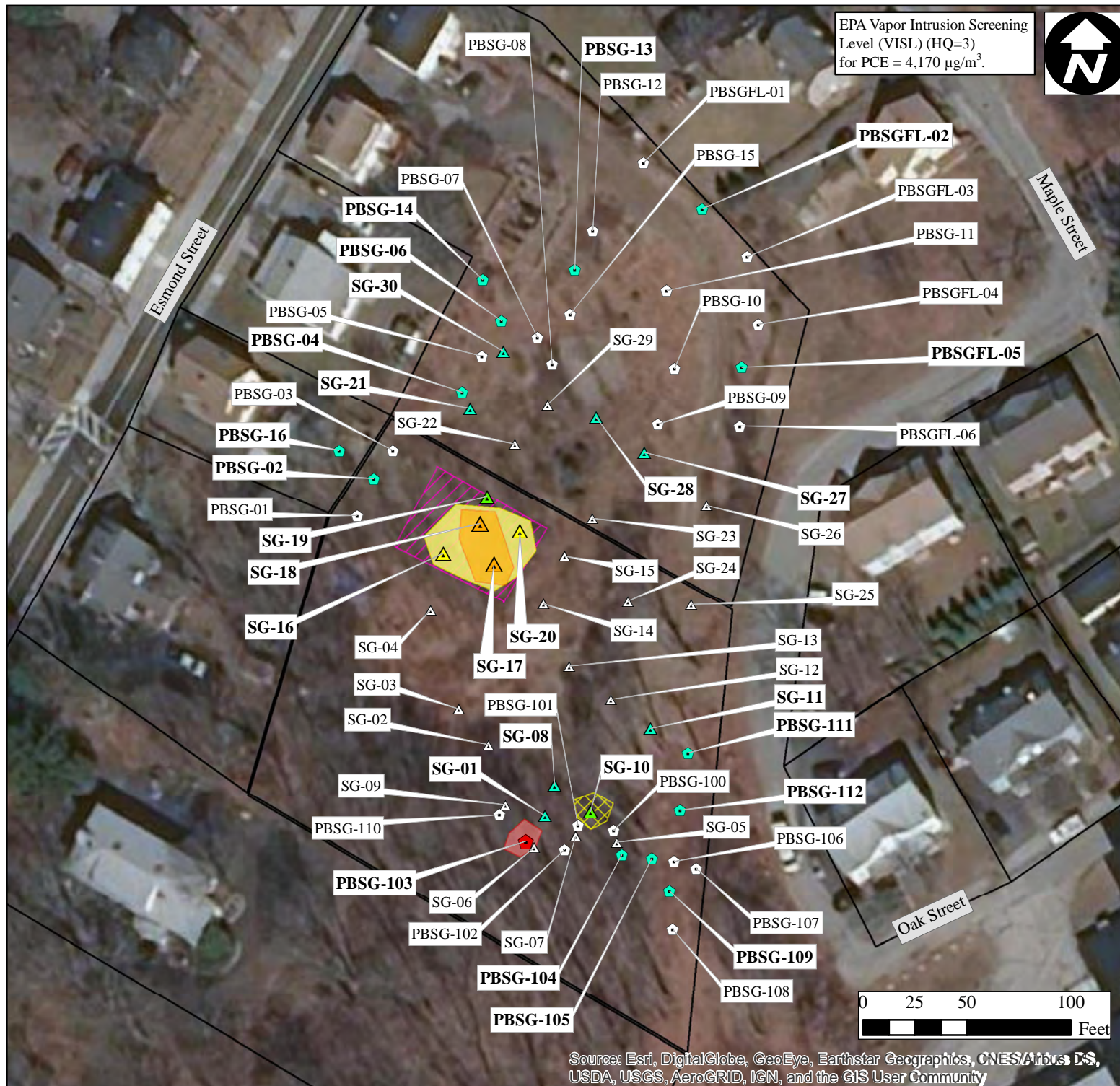
All Soil Gas Samples collected from 2 feet below ground surface using Geoprobe Post-run tubing System.

EPA Vapor Intrusion Screening Level (VISL), HQ=3 for Benzene is 1,200 µg/m<sup>3</sup>.

### Data Sources:

Imagery: Esri, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 6C**  
**PCE Concentrations**  
**Soil Gas Sampling - SUMMA**

**Providence Barrel**  
**Oak Street**  
**Smithfield, Rhode Island**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) V**  
**Contract No. 68HE0120D0001**  
**AD Number: TOFP-01-20-07-0048**  
**Created by: C. Dupree**  
**Created on: 6 November 2020**  
**Modified by: C. Dupree**  
**Modified on: 17 May 2021**

### **LEGEND**

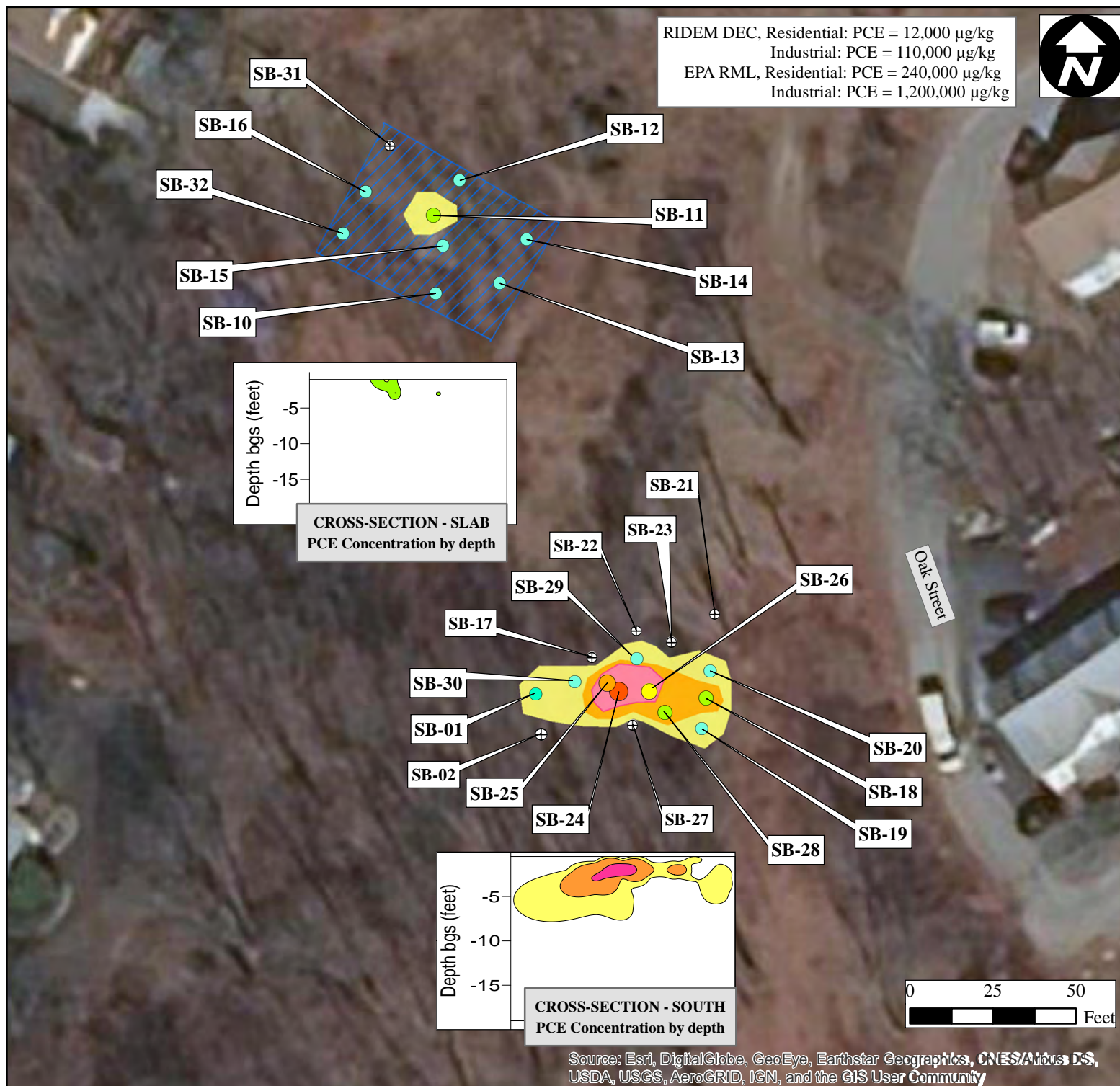
- △ November 2020 Sample Location
- ◻ December 2020 Sample Location
- > 20,000 µg/m³
- 10,000 to 20,000 µg/m³
- 4,170 to 10,000 µg/m³
- 1,000 to 4,170 µg/m³
- 0 to 1,000 µg/m³
- △ PID Field Screening Only
- > 20,000 µg/m³
- 10,000 to 20,000 µg/m³
- 4,170 to 10,000 µg/m³
- 1,000 to 4,170 µg/m³
- Former Building Foundation (Slab)
- Property Boundaries

PCE = Tetrachloroethylene  
 PID = Photo-Ionization Detector  
 µg/m³ = micrograms per cubic meter.  
**Bolded** locations indicate SUMMA sample collection. Unbolded locations were field screening only.  
 All Soil Gas Samples collected from 2 feet below ground surface using Geoprobe Post-run tubing System.

### **Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: USA TopoMaps  
 All other data: START





**Figure 7A**

**Maximum PCE Concentrations  
Soil Samples**

**Providence Barrel  
Oak Street  
Smithfield, Rhode Island**

**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) V  
Contract No. 68HE0120D0001  
AD Number: TOFP-01-20-07-0048  
Created by: C. Dupree  
Created on: 6 November 2020  
Modified by: C. Dupree  
Modified on: 17 May 2021**

**LEGEND**

Maximum PCE Concentration

- ⊕ Not Detected
- <1,000 µg/kg
- 1,000 to 5,000 µg/kg
- 5,000 to 25,000 µg/kg
- 25,000 to 50,000 µg/kg
- > 50,000 µg/kg
- > 10,000 µg/kg
- 1,000 to 5,000 µg/kg
- < 1,000 µg/kg
- ▨ Former Building Foundation (Slab)

µg/kg = micrograms per kilogram.

PCE = Tetrachloroethylene

bgs = below ground surface

Delineations based on maximum  
concentration at each sample location,  
regardless of depth below ground surface.

RIDEM = Rhode Island Department of  
Environmental Management

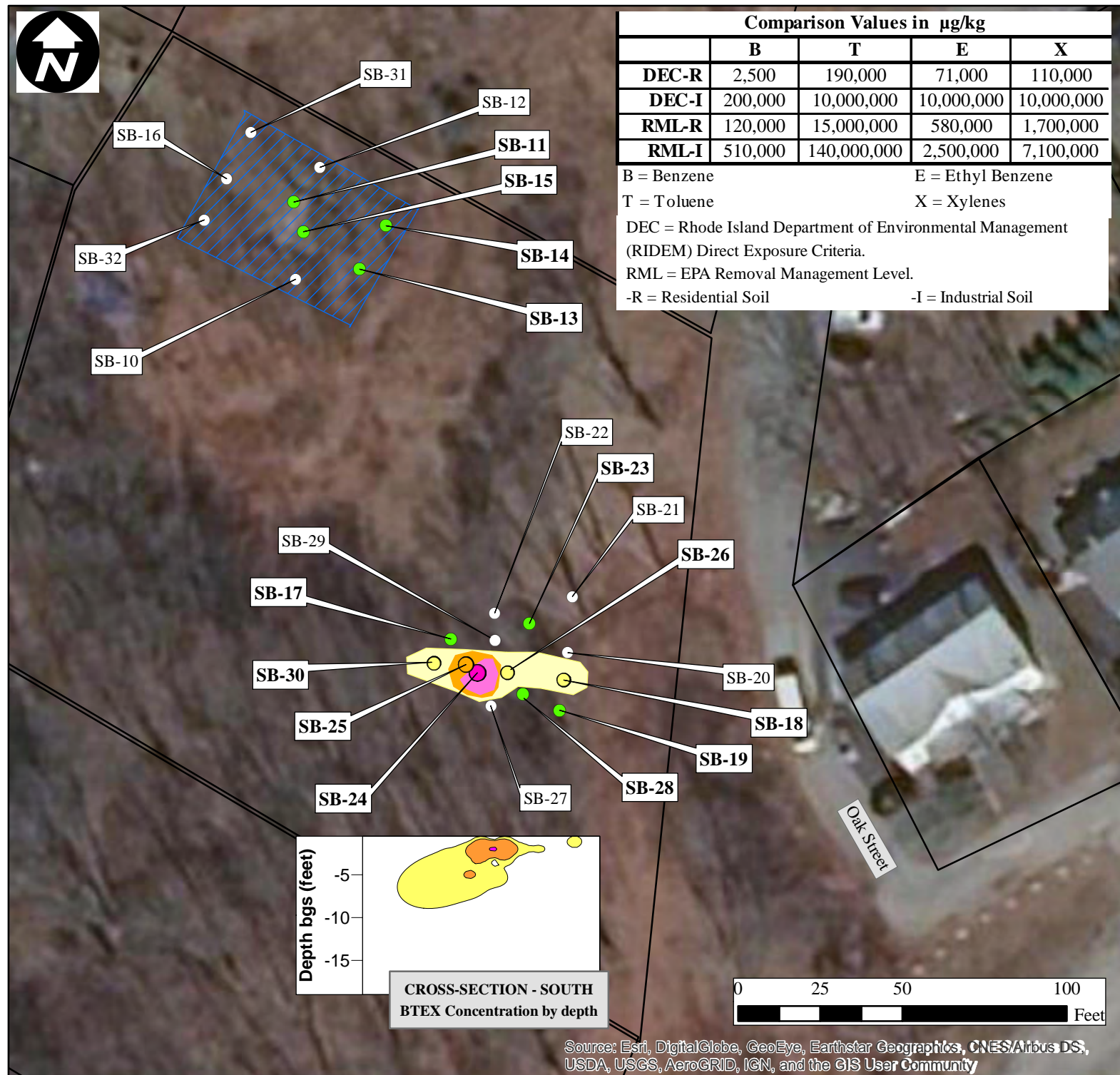
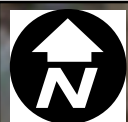
DEC = Direct Exposure Criteria

RML = Removal Management Level

**Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS  
AEX, GeoEye, Getmapping, Aerogrid, IGP  
Topos: USA TopoMaps  
All other data: START





**Figure 7B**

**Maximum BTEX Concentrations  
Soil Samples**

**Providence Barrel  
Oak Street  
Smithfield, Rhode Island**

**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) V  
Contract No. 68HE0120D0001**

**AD Number:** TOFP-01-20-07-0048

**Created by:** C. Dupree

**Created on:** 6 November 2020

**Modified by:** C. Dupree

**Modified on:** 17 May 2021

**LEGEND**

Maximum BTEX Concentration

- >500,000  $\mu\text{g/kg}$
- 50,000 to 500,000  $\mu\text{g/kg}$
- 10,000 to 50,000  $\mu\text{g/kg}$
- Not Detected
- Field Screening Only
- > 500,000  $\mu\text{g/kg}$
- 50,000 to 500,000  $\mu\text{g/kg}$
- 10,000 to 50,000  $\mu\text{g/kg}$
- Property Boundary
- Former Building Foundation (Slab)

$\mu\text{g/kg}$  = micrograms per kilogram.

BTEX = Benzene, Toluene, Ethyl Benzene, and Xylenes.

Delineations based on maximum concentration at each sample location, regardless of depth below ground surface.

**Data Sources:**

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP  
Topos: USA TopoMaps  
All other data: START



## Appendix B

### Tables

Table 1	-	Summary of Soil Gas Sample Results – November 2020
Table 2	-	Summary of Soil Gas Sample Results – December 2020
Table 3	-	Summary of Soil Sample Results – December 2020
Table 4	-	Soil Sample Field Screening Results – April 2021
Table 5	-	Summary of Soil Sample Results – April 2021

**TABLE 1**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**17 NOVEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		SG-01 S50048RI-0001 22685 17.3 ppm	SG-08 S50048RI-0008 6558 11.1 ppm	SG-10 S50048RI-0010 22694 29.99 ppm	SG-11 S50048RI-0011 14898 1.99 ppm	SG-16 S50048RI-0016 15061 2.78 ppm
COMPOUND	EPA VISL					
VOLATILE ORGANIC COMPOUNDS (VOCs)		µg/m <sup>3</sup>				
1,3-Butadiene	209	34	41	930	64	160
t-1,2-Dichloroethylene	4,170	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	521,000	2,000	41	130	69	110
c-1,2-Dichloroethylene	NL	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	521,000	ND	ND	23	ND	68
Benzene	1,200	56	110	640	81	230
Trichloroethylene	209	100	500	45	9.8	340
Methyl Isobutyl Ketone	313,000	3.8	ND	10	ND	ND
Toluene	521,000	39	50	320	57	170
2-Hexanone	3,130	ND	5.8	44	ND	ND
Tetrachloroethylene (PCE)	4,170	700	420	1,400	140	9,700
Chlorobenzene	5,210	ND	6.9	ND	ND	ND
Ethylbenzene	3,470	5.7	5.7	47	7.3	ND
m/p-Xylenes	10,400	ND	ND	71	90	ND
Styrene	104,000	4.7	5.8	ND	ND	ND
o-Xylene	10,400	ND	ND	34	5.2	ND
4-Ethyltoluene	NL	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	NL	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	851	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	20,900	ND	ND	ND	ND	ND
Acrylonitrile	138	5.2	7.0	24	20	34

**NOTES:**

µg/m<sup>3</sup> = micrograms per cubic meter

ND = Not Detected

NL = Not Listed

PID = Photoionization Detector for VOCs

ppm = parts per million

1) All Results were reported in µg/m<sup>3</sup>.

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results bolded and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

**TABLE 1**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**17 NOVEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		SG-17 S50048RI-0017 3092 3.48 ppm	SG-107 S50048RI-0032 4742 3.48 ppm (duplicate of SG-17)	SG-18 S50048RI-0018 14891 2.91 ppm	SG-19 S50048RI-0019 20854 1.06 ppm	SG-20 S50048RI-0020 20855 3.67 ppm
COMPOUND	EPA VISL					
VOLATILE ORGANIC COMPOUNDS (VOCs)		$\mu\text{g}/\text{m}^3$				
1,3-Butadiene	209	18	6.3	200	5.1	65
t-1,2-Dichloroethylene	4,170	ND	ND	7.6	ND	ND
Methyl Ethyl Ketone	521,000	22	17	53	18	160
c-1,2-Dichloroethylene	NL	ND	ND	9.1	ND	ND
1,1,1-Trichloroethane	521,000	68	68	98	36	ND
Benzene	1,200	ND	7	140	3.7	94
Trichloroethylene	209	<b>820</b>	<b>810</b>	<b>1,200</b>	<b>370</b>	<b>750</b>
Methyl Isobutyl Ketone	313,000	ND	ND	ND	ND	ND
Toluene	521,000	11	5.6	98	3.7	120
2-Hexanone	3,130	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	4,170	<b>10,000</b>	<b>10,000</b>	<b>19,000</b>	3,400	<b>8,100</b>
Chlorobenzene	5,210	ND	ND	ND	ND	ND
Ethylbenzene	3,470	ND	ND	12	ND	59
m/p-Xylenes	10,400	ND	ND	17	ND	220
Styrene	104,000	ND	ND	ND	ND	ND
o-Xylene	10,400	ND	ND	14	ND	61
4-Ethyltoluene	NL	ND	ND	6.2	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	8.4	ND	ND
1,3-Dichlorobenzene	NL	ND	ND	9.0	ND	ND
1,4-Dichlorobenzene	851	ND	ND	5.9	ND	ND
1,2-Dichlorobenzene	20,900	ND	ND	21	ND	210
Acrylonitrile	138	3.5	ND	16	ND	ND

**NOTES:**

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

ND = Not Detected

NL = Not Listed

PID = Photoionization Detector for VOCs

ppm = parts per million

1) All Results were reported in  $\mu\text{g}/\text{m}^3$ .

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results bolded and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

**TABLE 1**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**17 NOVEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		SG-21 S50048RI-0021 12569 1.26 ppm	SG-28 S50048RI-0028 15055 2.12 ppm	SG-29 S50048RI-0029 5791 1.79 ppm	SG-30 S50048RI-0030 15049 4.14 ppm
COMPOUND	EPA VISL				
VOLATILE ORGANIC COMPOUNDS (VOCs)		$\mu\text{g}/\text{m}^3$			
1,3-Butadiene	209	20	7.7	18	74
t-1,2-Dichloroethylene	4,170	ND	ND	ND	ND
Methyl Ethyl Ketone	521,000	23	30	39	47
c-1,2-Dichloroethylene	NL	ND	ND	ND	ND
1,1,1-Trichloroethane	521,000	ND	ND	ND	ND
Benzene	1,200	ND	7.3	26	110
Trichloroethylene	209	5.1	ND	ND	ND
Methyl Isobutyl Ketone	313,000	ND	ND	ND	ND
Toluene	521,000	23	6.1	20	61
2-Hexanone	3,130	ND	3.8	ND	ND
Tetrachloroethylene (PCE)	4,170	230	55	350	82
Chlorobenzene	5,210	ND	ND	ND	ND
Ethylbenzene	3,470	ND	ND	ND	7.3
m/p-Xylenes	10,400	ND	12	6.4	10
Styrene	104,000	ND	ND	ND	8.4
o-Xylene	10,400	ND	ND	ND	4.8
4-Ethyltoluene	NL	ND	ND	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	ND	ND
1,3-Dichlorobenzene	NL	ND	ND	ND	ND
1,4-Dichlorobenzene	851	ND	ND	ND	ND
1,2-Dichlorobenzene	20,900	ND	ND	ND	ND
Acrylonitrile	138	6.9	ND	6.5	19

**NOTES:**

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

ND = Not Detected

NL = Not Listed

PID = Photoionization Detector for VOCs

ppm = parts per million

1) All Results were reported in  $\mu\text{g}/\text{m}^3$ .

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results bolded and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

**TABLE 2**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**9-10 DECEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		PBSG-02 S50048RI-0034 3656 1.02 ppm	PBSG-103 S50048RI-0039 22684 5.70 ppm	PBSG-104 S50048RI-0040 6462 >10 ppm	PBSG-105 S50048RI-0041 13482 >10 ppm	PBSG-109 S50048RI-0045 14894 1.69 ppm
COMPOUND	EPA VISL					
VOLATILE ORGANIC COMPOUNDS (VOCs)		µg/m <sup>3</sup>				
Dichlorodifluoromethane	10,400	ND	ND	ND	ND	ND
1,3-Butadiene	209	ND	6.3	17	ND	51
Trichlorofluoromethane	NL	ND	ND	ND	ND	ND
Methylene Chloride	62,600	ND	ND	ND	ND	ND
1,1-Dichloroethylene	20,900	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	521,000	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	521,000	7.9	53	36	11	30
Hexane	73,000	ND	9.6	9.6	ND	55
1,1,1-Trichloroethane	521,000	ND	520	ND	ND	ND
Benzene	1,200	5.8	9.1	14	5.9	32
Carbon Tetrachloride	1,560	ND	ND	ND	ND	ND
Trichloroethylene	209	ND	46	ND	ND	ND
Heptane	41,700	ND	ND	ND	ND	ND
Toluene	521,000	6.4	10	9.3	ND	21
Tetrachloroethylene (PCE)	4,170	79	<b>31,000</b>	730	340	120
Ethylbenzene	3,740	ND	ND	ND	ND	ND
m/p-Xylenes	10,400	ND	ND	ND	ND	ND
Styrene	104,000	ND	ND	ND	ND	ND
o-Xylene	10,400	ND	ND	ND	ND	ND
4-Ethyltoluene	NL	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	ND	ND	ND
Allyl Chloride	104	ND	ND	ND	ND	ND
Acrylonitrile	138	ND	ND	ND	ND	ND

**NOTES:**

µg/m<sup>3</sup> = micrograms per cubic meter

PID = Photoionization Detector for VOCs

1) All Results were reported in µg/m<sup>3</sup>.

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results **bolded** and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

ND = Not Detected

ppm = parts per million

NL = Not Listed

> = Greater than

**TABLE 2**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**9-10 DECEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		PBSG-04 S50048RI-0046 15056 2.3 ppm	PBSG-06 S50048RI-0048 12571 4.85 ppm	PBSGFL-02 S50048RI-53 20850 1.15 ppm	PBSGFL-05 S50048RI-0056 22686 3.68 ppm	PBSGFL-105 S50048RI-0057 22692 Duplicate of PBSGFL-05
COMPOUND	EPA VISL					
VOLATILE ORGANIC COMPOUNDS (VOCs)		µg/m <sup>3</sup>				
Dichlorodifluoromethane	10,400	ND	ND	2.2	2.3	2.1
1,3-Butadiene	209	14	67	4.3	8.8	1.5
Trichlorofluoromethane	NL	ND	ND	1.1	1.2	1.1
Methylene Chloride	62,600	ND	ND	ND	ND	ND
1,1-Dichloroethylene	20,900	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	521,000	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	521,000	27	51	21	21	13
Hexane	73,000	9.1	24	20	8.7	1.8
1,1,1-Trichloroethane	521,000	ND	ND	ND	ND	ND
Benzene	1,200	8.3	74	4.7	6.9	1.7
Carbon Tetrachloride	1,560	ND	ND	ND	ND	ND
Trichloroethylene	209	ND	ND	ND	ND	ND
Heptane	41,700	ND	ND	ND	ND	ND
Toluene	521,000	7.1	50	4	6.2	2.1
Tetrachloroethylene (PCE)	4,170	58	25	13	1.4	ND
Ethylbenzene	3,740	ND	ND	ND	1.1	ND
m/p-Xylenes	10,400	ND	ND	ND	2	ND
Styrene	104,000	ND	ND	ND	0.77	ND
o-Xylene	10,400	ND	ND	ND	1.5	ND
4-Ethyltoluene	NL	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	ND	ND	ND
Allyl Chloride	104	ND	ND	ND	0.83	ND
Acrylonitrile	138	ND	17	1.4	ND	ND

**NOTES:**

µg/m<sup>3</sup> = micrograms per cubic meter

PID = Photoionization Detector for VOCs

1) All Results were reported in µg/m<sup>3</sup>.

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results **bolded** and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

ND = Not Detected

ppm = parts per million

NL = Not Listed

> = Greater than

**TABLE 2**  
**SUMMARY OF SOIL GAS SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**SMITHFIELD, RHODE ISLAND**  
**9-10 DECEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SUMMA CANISTER NO.: PID SCREENING:		PBSG-13 S50048RI-0063 20858 2.74 ppm	PBSG-14 S50048RI-0064 13487 2.14 ppm	PBSG-16 S50048RI-0066 13490 0.58 ppm	PBSG-111 S50048RI-0069 22690 1.53 ppm	PBSG-112 S50048RI-0070 15059 1.36 ppm
COMPOUND	EPA VISL					
VOLATILE ORGANIC COMPOUNDS (VOCs)		$\mu\text{g}/\text{m}^3$				
Dichlorodifluoromethane	10,400	2.3	2	2.2	ND	ND
1,3-Butadiene	209	12	28	6	23	12
Trichlorofluoromethane	NL	1.1	ND	1.1	ND	ND
Methylene Chloride	62,600	ND	ND	ND	ND	ND
1,1-Dichloroethylene	20,900	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	521,000	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	521,000	20	34	7	26	14
Hexane	73,000	9.4	18	4.4	9.7	9.4
1,1,1-Trichloroethane	521,000	ND	ND	ND	ND	ND
Benzene	1,200	9.4	13	3.6	17	7.3
Carbon Tetrachloride	1,560	ND	ND	ND	ND	ND
Trichloroethylene	209	ND	ND	ND	ND	ND
Heptane	41,700	ND	ND	ND	ND	ND
Toluene	521,000	6.1	8.7	2.8	13	ND
Tetrachloroethylene (PCE)	4,170	42	3.9	24	140	260
Ethylbenzene	3,740	ND	ND	ND	ND	ND
m/p-Xylenes	10,400	ND	ND	ND	ND	ND
Styrene	104,000	ND	ND	ND	ND	ND
o-Xylene	10,400	ND	ND	ND	ND	ND
4-Ethyltoluene	NL	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	6,260	ND	ND	ND	ND	ND
Allyl Chloride	104	ND	ND	ND	ND	ND
Acrylonitrile	138	3.2	1.1	0.96	ND	ND

**NOTES:**

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

PID = Photoionization Detector for VOCs

1) All Results were reported in  $\mu\text{g}/\text{m}^3$ .

2) EPA VISL = EPA Vapor Intrusion Screening Level Target for Near-Target Soil Gas (THQ=3).

3) Results **bolded** and highlighted in Orange exceeded the EPA VISL.

4) A compound is only listed in the table above if it was detected in at least one sample.

ND = Not Detected

ppm = parts per million

NL = Not Listed

> = Greater than

**TABLE 3**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**9-10 DECEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SAMPLE DEPTH:				SB-01 A S50048RI-0071 0 - 0.5 feet	SB-01 B S50048RI-0072 0.5 - 1 feet	SB-01 C S50048RI-0073 1 - 1.5 feet	SB-01 D S50048RI-0074 1.5 - 2 feet	SB-02 A S50048RI-0075 0 - 0.5 feet	SB-02 B S50048RI-0076 0.5 - 1 feet
COMPOUND	DEC-R	RML-R	RML-I						
<b>VOLATILE ORGANIC COMPOUNDS (VOCs)    µg/kg</b>				<b>µg/kg</b>					
Methyl-t-Butyl Ether	390,000	4,700,000	21,000,000	ND	420	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	420,000,000	ND	ND	170	ND	ND	ND
Tetrachloroethylene	12,000	240,000	1,200,000	ND	ND	200	ND	ND	ND
Ethylbenzene	71,000	580,000	2,500,000	ND	ND	130	ND	69	ND
M/P Xylene	110,000	1,700,000	7,100,000	ND	ND	320	ND	580	ND
Ortho Xylene	110,000	1,900,000	8,400,000	ND	ND	140	ND	480	ND
Naphthalene	54,000	200,000	860,000	ND	ND	ND	ND	ND	ND
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)    µg/kg</b>				<b>µg/kg</b>					
Naphthalene	54,000	200,000	860,000	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	123,000	720,000	9,000,000	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	NL	1,800,000	7,300,000	ND	ND	ND	ND	ND	ND
Acenaphthylene	23,000	NL	NL	ND	170	ND	ND	ND	ND
Acenaphthene	43,000	11,000,000	140,000,000	ND	ND	ND	ND	ND	ND
Phenanthrene	40,000	NL	NL	320	540	ND	ND	260	180
Anthracene	35,000	54,000,000	680,000,000	77	150	ND	ND	ND	ND
Fluoranthene	20,000	7,200,000	90,000,000	790	1,200	ND	ND	710	440
Pyrene	13,000	5,400,000	68,000,000	790	970	ND	ND	630	380
Benzo(a)anthracene	900	110,000	2,100,000	470	680	ND	ND	400	230
Chrysene	400	11,000,000	210,000,000	<b>540</b>	<b>700</b>	ND	ND	<b>440</b>	300
Benzo(b)fluoranthene	900	110,000	2,100,000	740	<b>910</b>	ND	ND	570	390
Benzo(k)fluoranthene	900	1,100,000	21,000,000	290	300	ND	ND	180	ND
Benzo(a)pyrene	400	11,000	210,000	<b>470</b>	<b>700</b>	ND	ND	<b>410</b>	250
Indeno(1,2,3-cd)pyrene	900	110,000	2,100,000	390	530	ND	ND	350	260
Dibenz(a,h)anthracene	400	11,000	210,000	120	130	ND	ND	ND	ND
Benzo(g,h,i)perylene	800	NL	NL	340	510	ND	ND	320	250
<b>OIL IDENTIFICATION</b>				<b>µg/kg</b>					
C 14-26				Trace C26-36	Trace C14-36	Motor Oil C14-36	Motor Oil C24-40	Trace C26-40	Trace C18-36

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

- 1) µg/kg = micrograms per kilogram
- 2) NL = Not Listed.
- 3) ND = Not Detected.
- 4) -- = Parameter not analyzed.
- 5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.
- 6) RML-R = US EPA Removal Management Level for Residential Soil.
- 7) RML-I = US EPA Removal Management Level for Industrial Soil.
- 8) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential soil.
- 9) Results are reported in the units noted.
- 10) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.  
Compounds that were analyzed for, but not detected, have been omitted.

**TABLE 3**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**9-10 DECEMBER 2020**

SAMPLE LOCATION: SAMPLE NUMBER: SAMPLE DEPTH:				SB-02 C S50048RI-0077 1 - 2 feet	SB-02 D S50048RI-0078 2 - 3 feet	SB-02 E S50048RI-0079 3 - 3.5 feet	SB-21 A S50048RI-0080	SB-21 E S50048RI-0081
COMPOUND	DEC-R	RML-R	RML-I					
<b>VOLATILE ORGANIC COMPOUNDS (VOCs)    µg/kg</b>								
Methyl-t-Butyl Ether	390,000	4,700,000	21,000,000	74,000	ND	ND	ND	--
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	420,000,000	ND	ND	2,000	ND	--
Tetrachloroethylene	12,000	240,000	1,200,000	ND	ND	760	ND	--
Ethylbenzene	71,000	580,000	2,500,000	ND	ND	ND	ND	--
M/P Xylene	110,000	1,700,000	7,100,000	ND	ND	ND	ND	--
Ortho Xylene	110,000	1,900,000	8,400,000	ND	ND	76	69	--
Naphthalene	54,000	200,000	860,000	ND	14,000	ND	ND	--
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)    µg/kg</b>								
Naphthalene	54,000	200,000	860,000	ND	540	ND	--	ND
2-Methylnaphthalene	123,000	720,000	9,000,000	ND	280	ND	--	ND
1-Methylnaphthalene	NL	1,800,000	7,300,000	ND	290	ND	--	ND
Acenaphthylene	23,000	NL	NL	2,000	1,700	ND	--	ND
Acenaphthene	43,000	11,000,000	140,000,000	580	480	ND	--	ND
Phenanthrene	40,000	NL	NL	ND	ND	ND	--	ND
Anthracene	35,000	54,000,000	680,000,000	ND	ND	ND	--	ND
Fluoranthene	20,000	7,200,000	90,000,000	520	ND	ND	--	ND
Pyrene	13,000	5,400,000	68,000,000	ND	ND	ND	--	ND
Benzo(a)anthracene	900	110,000	2,100,000	ND	460	ND	--	ND
Chrysene	400	11,000,000	210,000,000	ND	390	ND	--	ND
Benzo(b)fluoranthene	900	110,000	2,100,000	290	610	ND	--	ND
Benzo(k)fluoranthene	900	1,100,000	21,000,000	ND	ND	ND	--	ND
Benzo(a)pyrene	400	11,000	210,000	ND	<b>430</b>	ND	--	ND
Indeno(1,2,3-cd)pyrene	900	110,000	2,100,000	ND	370	ND	--	ND
Dibenz(a,h)anthracene	400	11,000	210,000	ND	ND	ND	--	ND
Benzo(g,h,i)perylene	800	NL	NL	ND	290	ND	--	ND
<b>OIL IDENTIFICATION</b>								
C 14-26				High Conc C14-40	High Conc C14-40	Trace C18-40	--	Trace C18-40

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

- 1) µg/kg = micrograms per kilogram
- 2) NL = Not Listed.
- 3) ND = Not Detected.
- 4) -- = Parameter not analyzed.
- 5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.
- 6) RML-R = US EPA Removal Management Level for Residential Soil.
- 7) RML-I = US EPA Removal Management Level for Industrial Soil.
- 8) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential soil.
- 9) Results are reported in the units noted.
- 10) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.  
Compounds that were analyzed for, but not detected, have been omitted.

**TABLE 4**  
**SOIL SAMPLE FIELD SCREENING RESULTS**  
**PROVIDENCE BARREL**  
**4-8 APRIL 2021**

LABORATORY SAMPLE ID	SCRIBE SAMPLE NUMBER	SAMPLE LOCATION	PCE µg/kg	TCE µg/kg	Additional VOCs µg/kg
RIDEM DEC - Residential			12,000	13,000	
RIDEM DEC - Industrial			110,000	520,000	
EPA RML - Residential			240,000	12,000	
EPA RML - Industrial			1,200,000	56,000	
AB91106	S50048RI-0086	SB-10A	410	ND	
AB91107	S50048RI-0087	SB-10B	370	ND	
AB91108	S50048RI-0088	SB-10C	68	ND	
AB91109	S50048RI-0089	SB-10D	ND	ND	
AB91110	S50048RI-0090	SB-10E	ND	ND	
AB91111	S50048RI-0091	SB-10F	ND	ND	
AB91112	S50048RI-0092	SB-10G	ND	ND	
AB91113	S50048RI-0093	SB-10H	ND	ND	
AB91114	S50048RI-0094	SB-10I	ND	ND	
AB91115	S50048RI-0095	SB-11A	540	ND	
AB91117	S50048RI-0105	SB-11Z* (A)	520	ND	
AB91116	S50048RI-0096	SB-11B	200	ND	
AB91118	S50048RI-0097	SB-11C	130	ND	
AB91119	S50048RI-0098	SB-11D	310	ND	
AB91120	S50048RI-0099	SB-11E	440	ND	
AB91121	S50048RI-0100	SB-11F	320	ND	
AB91122	S50048RI-0101	SB-11G	390	ND	
AB91123	S50048RI-0102	SB-11H	10	ND	
AB91124	S50048RI-0103	SB-11I	240	ND	
AB91125	S50048RI-0104	SB-11J	ND	ND	
AB91126	S50048RI-0106	SB-12A	ND	ND	
AB91127	S50048RI-0107	SB-12B	240	ND	
AB91128	S50048RI-0108	SB-12C	40	ND	
AB91129	S50048RI-0109	SB-12D	ND	ND	
AB91130	S50048RI-0110	SB-12E	27	ND	
AB91131	S50048RI-0111	SB-13A	54	ND	
AB91132	S50048RI-0112	SB-13B	260	ND	
AB91133	S50048RI-0113	SB-13C	ND	ND	
AB91134	S50048RI-0114	SB-13D	ND	ND	
AB91135	S50048RI-0115	SB-13E	74	ND	
AB91136	S50048RI-0116	SB-13F	ND	ND	
AB91137	S50048RI-0117	SB-13G	43	ND	
AB91138	S50048RI-0118	SB-13H	ND	ND	
AB91139	S50048RI-0119	SB-13I	ND	ND	
AB91140	S50048RI-0120	SB-13J	ND	ND	
AB91141	S50048RI-0121	SB-14A	200	ND	
AB91143	S50048RI-0122	SB-14B	170	ND	
AB91142	S50048RI-0130	SB-14X* (B)	190	ND	

**TABLE 4**  
**SOIL SAMPLE FIELD SCREENING RESULTS**  
**PROVIDENCE BARREL**  
**4-8 APRIL 2021**

LABORATORY SAMPLE ID	SCRIBE SAMPLE NUMBER	SAMPLE LOCATION	PCE µg/kg	TCE µg/kg	Additional VOCs µg/kg
RIDEM DEC - Residential			12,000	13,000	
RIDEM DEC - Industrial			110,000	520,000	
EPA RML - Residential			240,000	12,000	
EPA RML - Industrial			1,200,000	56,000	
AB91144	S50048RI-0123	SB-14C	200	ND	
AB91145	S50048RI-0124	SB-14D	ND	ND	
AB91146	S50048RI-0125	SB-14E	110	ND	
AB91147	S50048RI-0126	SB-14F	ND	ND	
AB91148	S50048RI-0127	SB-14G	21	ND	
AB91149	S50048RI-0128	SB-14H	ND	ND	
AB91171	S50048RI-0129	SB-14I	29	ND	
AB91150	S50048RI-0131	SB-15A	530	148	
AB91151	S50048RI-0132	SB-15B	580	ND	
AB91152	S50048RI-0133	SB-15C	190	ND	
AB91154	S50048RI-0141	SB-15Y* (C)	140	ND	
AB91153	S50048RI-0134	SB-15D	45	ND	
AB91155	S50048RI-0135	SB-15E	240	ND	
AB91156	S50048RI-0136	SB-15F	18	ND	
AB91157	S50048RI-0137	SB-15G	210	ND	
AB91158	S50048RI-0138	SB-15H	39	ND	
AB91159	S50048RI-0139	SB-15I	ND	ND	
AB91160	S50048RI-0140	SB-15J	ND	ND	
AB91161	S50048RI-0142	SB-16A	76	ND	
AB91162	S50048RI-0143	SB-16B	ND	ND	
AB91163	S50048RI-0144	SB-16C	ND	ND	
AB91164	S50048RI-0145	SB-16D	ND	ND	
AB91165	S50048RI-0146	SB-16E	ND	ND	
AB91166	S50048RI-0147	SB-16F	ND	ND	
AB91167	S50048RI-0148	SB-16G	ND	ND	
AB91168	S50048RI-0149	SB-16H	ND	ND	
AB91169	S50048RI-0150	SB-16I	ND	ND	
AB91170	S50048RI-0151	SB-16J	ND	ND	
AB91172	S50048RI-0152	SB-17A	ND	ND	
AB91173	S50048RI-0153	SB-17B	ND	ND	
AB91174	S50048RI-0154	SB-17C	ND	ND	
AB91175	S50048RI-0155	SB-17D	ND	ND	
AB91176	S50048RI-0162	SB-17W* (D)	ND	ND	
AB91177	S50048RI-0156	SB-17E	ND	ND	
AB91178	S50048RI-0157	SB-17F	ND	ND	
AB91179	S50048RI-0158	SB-17G	ND	ND	
AB91180	S50048RI-0159	SB-17H	ND	ND	
AB91181	S50048RI-0160	SB-17I	ND	ND	

**TABLE 4**  
**SOIL SAMPLE FIELD SCREENING RESULTS**  
**PROVIDENCE BARREL**  
**4-8 APRIL 2021**

LABORATORY SAMPLE ID	SCRIBE SAMPLE NUMBER	SAMPLE LOCATION	PCE µg/kg	TCE µg/kg	Additional VOCs µg/kg
RIDEM DEC - Residential			12,000	13,000	
RIDEM DEC - Industrial			110,000	520,000	
EPA RML - Residential			240,000	12,000	
EPA RML - Industrial			1,200,000	56,000	
AB91182	S50048RI-0161	SB-17J	ND	ND	
AB91183**	S50048RI-0163	SB-18A	130	ND	
AB91185**	S50048RI-0171	SB-18V* (A)	490	ND	
AB91184**	S50048RI-0164	SB-18B	2,100	ND	
AB91186	S50048RI-0165	SB-18C	1,900	ND	
AB91187	S50048RI-0166	SB-18D	340	ND	
AB91188	S50048RI-0167	SB-18E	580	ND	
AB91189	S50048RI-0168	SB-18F	140	ND	
AB91190	S50048RI-0169	SB-18G	280	ND	
AB91191	S50048RI-0170	SB-18H	290	ND	
AB91192	S50048RI-0173	SB-19A	23	ND	
AB91193	S50048RI-0174	SB-19B	ND	ND	
AB91194	S50048RI-0175	SB-19C	18	ND	
AB91195	S50048RI-0176	SB-19D	ND	ND	
AB91196	S50048RI-0177	SB-19E	ND	ND	
AB91197	S50048RI-0178	SB-19F	ND	ND	
AB91198	S50048RI-0183	SB-19U* (F)	ND	ND	
AB91199	S50048RI-0179	SB-19G	ND	ND	
AB91200	S50048RI-0180	SB-19H	ND	ND	
AB91201	S50048RI-0181	SB-19I	ND	ND	
AB91202	S50048RI-0182	SB-19J	ND	ND	
AB91203	S50048RI-0184	SB-20A	330	ND	
AB91204	S50048RI-0185	SB-20B	370	ND	
AB91205	S50048RI-0186	SB-20C	ND	ND	
AB91206	S50048RI-0187	SB-20D	ND	ND	
AB91207	S50048RI-0188	SB-20E	ND	ND	
AB91208	S50048RI-0189	SB-20F	ND	ND	
AB91209	S50048RI-0190	SB-20G	ND	ND	
AB91210	S50048RI-0191	SB-20H	ND	ND	
AB91211	S50048RI-0192	SB-20I	ND	ND	
AB91212	S50048RI-0193	SB-20J	ND	ND	
AB91213	S50048RI-0194	SB-21A	ND	ND	
AB91214	S50048RI-0195	SB-21B	ND	ND	
AB91215	S50048RI-0196	SB-22A	ND	ND	
AB91216	S50048RI-0197	SB-22B	ND	ND	
AB91217	S50048RI-0198	SB-22C	ND	ND	
AB91218	S50048RI-0199	SB-22D	ND	ND	
AB91219	S50048RI-0200	SB-22E	ND	ND	

**TABLE 4**  
**SOIL SAMPLE FIELD SCREENING RESULTS**  
**PROVIDENCE BARREL**  
**4-8 APRIL 2021**

LABORATORY SAMPLE ID	SCRIBE SAMPLE NUMBER	SAMPLE LOCATION	PCE µg/kg	TCE µg/kg	Additional VOCs µg/kg
RIDEM DEC - Residential			12,000	13,000	
RIDEM DEC - Industrial			110,000	520,000	
EPA RML - Residential			240,000	12,000	
EPA RML - Industrial			1,200,000	56,000	
AB91220	S50048RI-0201	SB-22F	ND	ND	
AB91221	S50048RI-0202	SB-22G	ND	ND	
AB91222	S50048RI-0203	SB-22H	ND	ND	
AB91223	S50048RI-0204	SB-23A	ND	ND	
AB91224	S50048RI-0205	SB-23B	ND	ND	
AB91225	S50048RI-0206	SB-23C	ND	ND	
AB91226	S50048RI-0207	SB-23D	ND	ND	
AB91227	S50048RI-0208	SB-23E	ND	ND	
AB91228	S50048RI-0213	SB-23T* (E)	ND	ND	
AB91229	S50048RI-0209	SB-23F	ND	ND	
AB91230	S50048RI-0210	SB-23G	ND	ND	
AB91231	S50048RI-0211	SB-23H	ND	ND	
AB91232	S50048RI-0212	SB-23I	ND	ND	
AB91233	S50048RI-0214	SB-24A	3,200	110	
AB91234	S50048RI-0219	SB-24Z* (A)	1,500	ND	
AB91236**	S50048RI-0215	SB-24B	2,200	ND	
AB91235**	S50048RI-0216	SB-24M	23,000	980	Ethyl Benzene = 184,000 m/p Xylene = 300,000
AB91237**	S50048RI-0217	SB-24C	2,000	ND	
AB91238	S50048RI-0218	SB-24D	1,600	ND	
AB91246	S50048RI-0220	SB-N24	430	ND	
AB91239	S50048RI-0221	SB-25A	220	ND	
AB91240**	S50048RI-0222	SB-25B	22,000	ND	
AB91241**	S50048RI-0223	SB-25C	2,900	ND	
AB91242	S50048RI-0224	SB-25E	57	ND	
AB91243	S50048RI-0225	SB-25F	39	ND	
AB91244	S50048RI-0226	SB-25G	ND	ND	
AB91245	S50048RI-0227	SB-25H	ND	ND	
AB91247	S50048RI-0228	SB-25I	49	ND	
AB91248	S50048RI-0229	SB-25J	ND	ND	
AB91249	S50048RI-0230	SB-26A	200	ND	
AB91251**	S50048RI-0231	SB-26M	5,100	ND	
AB91250	S50048RI-0232	SB-26B	680	ND	
AB91252	S50048RI-0233	SB-26C	52	ND	
AB91253	S50048RI-0234	SB-26D	ND	ND	
AB91254	S50048RI-0235	SB-26E	ND	ND	
AB91255	S50048RI-0236	SB-26F	ND	ND	
AB91256	S50048RI-0237	SB-26G	160	ND	

**TABLE 4**  
**SOIL SAMPLE FIELD SCREENING RESULTS**  
**PROVIDENCE BARREL**  
**4-8 APRIL 2021**

LABORATORY SAMPLE ID	SCRIBE SAMPLE NUMBER	SAMPLE LOCATION	PCE µg/kg	TCE µg/kg	Additional VOCs µg/kg
<b>RIDEM DEC - Residential</b>			12,000	13,000	
<b>RIDEM DEC - Industrial</b>			110,000	520,000	
<b>EPA RML - Residential</b>			240,000	12,000	
<b>EPA RML - Industrial</b>			1,200,000	56,000	
AB91257	S50048RI-0238	SB-26H	ND	ND	
AB91258	S50048RI-0239	SB-26I	17	ND	
AB91259	S50048RI-0240	SB-26J	ND	ND	
AB91260	S50048RI-0241	SB-27A	ND	ND	
AB91261	S50048RI-0242	SB-27B	ND	ND	
AB91262	S50048RI-0243	SB-27C	ND	ND	
AB91263	S50048RI-0244	SB-27D	ND	ND	
AB91264	S50048RI-0245	SB-28A	2,200	ND	
AB91265	S50048RI-0246	SB-28B	1,400	ND	
AB91266	S50048RI-0247	SB-28C	450	ND	
AB91267	S50048RI-0248	SB-28D	70	ND	
AB91268	S50048RI-0249	SB-29A	ND	ND	
AB91269	S50048RI-0250	SB-29B	110	ND	
AB91270	S50048RI-0251	SB-29C	40	ND	
AB91271	S50048RI-0252	SB-29D	ND	ND	
AB91272	S50048RI-0255	SB-29Y* (D)	ND	ND	
AB91273	S50048RI-0253	SB-29E	ND	ND	
AB91274	S50048RI-0254	SB-29F	ND	ND	
AB91276**	S50048RI-0256	SB-30A	740	ND	
AB91277	S50048RI-0257	SB-31A	ND	ND	
AB91278	S50048RI-0258	SB-32A	150	ND	

**Notes:**

PCE = Tetrachloroethylene

TCE = Trichloroethylene

µg/kg = micrograms per kilogram

ND = Not Detected

\* Indicates duplicate sample (duplicated interval in parentheses).

\*\* Sample contained additional Volatile Organic Compounds (VOCs). These VOCs are listed in the "additional VOCs" column *only* if they exceeded one or more of the applicable standards.

RIDEM DEC - Residential/Industrial = Rhode Island Department of Environmental Management Direct Exposure Criteria for Residential or Industrial soils.

EPA RML - Residential/Industrial = EPA Regional Management Level for Residential or Industrial Soil, HQ=3.

**Bolded** results highlighted in YELLOW exceed the RIDEM DEC for Residential Soil.

**TABLE 5**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**5-8 APRIL 2021**

SAMPLE LOCATION: SAMPLE NUMBER: APPROX. SAMPLE DEPTH:			SB-11 A S50048RI-0095 1 foot	SB-11 E S50048RI-0099 9 feet	SB-11 Z S50048RI-0105 1 foot Dup: SB-11A	SB-13 B S50048RI-0112 3 feet	SB-14 B S50048RI-0122 3 feet	SB-14 X S50048RI-0130 3 feet Dup: SB-14 B
COMPOUND	DEC-R	RML-R						
<b>VOLATILE ORGANIC COMPOUNDS (VOCs) µg/kg</b>			<b>µg/kg</b>					
Methyl-t-Butyl Ether	390,000	4,700,000	ND	ND	ND	ND	--	--
2-Butanone (MEK)	10,000,000	81,000,000	ND	ND	ND	ND	--	--
1,1,1-Trichloroethane	540,000	24,000,000	ND	ND	ND	ND	--	--
Toluene	190,000	15,000,000	ND	ND	ND	ND	--	--
Chlorobenzene	210,000	830,000	ND	ND	ND	ND	--	--
Trichloroethylene	13,000	12,000	190	ND	180	110	--	--
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	ND	ND	ND	ND	--	--
Tetrachloroethylene	12,000	240,000	1,000	300	930	570	--	--
Ethylbenzene	71,000	580,000	ND	ND	ND	ND	--	--
M/P Xylene	110,000	1,700,000	ND	ND	ND	ND	--	--
Ortho Xylene	110,000	1,900,000	ND	ND	ND	ND	--	--
1,3-Dichlorobenzene	NL	NL	ND	ND	ND	ND	--	--
1,4-Dichlorobenzene	NL	260,000	ND	ND	ND	ND	--	--
1,2-Dichlorobenzene	NL	5,400,000	ND	ND	ND	ND	--	--
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) µg/kg</b>			<b>µg/kg</b>					
Naphthalene	54,000	200,000	--	--	--	--	ND	ND
2-Methylnaphthalene	123,000	720,000	--	--	--	--	ND	ND
1-Methylnaphthalene	NL	1,800,000	--	--	--	--	ND	ND
Phenanthrene	40,000	NL	--	--	--	--	ND	ND
Fluoranthene	20,000	7,200,000	--	--	--	--	87	54
Pyrene	13,000	5,400,000	--	--	--	--	75	ND
Benzo(a)anthracene	900	110,000	--	--	--	--	47	ND
Chrysene	400	11,000,000	--	--	--	--	54	ND
Benzo(b)fluoranthene	900	110,000	--	--	--	--	61	50
Benzo(k)fluoranthene	900	1,100,000	--	--	--	--	44	ND
Benzo(a)pyrene	400	11,000	--	--	--	--	50	ND
Indeno(1,2,3-cd)pyrene	900	110,000	--	--	--	--	ND	ND
Dibenz(a,h)anthracene	400	11,000	--	--	--	--	ND	ND
Benzo(g,h,i)perylene	800	NL	--	--	--	--	ND	ND
<b>OIL IDENTIFICATION</b>								
Hydrocarbon C20-C36			--	--	--	--	--	--

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

1) µg/kg = micrograms per kilogram

2) NL = Not Listed.

3) ND = Not Detected.

4) -- = Parameter not analyzed.

5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.

6) RML-R = US EPA Removal Management Level for Residential Soil.

7) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential Soil.

8) Results are reported in the units noted.

9) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.

Compounds that were analyzed for, but not detected, have been omitted.

**TABLE 5**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**5-8 APRIL 2021**

SAMPLE LOCATION: SAMPLE NUMBER: APPROX. SAMPLE DEPTH:			SB-15 A S50048RI-0131 1 foot	SB-15 B S50048RI-0132 3 feet	SB-17 A S50048RI-0152 1 foot	SB-18 A S50048RI-0163 1 foot	SB-18 B S50048RI-0164 3 feet	SB-18 H S50048RI-0170 15 feet
COMPOUND	DEC-R	RML-R						
<b>VOLATILE ORGANIC COMPOUNDS (VOCs) µg/kg</b>			<b>µg/kg</b>					
Methyl-t-Butyl Ether	390,000	4,700,000	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	10,000,000	81,000,000	ND	ND	ND	780	ND	ND
1,1,1-Trichloroethane	540,000	24,000,000	ND	ND	ND	ND	ND	ND
Toluene	190,000	15,000,000	ND	ND	ND	140	ND	ND
Chlorobenzene	210,000	830,000	ND	ND	ND	98	ND	ND
Trichloroethylene	13,000	12,000	260	93	ND	ND	ND	ND
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	ND	ND	ND	290	ND	ND
Tetrachloroethylene	12,000	240,000	640	970	ND	ND	2,900	220
Ethylbenzene	71,000	580,000	ND	ND	ND	170	ND	ND
M/P Xylene	110,000	1,700,000	ND	ND	ND	540	770	ND
Ortho Xylene	110,000	1,900,000	ND	ND	ND	190	1,700	ND
1,3-Dichlorobenzene	NL	NL	ND	ND	ND	ND	1,100	ND
1,4-Dichlorobenzene	NL	260,000	ND	ND	ND	ND	280	ND
1,2-Dichlorobenzene	NL	5,400,000	ND	ND	ND	ND	2,200	ND
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) µg/kg</b>			<b>µg/kg</b>					
Naphthalene	54,000	200,000	--	ND	--	--	95	--
2-Methylnaphthalene	123,000	720,000	--	ND	--	--	180	--
1-Methylnaphthalene	NL	1,800,000	--	ND	--	--	190	--
Phenanthrene	40,000	NL	--	ND	--	--	270	--
Fluoranthene	20,000	7,200,000	--	41	--	--	ND	--
Pyrene	13,000	5,400,000	--	49	--	--	120	--
Benzo(a)anthracene	900	110,000	--	ND	--	--	ND	--
Chrysene	400	11,000,000	--	48	--	--	ND	--
Benzo(b)fluoranthene	900	110,000	--	84	--	--	ND	--
Benzo(k)fluoranthene	900	1,100,000	--	51	--	--	ND	--
Benzo(a)pyrene	400	11,000	--	44	--	--	ND	--
Indeno(1,2,3-cd)pyrene	900	110,000	--	ND	--	--	ND	--
Dibenz(a,h)anthracene	400	11,000	--	ND	--	--	ND	--
Benzo(g,h,i)perylene	800	NL	--	42	--	--	ND	--
<b>OIL IDENTIFICATION</b>								
Hydrocarbon C20-C36			--	--	--	--	Trace	--

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

1) µg/kg = micrograms per kilogram

2) NL = Not Listed.

3) ND = Not Detected.

4) -- = Parameter not analyzed.

5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.

6) RML-R = US EPA Removal Management Level for Residential Soil.

7) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential Soil.

8) Results are reported in the units noted.

9) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.

Compounds that were analyzed for, but not detected, have been omitted.

**TABLE 5**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**5-8 APRIL 2021**

SAMPLE LOCATION: SAMPLE NUMBER: APPROX. SAMPLE DEPTH:			SB-18 V S50048RI-0171 1 foot Dup: SB-18 A	SB-19 A S50048RI-0173 1 foot	SB-23 H S50048RI-0211 15 feet	SB-24 M S50048RI-0216 2 feet	SB-24 C S50048RI-0217 5 feet	SB-N24 S50048RI-0220 2 feet
COMPOUND	DEC-R	RML-R						
<b>VOLATILE ORGANIC COMPOUNDS (VOCs) µg/kg</b>			<b>µg/kg</b>					
Methyl-t-Butyl Ether	390,000	4,700,000	ND	--	--	ND	1,300	--
2-Butanone (MEK)	10,000,000	81,000,000	52,000	--	--	ND	ND	--
1,1,1-Trichloroethane	540,000	24,000,000	460	--	--	ND	ND	--
Toluene	190,000	15,000,000	3,100	--	--	120,000	14,000	--
Chlorobenzene	210,000	830,000	2,200	--	--	<b>280,000</b>	21,000	--
Trichloroethylene	13,000	12,000	ND	--	--	ND	ND	--
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	7,300	--	--	ND	ND	--
Tetrachloroethylene	12,000	240,000	860	--	--	<b>73,000</b>	2,800	--
Ethylbenzene	71,000	580,000	3,600	--	--	<b>120,000</b>	8,000	--
M/P Xylene	110,000	1,700,000	9,500	--	--	<b>350,000</b>	20,000	--
Ortho Xylene	110,000	1,900,000	3,300	--	--	100,000	3,600	--
1,3-Dichlorobenzene	NL	NL	ND	--	--	ND	ND	--
1,4-Dichlorobenzene	NL	260,000	ND	--	--	ND	ND	--
1,2-Dichlorobenzene	NL	5,400,000	650	--	--	76,000	ND	--
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) µg/kg</b>			<b>µg/kg</b>					
Naphthalene	54,000	200,000	--	ND	ND	--	--	49
2-Methylnaphthalene	123,000	720,000	--	ND	ND	--	--	ND
1-Methylnaphthalene	NL	1,800,000	--	ND	ND	--	--	ND
Phenanthrene	40,000	NL	--	ND	ND	--	--	210
Fluoranthene	20,000	7,200,000	--	ND	ND	--	--	480
Pyrene	13,000	5,400,000	--	ND	ND	--	--	380
Benzo(a)anthracene	900	110,000	--	ND	ND	--	--	270
Chrysene	400	11,000,000	--	ND	ND	--	--	290
Benzo(b)fluoranthene	900	110,000	--	ND	ND	--	--	320
Benzo(k)fluoranthene	900	1,100,000	--	ND	ND	--	--	290
Benzo(a)pyrene	400	11,000	--	ND	ND	--	--	360
Indeno(1,2,3-cd)pyrene	900	110,000	--	ND	ND	--	--	270
Dibenz(a,h)anthracene	400	11,000	--	ND	ND	--	--	160
Benzo(g,h,i)perylene	800	NL	--	ND	ND	--	--	290
<b>OIL IDENTIFICATION</b>								
Hydrocarbon C20-C36			--	--	--	--	--	--

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

1) µg/kg = micrograms per kilogram

2) NL = Not Listed.

3) ND = Not Detected.

4) -- = Parameter not analyzed.

5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.

6) RML-R = US EPA Removal Management Level for Residential Soil.

7) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential Soil.

8) Results are reported in the units noted.

9) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.

Compounds that were analyzed for, but not detected, have been omitted.

**TABLE 5**  
**SUMMARY OF SOIL SAMPLE RESULTS**  
**PROVIDENCE BARREL SITE**  
**PROVIDENCE, RHODE ISLAND**  
**5-8 APRIL 2021**

SAMPLE LOCATION: SAMPLE NUMBER: APPROX. SAMPLE DEPTH:			SB-25 A S50048RI-0221 1 foot	SB-25 B S50048RI-0222 3 feet	SB-26 M S50048RI-0231 2 feet	SB-28 A S50048RI-0245 1 foot	SB-29 D S50048RI-0252 7 feet	SB-30 A S50048RI-0256 1 foot
COMPOUND	DEC-R	RML-R						
<b>VOLATILE ORGANIC COMPOUNDS (VOCs) µg/kg</b>			<b>µg/kg</b>					
Methyl-t-Butyl Ether	390,000	4,700,000	--	ND	ND	ND	--	ND
2-Butanone (MEK)	10,000,000	81,000,000	--	ND	ND	ND	--	ND
1,1,1-Trichloroethane	540,000	24,000,000	--	ND	1,000	ND	--	ND
Toluene	190,000	15,000,000	--	15,000	ND	ND	--	140
Chlorobenzene	210,000	830,000	--	5,800	1,500	ND	--	ND
Trichloroethylene	13,000	12,000	--	ND	ND	ND	--	ND
4-Methyl-2-Pentanone (MIBK)	NL	99,000,000	--	ND	ND	ND	--	ND
Tetrachloroethylene	12,000	240,000	--	<b>29,000</b>	<b>13,000</b>	2,800	--	850
Ethylbenzene	71,000	580,000	--	5,100	2,800	ND	--	690
M/P Xylene	110,000	1,700,000	--	16,000	11,000	ND	--	6,600
Ortho Xylene	110,000	1,900,000	--	6,100	4,500	ND	--	4,200
1,3-Dichlorobenzene	NL	NL	--	ND	ND	ND	--	ND
1,4-Dichlorobenzene	NL	260,000	--	ND	ND	ND	--	ND
1,2-Dichlorobenzene	NL	5,400,000	--	ND	2,400	ND	--	ND
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) µg/kg</b>			<b>µg/kg</b>					
Naphthalene	54,000	200,000	ND	--	--	--	ND	--
2-Methylnaphthalene	123,000	720,000	ND	--	--	--	ND	--
1-Methylnaphthalene	NL	1,800,000	ND	--	--	--	ND	--
Phenanthrene	40,000	NL	150	--	--	--	ND	--
Fluoranthene	20,000	7,200,000	400	--	--	--	ND	--
Pyrene	13,000	5,400,000	340	--	--	--	ND	--
Benzo(a)anthracene	900	110,000	210	--	--	--	ND	--
Chrysene	400	11,000,000	250	--	--	--	ND	--
Benzo(b)fluoranthene	900	110,000	300	--	--	--	ND	--
Benzo(k)fluoranthene	900	1,100,000	280	--	--	--	ND	--
Benzo(a)pyrene	400	11,000	240	--	--	--	ND	--
Indeno(1,2,3-cd)pyrene	900	110,000	150	--	--	--	ND	--
Dibenz(a,h)anthracene	400	11,000	72	--	--	--	ND	--
Benzo(g,h,i)perylene	800	NL	160	--	--	--	ND	--
<b>OIL IDENTIFICATION</b>								
Hydrocarbon C20-C36			--	--	Trace	--	--	--

**ANALYTICAL METHODS**

Samples analyzed by U.S. EPA New England Regional

Laboratory as follows:

VOCs: EPA Region I SOP, EIASOP-VOAGCMS8,

VOAs in Soil High Level Method.

PAHs: EPA Region I SOP EIASOP-BNAS1,

BNAs in Soil Medium Level.

**NOTES:**

1) µg/kg = micrograms per kilogram

2) NL = Not Listed.

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4) -- = Parameter not analyzed.

5) DEC-R = Rhode Island Department of Environmental Management (RIDEM) Direct Exposure Criteria for Residential Soil.

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7) Values bolded and shaded in yellow indicate compounds exceeding the RIDEM DEC for Residential Soil.

8) Results are reported in the units noted.

9) A compound is listed in the table above only if it was detected in at least one of the samples analyzed.

Compounds that were analyzed for, but not detected, have been omitted.

## Appendix C

### Photodocumentation Log

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of the southern portion of the existing slab located near the western property boundary. Photograph taken facing northwest.

**DATE:** 30 July 2020

**PHOTOGRAPHER:** C. Dupree

**TIME:** 1136 hours

**CAMERA:** Apple iPhone 8



**SCENE:** View of the northern portion of the existing slab located near the western property boundary. Photograph taken facing north.

**DATE:** 30 July 2020

**PHOTOGRAPHER:** C. Dupree

**TIME:** 1136 hours

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of the drainage swale located in the central portion of the northern Site property. Photograph taken facing northwest.

**DATE:** 30 July 2020

**PHOTOGRAPHER:** C. Dupree

**TIME:** 1141 hours

**CAMERA:** Apple iPhone 8



**SCENE:** View of soil gas sample locations PBSG-01 (left), PBSG-02 (center) and PBSG-16 (right-rear), left of the slab. Photograph taken facing northwest.

**DATE:** 10 December 2020

**PHOTOGRAPHER:** J. Burton

**TIME:** 1332 hours

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of soil gas sample locations PBSG-02 (left) and PBSG-03 (right). Photograph taken facing northwest.

**DATE:** 10 December 2020

**TIME:** 1332 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8



**SCENE:** View of soil gas sample locations PBSG-04 (left) and PBSG-05 (right). Photograph taken facing northwest.

**DATE:** 10 December 2020

**TIME:** 1336 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of soil gas sample locations PBSG-08 (left) and PBSG-07 (right). Photograph taken facing south.

**DATE:** 10 December 2020

**TIME:** 1340 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8



**SCENE:** View of sample location PBSG-13. Photograph taken facing northeast.

**DATE:** 10 December 2020

**TIME:** 1344 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of sample location PBSG-12. Photograph taken facing northeast.

**DATE:** 10 December 2020

**TIME:** 1345 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8



**SCENE:** View of sample locations PBSG-100 (left) and PBSG-110 (right). Photograph taken facing south.

**DATE:** 10 December 2020

**TIME:** 1400 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of sample locations SB-01 (left), PBSG-103 (rear), and SB-02 (right). Photograph taken facing northwest.

**DATE:** 10 December 2020

**TIME:** 1401 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8



**SCENE:** View of sample locations PBSG-104, PBSG-105, and PBSG-106 (front to rear). Photograph taken facing southeast.

**DATE:** 10 December 2020

**TIME:** 1410 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of sample locations PBSG-111 (left) and PBSG-112 (right). Photograph taken facing northwest.

**DATE:** 10 December 2020

**TIME:** 1415 hours

**PHOTOGRAPHER:** J. Burton

**CAMERA:** Apple iPhone 8



**SCENE:** View of soil boring location SB-24, where a drum lid, debris, and yellow-stained leather were found near a monitoring well in the southern portion of the property. Photograph taken facing south.

**DATE:** 7 April 2021

**TIME:** 1424 hours

**PHOTOGRAPHER:** C. Dupree

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of soil boring locations and monitoring wells in the southern portion of the property. Photograph taken facing south.

**DATE:** 8 April 2021

**TIME:** 1250 hours

**PHOTOGRAPHER:** C. Dupree

**CAMERA:** Apple iPhone 8



**SCENE:** View of the southern portion of the existing former building footprint (slab). Photograph taken facing southeast.

**DATE:** 8 April 2021

**TIME:** 1251 hours

**PHOTOGRAPHER:** C. Dupree

**CAMERA:** Apple iPhone 8

**PHOTODOCUMENTATION LOG**  
**Providence Barrel Site • Smithfield, Rhode Island**



**SCENE:** View of the west end of the former building foundation (slab). Photograph taken facing west.

**DATE:** 8 April 2021

**PHOTOGRAPHER:** C. Dupree

**TIME:** 1252 hours

**CAMERA:** Apple iPhone 8

## Appendix D

### Chain-of-Custody Records

**USEPA**

DateShipped: 11/18/2020

**CHAIN OF CUSTODY RECORD**

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: 617-223-1368

**No: RI20070048-001**

Cooler #:

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	CanisterNo	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	StartP	EndP	PID_ppm	Lab QC
	S50048RI-0001	SG-01	22685	VOCs	Soil Gas	11/17/2020	09:55	1	6L Summa	-30	0	17.3	
	S50048RI-0008	SG-08	6558	VOCs	Soil Gas	11/17/2020	11:15	1	6L Summa	-30	0	11.1	
	S50048RI-0010	SG-10	22694	VOCs	Soil Gas	11/17/2020	11:40	1	6L Summa	-30	0	29.99	
	S50048RI-0011	SG-11	14898	VOCs	Soil Gas	11/17/2020	11:53	1	6L Summa	-30	0	1.99	
	S50048RI-0016	SG-16	15061	VOCs	Soil Gas	11/17/2020	13:22	1	6L Summa	-30	0	2.78	
	S50048RI-0017	SG-17	3092	VOCs	Soil Gas	11/17/2020	13:35	1	6L Summa	-30	0	3.48	
	S50048RI-0018	SG-18	14891	VOCs	Soil Gas	11/17/2020	13:55	1	6L Summa	-30	0	2.91	
	S50048RI-0019	SG-19	20854	VOCs	Soil Gas	11/17/2020	14:07	1	6L Summa	-30	0	1.06	
	S50048RI-0020	SG-20	20855	VOCs	Soil Gas	11/17/2020	14:18	1	6L Summa	-30	0	3.67	
	S50048RI-0021	SG-21	12569	VOCs	Soil Gas	11/17/2020	14:34	1	6L Summa	-30	0	1.26	
	S50048RI-0028	SG-28	15055	VOCs	Soil Gas	11/17/2020	15:20	1	6L Summa	-30	0	2.12	
	S50048RI-0029	SG-29	5791	VOCs	Soil Gas	11/17/2020	15:29	1	6L Summa	-30	0	1.79	
	S50048RI-0030	SG-30	15049	VOCs	Soil Gas	11/17/2020	15:40	1	6L Summa	-30	0	4.14	
	S50048RI-0031	AMB-01	20845	VOCs	Soil Gas	11/17/2020	12:55	1	6L Summa	-30	0	0	
	S50048RI-0032	SG-107	4742	VOCs	Soil Gas	11/17/2020	13:35	1	6L Summa	-30	0	3.48	

Special Instructions: Please send results to OSC Alex Sherrin

**SAMPLES TRANSFERRED FROM****CHAIN OF CUSTODY #**

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

Date Shipped:

## CHAIN OF CUSTODY RECORD

Site #: S50048RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-003

Cooler #:

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Lab QC
	S50048RI-0071	SB-01A	PAH/Oil ID	Soil	12/10/2020	12:30	1	4 oz amber glass	
	S50048RI-0071	SB-01A	VOCs	Soil	12/10/2020	12:30	1	40-mL MeOH	
	S50048RI-0071	SB-01A	Percent Solids	Soil	12/10/2020	12:30	1	40-mL VOA	
	S50048RI-0072	SB-01B	VOCs	Soil	12/10/2020	12:40	1	40-mL MeOH	
	S50048RI-0072	SB-01B	Percent Solids	Soil	12/10/2020	12:40	1	40-mL VOA	
	S50048RI-0072	SB-01B	PAH/Oil ID	Soil	12/10/2020	12:40	1	4 oz amber glass	
	S50048RI-0073	SB-01C	PAH/Oil ID	Soil	12/10/2020	12:50	1	4 oz amber glass	
	S50048RI-0073	SB-01C	VOCs	Soil	12/10/2020	12:50	1	40-mL MeOH	
	S50048RI-0073	SB-01C	Percent Solids	Soil	12/10/2020	12:50	1	40-mL VOA	
	S50048RI-0074	SB-01D	PAH/Oil ID	Soil	12/10/2020	13:00	1	4 oz amber glass	
	S50048RI-0074	SB-01D	VOCs	Soil	12/10/2020	13:00	1	40-mL MeOH	
	S50048RI-0074	SB-01D	Percent Solids	Soil	12/10/2020	13:00	1	40-mL VOA	
	S50048RI-0075	SB-02A	VOCs	Soil	12/10/2020	13:35	1	40-mL MeOH	
	S50048RI-0075	SB-02A	Percent Solids	Soil	12/10/2020	13:35	1	40-mL VOA	
	S50048RI-0075	SB-02A	PAH/Oil ID	Soil	12/10/2020	13:35	1	4 oz amber glass	
	S50048RI-0076	SB-02B	VOCs	Soil	12/10/2020	13:50	1	40-mL MeOH	
	S50048RI-0076	SB-02B	PAH/Oil ID	Soil	12/10/2020	13:50	1	4 oz amber glass	
	S50048RI-0076	SB-02B	Percent Solids	Soil	12/10/2020	13:50	1	40-mL VOA	
	S50048RI-0077	SB-02C	Percent Solids	Soil	12/10/2020	14:00	1	40-mL VOA	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	<i>David C. Coker / WESTON - SMC</i>	12/11/20 1420	<i>[Signature] ESAT</i>	12/11/20 1420	

USEPA

DateShipped:

## CHAIN OF CUSTODY RECORD

Site #: S50048RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-003

Cooler #:

Lab: NERL



Lab Phone: 617-918-8940

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Lab QC
	S50048RI-0077	SB-02C	PAH/Oil ID	Soil	12/10/2020	14:00	1	4 oz amber glass	
	S50048RI-0077	SB-02C	VOCs	Soil	12/10/2020	14:00	1	40-mL MeOH	
	S50048RI-0078	SB-02D	VOCs	Soil	12/10/2020	14:10	1	40-mL MeOH	
	S50048RI-0078	SB-02D	Percent Solids	Soil	12/10/2020	14:10	1	40-mL VOA	
	S50048RI-0078	SB-02D	PAH/Oil ID	Soil	12/10/2020	14:10	1	4 oz amber glass	
	S50048RI-0079	SB-02E	Percent Solids	Soil	12/10/2020	14:20	1	40-mL VOA	
	S50048RI-0079	SB-02E	PAH/Oil ID	Soil	12/10/2020	14:20	1	4 oz amber glass	
	S50048RI-0079	SB-02E	VOCs	Soil	12/10/2020	14:20	1	40-mL MeOH	
	S50048RI-0080	SB-021A	Percent Solids	Soil	12/10/2020	13:35	1	40-mL VOA	
	S50048RI-0080	SB-021A	VOCs	Soil	12/10/2020	13:35	1	40-mL MeOH	
	S50048RI-0081	SB-021E	PAH/Oil ID	Soil	12/10/2020	14:25	1	4 oz amber glass	
	S50048RI-0082	MB-01	VOCs	Soil	12/10/2020	14:30	1	40-mL MeOH	
	S50048RI-0083	MLV0281 PE	VOCs	Lab Sand	12/11/2020	11:10	1	Ampule	Y
	S50048RI-0084	SS2880 PE	Semivolatiles (SVOCs)	Lab Sand	12/11/2020	11:00	1	Ampule	Y

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	 WESTON - SHERRIN	12/11/20 1420	 ESAT	12/11/20 1420	

USEPA

DateShipped:

## CHAIN OF CUSTODY RECORD

Site #: S50048RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-002

Cooler #:

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	CanisterNo	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	StartP	EndP	PID_ppm	Lab QC
	S50048RI-0034	PBSG-02	3656	VOCs	Soil Gas	12/9/2020	10:40	1	6L Summa	-30			
	S50048RI-0039	PBSG-103	22684	VOCs	Soil Gas	12/9/2020	11:45	1	6L Summa	-30			
	S50048RI-0040	PBSG-104	6462	VOCs	Soil Gas	12/9/2020	12:40	1	6L Summa	-30			
	S50048RI-0041	PBSG-105	13482	VOCs	Soil Gas	12/9/2020	13:30	1	6L Summa	-30			
	S50048RI-0045	PBSG-109	14894	VOCs	Soil Gas	12/9/2020	14:20	1	6L Summa	-30			
	S50048RI-0046	PBSG-04	15056	VOCs	Soil Gas	12/9/2020	14:50	1	6L Summa	-30			
	S50048RI-0048	PBSG-06	12571	VOCs	Soil Gas	12/9/2020	15:00	1	6L Summa	-30			
	S50048RI-0051	PBSG-BLK	5810	VOCs	Soil Gas	12/10/2020	08:00	1	6L Summa	-30			
	S50048RI-0053	PBSGFL-02	20850	VOCs	Soil Gas	12/10/2020	08:30	1	6L Summa	-30			
	S50048RI-0056	PBSGFL-05	22686	VOCs	Soil Gas	12/10/2020	08:55	1	6L Summa	-30			
	S50048RI-0057	PBSGFL-105	22692	VOCs	Soil Gas	12/10/2020	09:00	1	6L Summa	-30			
	S50048RI-0063	PBSG-13	20858	VOCs	Soil Gas	12/10/2020	10:15	1	6L Summa	-30			
	S50048RI-0064	PBSG-14	13487	VOCs	Soil Gas	12/10/2020	10:30	1	6L Summa	-30			
	S50048RI-0066	PBSG-16	13490	VOCs	Soil Gas	12/10/2020	10:45	1	6L Summa	-30			
	S50048RI-0069	PBSG-111	22690	VOCs	Soil Gas	12/10/2020	12:40	1	6L Summa	-30			
	S50048RI-0070	PBSG-112	15059	VOCs	Soil Gas	12/10/2020	12:55	1	6L Summa	-30			

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

SAMPLES TRANSFERRED FROM  
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	<i>Erica Cohen</i> WESTON STATE	12/11/20 1425	<i>Chris Long</i> ESAT	12/11/20 1425	

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0086	SB-10	A	VOCs (Field)	Soil	4/5/2021	11:45	1	40 mL Vial	
	S50048RI-0087	SB-10	B	VOCs (Field)	Soil	4/5/2021	11:55	1	40 mL Vial	
	S50048RI-0088	SB-10	C	VOCs (Field)	Soil	4/5/2021	12:00	1	40 mL Vial	
	S50048RI-0089	SB-10	D	VOCs (Field)	Soil	4/5/2021	12:01	1	40 mL Vial	
	S50048RI-0090	SB-10	E	VOCs (Field)	Soil	4/5/2021	12:14	1	40 mL Vial	
	S50048RI-0091	SB-10	F	VOCs (Field)	Soil	4/5/2021	12:15	1	40 mL Vial	
	S50048RI-0092	SB-10	G	VOCs (Field)	Soil	4/5/2021	12:32	1	40 mL Vial	
	S50048RI-0093	SB-10	H	VOCs (Field)	Soil	4/5/2021	12:33	1	40 mL Vial	
	S50048RI-0094	SB-10	I	VOCs (Field)	Soil	4/5/2021	12:47	1	40 mL Vial	
	S50048RI-0095	SB-11	A	VOCs (Field)	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 14.04g
	S50048RI-0096	SB-11	B	VOCs (Field)	Soil	4/5/2021	14:03	1	40 mL Vial	
	S50048RI-0097	SB-11	C	VOCs (Field)	Soil	4/5/2021	14:18	1	40 mL Vial	
	S50048RI-0098	SB-11	D	VOCs (Field)	Soil	4/5/2021	14:19	1	40 mL Vial	
	S50048RI-0099	SB-11	E	VOCs (Field)	Soil	4/5/2021	14:31	1	40 mL Vial	Soil Wt: 11.34g
	S50048RI-0100	SB-11	F	VOCs (Field)	Soil	4/5/2021	14:32	1	40 mL Vial	
	S50048RI-0101	SB-11	G	VOCs (Field)	Soil	4/5/2021	14:46	1	40 mL Vial	
	S50048RI-0102	SB-11	H	VOCs (Field)	Soil	4/5/2021	14:47	1	40 mL Vial	
	S50048RI-0103	SB-11	I	VOCs (Field)	Soil	4/5/2021	15:00	1	40 mL Vial	
	S50048RI-0104	SB-11	J	VOCs (Field)	Soil	4/5/2021	15:01	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

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## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0105	SB-11	Z	VOCs (Field)	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 12.61g
	S50048RI-0106	SB-12	A	VOCs (Field)	Soil	4/5/2021	15:12	1	40 mL Vial	
	S50048RI-0107	SB-12	B	VOCs (Field)	Soil	4/5/2021	15:13	1	40 mL Vial	
	S50048RI-0108	SB-12	C	VOCs (Field)	Soil	4/5/2021	15:27	1	40 mL Vial	
	S50048RI-0109	SB-12	D	VOCs (Field)	Soil	4/5/2021	15:28	1	40 mL Vial	
	S50048RI-0110	SB-12	E	VOCs (Field)	Soil	4/5/2021	15:38	1	40 mL Vial	Refusal @10ft
	S50048RI-0111	SB-13	A	VOCs (Field)	Soil	4/5/2021	15:48	1	40 mL Vial	
	S50048RI-0112	SB-13	B	VOCs (Field)	Soil	4/5/2021	15:49	1	40 mL Vial	Soil Wt: 12.44g
	S50048RI-0113	SB-13	C	VOCs (Field)	Soil	4/5/2021	16:00	1	40 mL Vial	
	S50048RI-0114	SB-13	D	VOCs (Field)	Soil	4/5/2021	16:01	1	40 mL Vial	
	S50048RI-0115	SB-13	E	VOCs (Field)	Soil	4/5/2021	16:13	1	40 mL Vial	
	S50048RI-0116	SB-13	F	VOCs (Field)	Soil	4/5/2021	16:14	1	40 mL Vial	
	S50048RI-0117	SB-13	G	VOCs (Field)	Soil	4/5/2021	16:31	1	40 mL Vial	
	S50048RI-0118	SB-13	H	VOCs (Field)	Soil	4/5/2021	16:32	1	40 mL Vial	
	S50048RI-0119	SB-13	I	VOCs (Field)	Soil	4/5/2021	17:02	1	40 mL Vial	
	S50048RI-0120	SB-13	J	VOCs (Field)	Soil	4/5/2021	17:03	1	40 mL Vial	
	S50048RI-0121	SB-14	A	VOCs (Field)	Soil	4/6/2021	08:37	1	40 mL Vial	
	S50048RI-0122	SB-14	B	VOCs (Field)	Soil	4/6/2021	08:38	1	40 mL Vial	
	S50048RI-0123	SB-14	C	VOCs (Field)	Soil	4/6/2021	08:46	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0124	SB-14	D	VOCs (Field)	Soil	4/6/2021	08:47	1	40 mL Vial	
	S50048RI-0125	SB-14	E	VOCs (Field)	Soil	4/6/2021	08:59	1	40 mL Vial	
	S50048RI-0126	SB-14	F	VOCs (Field)	Soil	4/6/2021	09:00	1	40 mL Vial	
	S50048RI-0127	SB-14	G	VOCs (Field)	Soil	4/6/2021	09:12	1	40 mL Vial	
	S50048RI-0128	SB-14	H	VOCs (Field)	Soil	4/6/2021	09:13	1	40 mL Vial	
	S50048RI-0129	SB-14	I	VOCs (Field)	Soil	4/6/2021	09:23	1	40 mL Vial	
	S50048RI-0130	SB-14	X	VOCs (Field)	Soil	4/6/2021	08:38	1	40 mL Vial	
	S50048RI-0131	SB-15	A	VOCs (Field)	Soil	4/6/2021	09:50	1	40 mL Vial	Soil Wt: 10.47g
	S50048RI-0132	SB-15	B	VOCs (Field)	Soil	4/6/2021	09:51	1	40 mL Vial	Soil Wt: 11.87g
	S50048RI-0133	SB-15	C	VOCs (Field)	Soil	4/6/2021	10:05	1	40 mL Vial	
	S50048RI-0134	SB-15	D	VOCs (Field)	Soil	4/6/2021	10:06	1	40 mL Vial	
	S50048RI-0135	SB-15	E	VOCs (Field)	Soil	4/6/2021	10:21	1	40 mL Vial	
	S50048RI-0136	SB-15	F	VOCs (Field)	Soil	4/6/2021	10:22	1	40 mL Vial	
	S50048RI-0137	SB-15	G	VOCs (Field)	Soil	4/6/2021	10:35	1	40 mL Vial	
	S50048RI-0138	SB-15	H	VOCs (Field)	Soil	4/6/2021	10:36	1	40 mL Vial	
	S50048RI-0139	SB-15	I	VOCs (Field)	Soil	4/6/2021	10:57	1	40 mL Vial	
	S50048RI-0140	SB-15	J	VOCs (Field)	Soil	4/6/2021	10:58	1	40 mL Vial	
	S50048RI-0141	SB-15	Y	VOCs (Field)	Soil	4/6/2021	10:05	1	40 mL Vial	
	S50048RI-0142	SB-16	A	VOCs (Field)	Soil	4/6/2021	11:12	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0143	SB-16	B	VOCs (Field)	Soil	4/6/2021	11:13	1	40 mL Vial	
	S50048RI-0144	SB-16	C	VOCs (Field)	Soil	4/6/2021	11:22	1	40 mL Vial	
	S50048RI-0145	SB-16	D	VOCs (Field)	Soil	4/6/2021	11:24	1	40 mL Vial	
	S50048RI-0146	SB-16	E	VOCs (Field)	Soil	4/6/2021	11:33	1	40 mL Vial	
	S50048RI-0147	SB-16	F	VOCs (Field)	Soil	4/6/2021	11:34	1	40 mL Vial	
	S50048RI-0148	SB-16	G	VOCs (Field)	Soil	4/6/2021	11:42	1	40 mL Vial	
	S50048RI-0149	SB-16	H	VOCs (Field)	Soil	4/6/2021	11:43	1	40 mL Vial	
	S50048RI-0150	SB-16	I	VOCs (Field)	Soil	4/6/2021	12:00	1	40 mL Vial	
	S50048RI-0151	SB-16	J	VOCs (Field)	Soil	4/6/2021	12:01	1	40 mL Vial	
	S50048RI-0152	SB-17	A	VOCs (Field)	Soil	4/6/2021	13:38	1	40 mL Vial	Soil Wt: 9.65g
	S50048RI-0153	SB-17	B	VOCs (Field)	Soil	4/6/2021	13:39	1	40 mL Vial	
	S50048RI-0154	SB-17	C	VOCs (Field)	Soil	4/6/2021	13:50	1	40 mL Vial	
	S50048RI-0155	SB-17	D	VOCs (Field)	Soil	4/6/2021	13:51	1	40 mL Vial	
	S50048RI-0156	SB-17	E	VOCs (Field)	Soil	4/6/2021	14:03	1	40 mL Vial	
	S50048RI-0157	SB-17	F	VOCs (Field)	Soil	4/6/2021	14:04	1	40 mL Vial	
	S50048RI-0158	SB-17	G	VOCs (Field)	Soil	4/6/2021	14:23	1	40 mL Vial	
	S50048RI-0159	SB-17	H	VOCs (Field)	Soil	4/6/2021	14:24	1	40 mL Vial	
	S50048RI-0160	SB-17	I	VOCs (Field)	Soil	4/6/2021	14:54	1	40 mL Vial	
	S50048RI-0161	SB-17	J	VOCs (Field)	Soil	4/6/2021	14:55	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0162	SB-17	W	VOCs (Field)	Soil	4/6/2021	13:51	1	40 mL Vial	
	S50048RI-0163	SB-18	A	VOCs (Field)	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.94g
	S50048RI-0164	SB-18	B	VOCs (Field)	Soil	4/6/2021	15:26	1	40 mL Vial	Soil Wt: 9.93g
	S50048RI-0165	SB-18	C	VOCs (Field)	Soil	4/6/2021	15:49	1	40 mL Vial	
	S50048RI-0166	SB-18	D	VOCs (Field)	Soil	4/6/2021	15:50	1	40 mL Vial	
	S50048RI-0167	SB-18	E	VOCs (Field)	Soil	4/6/2021	16:06	1	40 mL Vial	
	S50048RI-0168	SB-18	F	VOCs (Field)	Soil	4/6/2021	16:07	1	40 mL Vial	
	S50048RI-0169	SB-18	G	VOCs (Field)	Soil	4/6/2021	16:16	1	40 mL Vial	
	S50048RI-0170	SB-18	H	VOCs (Field)	Soil	4/6/2021	16:17	1	40 mL Vial	Soil Wt: 10.17g
	S50048RI-0171	SB-18	V	VOCs (Field)	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.23g
	S50048RI-0173	SB-19	A	VOCs (Field)	Soil	4/7/2021	08:25	1	40 mL Vial	
	S50048RI-0174	SB-19	B	VOCs (Field)	Soil	4/7/2021	08:26	1	40 mL Vial	
	S50048RI-0175	SB-19	C	VOCs (Field)	Soil	4/7/2021	08:31	1	40 mL Vial	
	S50048RI-0176	SB-19	D	VOCs (Field)	Soil	4/7/2021	08:32	1	40 mL Vial	
	S50048RI-0177	SB-19	E	VOCs (Field)	Soil	4/7/2021	08:40	1	40 mL Vial	
	S50048RI-0178	SB-19	F	VOCs (Field)	Soil	4/7/2021	08:41	1	40 mL Vial	
	S50048RI-0179	SB-19	G	VOCs (Field)	Soil	4/7/2021	08:53	1	40 mL Vial	
	S50048RI-0180	SB-19	H	VOCs (Field)	Soil	4/7/2021	08:54	1	40 mL Vial	
	S50048RI-0181	SB-19	I	VOCs (Field)	Soil	4/7/2021	09:14	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0182	SB-19	J	VOCs (Field)	Soil	4/7/2021	09:15	1	40 mL Vial	
	S50048RI-0183	SB-19	U	VOCs (Field)	Soil	4/7/2021	08:41	1	40 mL Vial	
	S50048RI-0184	SB-20	A	VOCs (Field)	Soil	4/7/2021	09:25	1	40 mL Vial	
	S50048RI-0185	SB-20	B	VOCs (Field)	Soil	4/7/2021	09:26	1	40 mL Vial	
	S50048RI-0186	SB-20	C	VOCs (Field)	Soil	4/7/2021	09:33	1	40 mL Vial	
	S50048RI-0187	SB-20	D	VOCs (Field)	Soil	4/7/2021	09:34	1	40 mL Vial	
	S50048RI-0188	SB-20	E	VOCs (Field)	Soil	4/7/2021	09:43	1	40 mL Vial	
	S50048RI-0189	SB-20	F	VOCs (Field)	Soil	4/7/2021	09:44	1	40 mL Vial	
	S50048RI-0190	SB-20	G	VOCs (Field)	Soil	4/7/2021	10:01	1	40 mL Vial	
	S50048RI-0191	SB-20	H	VOCs (Field)	Soil	4/7/2021	10:02	1	40 mL Vial	
	S50048RI-0192	SB-20	I	VOCs (Field)	Soil	4/7/2021	10:20	1	40 mL Vial	
	S50048RI-0193	SB-20	J	VOCs (Field)	Soil	4/7/2021	10:21	1	40 mL Vial	
	S50048RI-0194	SB-21	A	VOCs (Field)	Soil	4/7/2021	10:31	1	40 mL Vial	
	S50048RI-0195	SB-21	B	VOCs (Field)	Soil	4/7/2021	10:32	1	40 mL Vial	
	S50048RI-0196	SB-22	A	VOCs (Field)	Soil	4/7/2021	10:40	1	40 mL Vial	
	S50048RI-0197	SB-22	B	VOCs (Field)	Soil	4/7/2021	10:41	1	40 mL Vial	
	S50048RI-0198	SB-22	C	VOCs (Field)	Soil	4/7/2021	10:52	1	40 mL Vial	
	S50048RI-0199	SB-22	D	VOCs (Field)	Soil	4/7/2021	10:53	1	40 mL Vial	
	S50048RI-0200	SB-22	E	VOCs (Field)	Soil	4/7/2021	11:03	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0201	SB-22	F	VOCs (Field)	Soil	4/7/2021	11:04	1	40 mL Vial	
	S50048RI-0202	SB-22	G	VOCs (Field)	Soil	4/7/2021	11:14	1	40 mL Vial	
	S50048RI-0203	SB-22	H	VOCs (Field)	Soil	4/7/2021	11:15	1	40 mL Vial	
	S50048RI-0204	SB-23	A	VOCs (Field)	Soil	4/7/2021	12:53	1	40 mL Vial	
	S50048RI-0205	SB-23	B	VOCs (Field)	Soil	4/7/2021	12:54	1	40 mL Vial	
	S50048RI-0206	SB-23	C	VOCs (Field)	Soil	4/7/2021	13:03	1	40 mL Vial	
	S50048RI-0207	SB-23	D	VOCs (Field)	Soil	4/7/2021	13:04	1	40 mL Vial	
	S50048RI-0208	SB-23	E	VOCs (Field)	Soil	4/7/2021	13:13	1	40 mL Vial	
	S50048RI-0209	SB-23	F	VOCs (Field)	Soil	4/7/2021	13:14	1	40 mL Vial	
	S50048RI-0210	SB-23	G	VOCs (Field)	Soil	4/7/2021	13:25	1	40 mL Vial	
	S50048RI-0211	SB-23	H	VOCs (Field)	Soil	4/7/2021	13:26	1	40 mL Vial	
	S50048RI-0212	SB-23	I	VOCs (Field)	Soil	4/7/2021	13:38	1	40 mL Vial	
	S50048RI-0213	SB-23	T	VOCs (Field)	Soil	4/7/2021	13:14	1	40 mL Vial	
	S50048RI-0214	SB-24	A	VOCs (Field)	Soil	4/7/2021	13:50	1	40 mL Vial	
	S50048RI-0215	SB-24	B	VOCs (Field)	Soil	4/7/2021	13:51	1	40 mL Vial	
	S50048RI-0216	SB-24	M	VOCs (Field)	Soil	4/7/2021	14:09	1	40 mL Vial	Soil Wt: 7.36g
	S50048RI-0217	SB-24	C	VOCs (Field)	Soil	4/7/2021	14:40	1	40 mL Vial	Soil Wt: 12.31g
	S50048RI-0218	SB-24	D	VOCs (Field)	Soil	4/7/2021	14:41	1	40 mL Vial	
	S50048RI-0219	SB-24	Z	VOCs (Field)	Soil	4/7/2021	13:50	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0220	SB-N24		VOCs (Field)	Soil	4/7/2021	14:56	1	40 mL Vial	
	S50048RI-0221	SB-25	A	VOCs (Field)	Soil	4/7/2021	15:03	1	40 mL Vial	
	S50048RI-0222	SB-25	B	VOCs (Field)	Soil	4/7/2021	15:04	1	40 mL Vial	Soil Wt: 10.81g
	S50048RI-0223	SB-25	C	VOCs (Field)	Soil	4/7/2021	15:21	1	40 mL Vial	
	S50048RI-0224	SB-25	E	VOCs (Field)	Soil	4/7/2021	15:26	1	40 mL Vial	
	S50048RI-0225	SB-25	F	VOCs (Field)	Soil	4/7/2021	15:27	1	40 mL Vial	
	S50048RI-0226	SB-25	G	VOCs (Field)	Soil	4/7/2021	15:35	1	40 mL Vial	
	S50048RI-0227	SB-25	H	VOCs (Field)	Soil	4/7/2021	15:36	1	40 mL Vial	
	S50048RI-0228	SB-25	I	VOCs (Field)	Soil	4/7/2021	16:19	1	40 mL Vial	
	S50048RI-0229	SB-25	J	VOCs (Field)	Soil	4/7/2021	16:20	1	40 mL Vial	
	S50048RI-0230	SB-26	A	VOCs (Field)	Soil	4/8/2021	08:27	1	40 mL Vial	
	S50048RI-0231	SB-26	M	VOCs (Field)	Soil	4/8/2021	08:29	1	40 mL Vial	Soil Wt: 10.99g
	S50048RI-0232	SB-26	B	VOCs (Field)	Soil	4/8/2021	08:28	1	40 mL Vial	
	S50048RI-0233	SB-26	C	VOCs (Field)	Soil	4/8/2021	09:00	1	40 mL Vial	
	S50048RI-0234	SB-26	D	VOCs (Field)	Soil	4/8/2021	09:01	1	40 mL Vial	
	S50048RI-0235	SB-26	E	VOCs (Field)	Soil	4/8/2021	09:08	1	40 mL Vial	
	S50048RI-0236	SB-26	F	VOCs (Field)	Soil	4/8/2021	09:09	1	40 mL Vial	
	S50048RI-0237	SB-26	G	VOCs (Field)	Soil	4/8/2021	09:18	1	40 mL Vial	
	S50048RI-0238	SB-26	H	VOCs (Field)	Soil	4/8/2021	09:19	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

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## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:

Lab: NERL Mobile Lab

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0239	SB-26	I	VOCs (Field)	Soil	4/8/2021	09:40	1	40 mL Vial	
	S50048RI-0240	SB-26	J	VOCs (Field)	Soil	4/8/2021	09:41	1	40 mL Vial	
	S50048RI-0241	SB-27	A	VOCs (Field)	Soil	4/8/2021	09:46	1	40 mL Vial	
	S50048RI-0242	SB-27	B	VOCs (Field)	Soil	4/8/2021	09:47	1	40 mL Vial	
	S50048RI-0243	SB-27	C	VOCs (Field)	Soil	4/8/2021	09:56	1	40 mL Vial	
	S50048RI-0244	SB-27	D	VOCs (Field)	Soil	4/8/2021	09:57	1	40 mL Vial	
	S50048RI-0245	SB-28	A	VOCs (Field)	Soil	4/8/2021	10:08	1	40 mL Vial	Soil Wt: 10.82g
	S50048RI-0246	SB-28	B	VOCs (Field)	Soil	4/8/2021	10:09	1	40 mL Vial	
	S50048RI-0247	SB-28	C	VOCs (Field)	Soil	4/8/2021	10:22	1	40 mL Vial	
	S50048RI-0248	SB-28	D	VOCs (Field)	Soil	4/8/2021	10:23	1	40 mL Vial	
	S50048RI-0249	SB-29	A	VOCs (Field)	Soil	4/8/2021	10:30	1	40 mL Vial	
	S50048RI-0250	SB-29	B	VOCs (Field)	Soil	4/8/2021	10:31	1	40 mL Vial	
	S50048RI-0251	SB-29	C	VOCs (Field)	Soil	4/8/2021	10:42	1	40 mL Vial	
	S50048RI-0252	SB-29	D	VOCs (Field)	Soil	4/8/2021	10:43	1	40 mL Vial	
	S50048RI-0253	SB-29	E	VOCs (Field)	Soil	4/8/2021	11:13	1	40 mL Vial	
	S50048RI-0254	SB-29	F	VOCs (Field)	Soil	4/8/2021	11:14	1	40 mL Vial	
	S50048RI-0255	SB-29	Y	VOCs (Field)	Soil	4/8/2021	10:43	1	40 mL Vial	
	S50048RI-0256	SB-30	A	VOCs (Field)	Soil	4/8/2021	11:26	1	40 mL Vial	Soil Wt: 11.44g
	S50048RI-0257	SB-31	A	VOCs (Field)	Soil	4/8/2021	11:43	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

Providence Barrel\_RS/RI  
 Contact Name: Alex Sherrin  
 Contact Phone: (617) 918-1252

No: RI20070048-004

Cooler #:  
 Lab: NERL Mobile Lab  
 Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0258	SB-32	A	VOCs (Field)	Soil	4/8/2021	11:52	1	40 mL Vial	
	S50048RI-0261	MB-02		VOCs (Field)	Blank	4/5/2021	10:00	1	40 mL Vial	
	S50048RI-0262	MB-03		VOCs (Field)	Blank	4/8/2021	09:00	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

**SAMPLES TRANSFERRED FROM**  
**CHAIN OF CUSTODY #**

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

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## CHAIN OF CUSTODY RECORD

No: RI20070048-005

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0095	SB-11	A	% Solids	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 14.04g
	S50048RI-0095	SB-11	A	VOCs	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 14.04g
	S50048RI-0099	SB-11	E	% Solids	Soil	4/5/2021	14:31	1	40 mL Vial	Soil Wt: 11.34g
	S50048RI-0099	SB-11	E	VOCs	Soil	4/5/2021	14:31	1	40 mL Vial	Soil Wt: 11.34g
	S50048RI-0105	SB-11	Z	% Solids	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 12.61g
	S50048RI-0105	SB-11	Z	VOCs	Soil	4/5/2021	14:02	1	40 mL Vial	Soil Wt: 12.61g
	S50048RI-0112	SB-13	B	% Solids	Soil	4/5/2021	15:49	1	40 mL Vial	Soil Wt: 12.44g
	S50048RI-0112	SB-13	B	VOCs	Soil	4/5/2021	15:49	1	40 mL Vial	Soil Wt: 12.44g
	S50048RI-0122	SB-14	B	PAHs	Soil	4/6/2021	08:38	1	4 oz Jar	
	S50048RI-0130	SB-14	X	PAHs	Soil	4/6/2021	08:38	1	4 oz Jar	
	S50048RI-0131	SB-15	A	% Solids	Soil	4/6/2021	09:50	1	40 mL Vial	Soil Wt: 10.47g
	S50048RI-0131	SB-15	A	VOCs	Soil	4/6/2021	09:50	1	40 mL Vial	Soil Wt: 10.47g
	S50048RI-0132	SB-15	B	% Solids	Soil	4/6/2021	09:51	1	40 mL Vial	Soil Wt: 11.87g
	S50048RI-0132	SB-15	B	PAHs	Soil	4/6/2021	09:51	1	4 oz Jar	Soil Wt: 11.87g
	S50048RI-0132	SB-15	B	VOCs	Soil	4/6/2021	09:51	1	40 mL Vial	Soil Wt: 11.87g
	S50048RI-0152	SB-17	A	% Solids	Soil	4/6/2021	13:38	1	40 mL Vial	Soil Wt: 9.65g
	S50048RI-0152	SB-17	A	VOCs	Soil	4/6/2021	13:38	1	40 mL Vial	Soil Wt: 9.65g
	S50048RI-0163	SB-18	A	% Solids	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.94g
	S50048RI-0163	SB-18	A	VOCs	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.94g

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

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USEPA

## CHAIN OF CUSTODY RECORD

No: RI20070048-005

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0164	SB-18	B	% Solids	Soil	4/6/2021	15:26	1	40 mL Vial	Soil Wt: 9.93g
	S50048RI-0164	SB-18	B	Oil ID	Soil	4/6/2021	15:26	1	4 oz Jar	Soil Wt: 9.93g
	S50048RI-0164	SB-18	B	PAHs	Soil	4/6/2021	15:26	1	4 oz Jar	Soil Wt: 9.93g
	S50048RI-0164	SB-18	B	VOCs	Soil	4/6/2021	15:26	1	40 mL Vial	Soil Wt: 9.93g
	S50048RI-0170	SB-18	H	% Solids	Soil	4/6/2021	16:17	1	40 mL Vial	Soil Wt: 10.17g
	S50048RI-0170	SB-18	H	VOCs	Soil	4/6/2021	16:17	1	40 mL Vial	Soil Wt: 10.17g
	S50048RI-0171	SB-18	V	% Solids	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.23g
	S50048RI-0171	SB-18	V	VOCs	Soil	4/6/2021	15:25	1	40 mL Vial	Soil Wt: 9.23g
	S50048RI-0172	RB-01		VOCs	Water	4/6/2021	16:50	3	40 mL Vial	
	S50048RI-0173	SB-19	A	PAHs	Soil	4/7/2021	08:25	1	4 oz Jar	
	S50048RI-0211	SB-23	H	PAHs	Soil	4/7/2021	13:26	1	4 oz Jar	
	S50048RI-0216	SB-24	M	% Solids	Soil	4/7/2021	14:09	1	40 mL Vial	Soil Wt: 7.36g
	S50048RI-0216	SB-24	M	VOCs	Soil	4/7/2021	14:09	1	40 mL Vial	Soil Wt: 7.36g
	S50048RI-0217	SB-24	C	% Solids	Soil	4/7/2021	14:40	1	40 mL Vial	Soil Wt: 12.31g
	S50048RI-0217	SB-24	C	VOCs	Soil	4/7/2021	14:40	1	40 mL Vial	Soil Wt: 12.31g
	S50048RI-0220	SB-N24		PAHs	Soil	4/7/2021	14:56	1	4 oz Jar	
	S50048RI-0221	SB-25	A	PAHs	Soil	4/7/2021	15:03	1	4 oz Jar	
	S50048RI-0222	SB-25	B	% Solids	Soil	4/7/2021	15:04	1	40 mL Vial	Soil Wt: 10.81g
	S50048RI-0222	SB-25	B	VOCs	Soil	4/7/2021	15:04	1	40 mL Vial	Soil Wt: 10.81g

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

## SAMPLES TRANSFERRED FROM

## CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

USEPA

## CHAIN OF CUSTODY RECORD

No: RI20070048-005

Providence Barrel\_RS/RI

Contact Name: Alex Sherrin

Contact Phone: (617) 918-1252

Lab: NERL

Lab Phone: 617-918-8940

Lab #	Sample #	Location	SubLocation	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Sample_Remarks
	S50048RI-0231	SB-26	M	% Solids	Soil	4/8/2021	08:29	1	40 mL Vial	Soil Wt: 10.99g
	S50048RI-0231	SB-26	M	Oil ID	Soil	4/8/2021	08:29	1	4 oz Jar	Soil Wt: 10.99g
	S50048RI-0231	SB-26	M	VOCs	Soil	4/8/2021	08:29	1	40 mL Vial	Soil Wt: 10.99g
	S50048RI-0245	SB-28	A	% Solids	Soil	4/8/2021	10:08	1	40 mL Vial	Soil Wt: 10.82g
	S50048RI-0245	SB-28	A	VOCs	Soil	4/8/2021	10:08	1	40 mL Vial	Soil Wt: 10.82g
	S50048RI-0252	SB-29	D	PAHs	Soil	4/8/2021	10:43	1	4 oz Jar	
	S50048RI-0256	SB-30	A	% Solids	Soil	4/8/2021	11:26	1	40 mL Vial	Soil Wt: 11.44g
	S50048RI-0256	SB-30	A	VOCs	Soil	4/8/2021	11:26	1	40 mL Vial	Soil Wt: 11.44g
	S50048RI-0259	MLV0269		VOCs	Lab Sand	4/8/2021	12:00	1	Vial	
	S50048RI-0260	SS3087		PAHs	Lab Sand	4/8/2021	12:00	1	Vial	
	S50048RI-0261	MB-02		VOCs	Blank	4/5/2021	10:00	1	40 mL Vial	
	S50048RI-0262	MB-03		VOCs	Blank	4/8/2021	09:00	1	40 mL Vial	

Special Instructions: Please provide analytical results to EPA OSC Alex Sherrin at (617) 223-1368 and alex.sherrin@epa.gov.

**SAMPLES TRANSFERRED FROM**  
**CHAIN OF CUSTODY #**

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

## Appendix E

### Boring Logs

Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-10	Groundwater Levels	
Location		Smithfield, RI	Area	Slab	Date	Depth (ft)
Date Drilled		4/5/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	5		
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	23"	0-4"	Light gray, fine to coarse SAND, some silt (concrete).			0
2		4-13"	Dark brown silt and fine to coarse SAND, little fine to medium gravel.			0
3		13-23"	Dark brown SILT, little fine to coarse sand, trace organics, trace fine to medium gravel.			0
4						0
5	22"	0-2.5"	Dark brown SILT, little fine to coarse sand, trace fine gravel.			0
		2.5-3.5"	Gray and dark brown SILT and fine to coarse SAND.			
		3.5-7"	Red-brown SILT, trace fine to coarse sand, trace fine gravel.			0
6		7-9"	ROCK Fragments.			
7		9-12"	Light gray fine to coarse SAND.			0
8		12-17"	Light brown fine to medium SAND, little coarse sand, some quartz fragments.			0
		17-20"	Light brown fine to coarse SAND, little fine to medium gravel.			
		20-22"	Light gray fine to coarse SAND and fine to medium GRAVEL.			
9	29"	0-4"	Light gray fine to coarse SAND and SILT, little fine to medium gravel.			0
		4-6"	Medium brown silt and fine to coarse SAND, trace fine gravel, trace organics.			
		6-8"	ROCK fragments			
10		8-11"	Light gray and red fine to coarse SAND and SILT, some fine to medium gravel.			
11		11-14"	ROCK fragments.			
12		14-29"	Light brown and gray fine to coarse SAND and fine to coarse GRAVEL.			0
13	26"	0-3"	Light brown fine to coarse SAND, little silt, trace fine to coarse gravel.			0
		3-7"	Pulverized ROCK.			0
14		7-11"	Light brown fine to coarse SAND, some fine to coarse gravel.			
		11-13"	Pulverized ROCK.			
		13-15"	Gray SILT and fine to coarse SAND, little fine to coarse gravel.			0
15	15-17"	Light brown and gray SILT and fine SAND, trace coarse sand, trace fine gravel.				
16		17-26"	Light brown and light gray coarse to fine SAND, some fine to coarse gravel.			0
17	16"	0-1"	Light gray SILT and fine to coarse SAND, little fine-medium gravel.			0
18		1-2"	Dark brown fine to coarse SAND, little fine to medium gravel.			
19		2-9"	Light gray fine to coarse SAND and fine to coarse GRAVEL (cobbles).			0
		9-16"	Light gray medium to coarse SAND, little fine to medium gravel.			0
20			Dark brown organic layer in cutting shoe, insufficient volume for sampling. Bottom of core wet.			0
Sample Collection Details						
Sample SB-10A:		Collected at 12" (0-4 ft core) at 1145 hrs.		VOC		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR
Sample SB-10B:		Collected at 19" (0-4 ft core) at 1155 hrs.		VOC		
Sample SB-10C:		Collected at 6" (4-8 ft core) at 1200 hrs.		VOC		
Sample SB-10D:		Collected at 15" (4-8 ft core) at 1201 hrs.		VOC		
Sample SB-10E:		Collected at 5" (8-12 ft core) at 1214 hrs.		VOC		
Sample SB-10F:		Collected at 19" (8-12 ft core) at 1215 hrs.		VOC		
Sample SB-10G:		Collected at 9" (12-16 ft core) at 1232 hrs.		VOC		
Sample SB-10H:		Collected at 20" (12-16 ft core) at 1233 hrs.		VOC		
Sample SB-10I:		Collected at 13" (16-20 ft core) at 1247 hrs.		VOC		
<b>Notes:</b>						
bgs = below ground surface		PID = Photoionization detector		hrs = hours		
N/A = Not Applicable		ppb = parts per billion		ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol				
* = Burmister Soil Classification System						

Weston Solutions, Inc.			SOIL BORING LOG					
Project/Site		Providence Barrel	Boring ID		SB-11	Groundwater Levels		
Location		Smithfield, RI	Area		Slab	Date	Depth (ft)	
Date Drilled		4/5/2021	Sampling Method		4-ft Macrocore	N/A	N/A	
Drilling Company		EPA NERL	Number of Cores		5			
Drill Rig Type		Geoprobe	Completion Depth		20.0 ft			
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation		N/A			
Logged by C. Dupree & G. Yerdon (Weston START)								
Depth (ft bgs)	Recovery (inches)	Soil Description*					PID (ppb)	
1	24"	0-3"	Light gray fine to coarse SAND, little fine to medium gravel (concrete).					0
2		3-7"	Brown SILT and fine to coarse SAND, trace fine to medium gravel, trace organics.					0
3		7-12"	Dark brown SILT and fine to coarse SAND, little fine to coarse gravel, moist.					0
4		12-14"	ROCK fragments and brown fine to coarse SAND.					0
		13-23"	Brown fine to coarse SAND, some fine to coarse gravel.					0
5	37"	0-3"	Gray SILT and fine to coarse SAND, trace fine travel.					0
		3-6"	Light gray fine to coarse SAND and SILT, trace fine gravel (concrete or rock).					
		6-9"	Gray and black SILT and fine SAND, trace medium to coarse sand, trace fine gravel (mica).					
		9-12"	Brown fine to coarse SAND, little fine to medium gravel.					0
6		12-14"	Pulverized ROCK.					
		14-15"	Brown fine to coarse SAND and SILT and ROCK.					
7		15-20"	Brown fine SAND and SILT, little fine to coarse gravel.					0
8		20-25"	Pulverized ROCK, some fine to coarse sand.					
		25-37"	Brown fine to coarse SAND, little fine to coarse gravel.					0
9	36"	0-5"	Medium brown fine to coarse SAND, little silt, trace fine gravel.					0
		5-9"	Light gray SILT and fine to coarse SAND, trace fine to medium gravel.					
		9-11"	Dark brown SILT and fine to coarse SAND, trace fine gravel, compacted.					0
10		11-12"	Light brown SILT and fine to coarse SAND.					
		12-19"	Light brown fine to coarse SAND, some silt, little fine to coarse gravel.					0
		19-20"	Red coarse SAND, little fine to medium sand.					
11		20-21"	Orange-brown fine SAND, trace fine to coarse gravel.					
		21-22"	ROCK.					
12		22-36"	Brown fine to coarse SAND, some fine to coarse gravel and rock fragments.					0
13	35"	0-6"	Brown fine to coarse SAND and SILT, little fine to coarse gravel.					0
14		6-15"	Light gray SILT and fine to coarse SAND, some fine to medium gravel.					0
15		15-27"	Light gray coarse SAND, some fine to medium sand, trace fine to coarse gravel.					0
		27-29"	Brown SILT and fine to coarse SAND					0
16		29-35"	Light gray coarse SAND, some fine to medium sand, trace fine to coarse gravel.					
17	37"	0-3"	Brown fine to coarse SAND, some silt, trace fine to medium gravel.					0
18		3-5"	Tan fine to coarse SAND, trace silt, trace fine gravel.					
		5-19"	Brown and light gray fine to coarse SAND, some silt, little fine to coarse gravel.					0
19		19-32"	Light gray fine to coarse SAND, little fine to coarse gravel, trace silt, Wet (29" down)					0
20		32-37"	Coarse to fine SAND, some fine to coarse gravel, trace silt, Wet.					
Sample Collection Details								
Sample SB-11A:		Collected at 10" (0-4 ft core) at 1402 hrs.		VOC, % Solid		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR		
Sample SB-11Z:		Collected at 10" (0-4 ft core) at 1402 hrs.		VOC, % Solid				
Sample SB-11B:		Collected at 24" (0-4 ft core) at 1403 hrs.		VOC				
Sample SB-11C:		Collected at 7" (4-8 ft core) at 1418 hrs.		VOC				
Sample SB-11D:		Collected at 31" (4-8 ft core) at 1419 hrs.		VOC				
Sample SB-11E:		Collected at 4" (8-12 ft core) at 1431 hrs.		VOC, % Solid				
Sample SB-11F:		Collected at 14" (8-12 ft core) at 1432 hrs.		VOC				
Sample SB-11G:		Collected at 2" (12-16 ft core) at 1446 hrs.		VOC				
Sample SB-11H:		Collected at 28" (12-16 ft core) at 1447 hrs.		VOC				
Sample SB-11I:		Collected at 6" (16-20 ft core) at 1500 hrs.		VOC				
Sample SB-11J:		Collected at 30" (16-20 ft core) at 1501 hrs.		VOC				
<b>Notes:</b>								
bgs = below ground surface			PID = Photoionization detector			hrs = hours		
N/A = Not Applicable			ppb = parts per billion			ft = feet		
NERL = New England Regional Laboratory			VOC = Volatile Organic Compound; Sample preserved in Methanol					
* = Burmister Soil Classification System								

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-12	Groundwater Levels	
Location	Smithfield, RI	Area	Slab	Date	Depth (ft)
Date Drilled	4/5/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	3		
Drill Rig Type	Geoprobe	Completion Depth	10.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by		C. Dupree & G. Yerdon (Weston START)			
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	22"	0-3"	Light gray fine SAND and SILT, some fine to medium gravel (concrete).		0
2		3-10"	Brown and gray SILT and fine to coarse SAND, trace fine to medium gravel.		0
3		10-22"	Dark brown SILT, some clay, some fine to coarse sand, trace fine to coarse gravel, trace organics, moist.		0
4			Petroleum odor observed when core was opened, 0-15".		0
5	29"	0-2"	Dark brown SILT and fine SAND, trace organics, trace medium to coarse sand.		0
6		2-5"	Gray fine to coarse SAND, little silt, little fine to coarse gravel.		
7		5-8"	Reddish-brown SILT and fine to coarse SAND, little fine to coarse gravel.		0
8		8-29"	Brown to light gray fine to coarse SAND, some fine to coarse gravel, little silt.		0
9	17"	0-11"	Light brown and gray SILT and fine to coarse SAND, little fine to coarse gravel.		0
10		11-14"	Light gray fine SAND, some silt, little medium to coarse sand, trace fine gravel.		0
		14-17"	Light brown fine to coarse SAND, trace fine to medium gravel.		
		Petroleum odor at 9". Refusal encountered at 10 ft.			
Sample Collection Details					
Sample SB-12A:	Collected at 9" (0-4 ft core) at 1512 hrs.	VOC	<div>PROPORTIONS USED (by DRY WEIGHT) 0 to 10% = TRACE &gt;10 to 20% = LITTLE &gt;20 to 35% = SOME &gt;35 to 50% = AND &gt; 50% = MAJOR</div>		
Sample SB-12B:	Collected at 15" (0-4 ft core) at 1513 hrs.	VOC			
Sample SB-12C:	Collected at 7" (4-8 ft core) at 1527 hrs.	VOC			
Sample SB-12D:	Collected at 23" (4-8 ft core) at 1528 hrs.	VOC			
Sample SB-12E:	Collected at 9" (8-12 ft core) at 1538 hrs.	VOC			
<div>Notes: bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System</div> <div>PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol</div> <div>hrs = hours ft = feet</div>					

Weston Solutions, Inc.		SOIL BORING LOG					
Project/Site		Providence Barrel	Boring ID	SB-13	Groundwater Levels		
Location		Smithfield, RI	Area	Slab	Date	Depth (ft)	
Date Drilled		4/5/2021	Sampling Method	4-ft Macrocore	N/A	N/A	
Drilling Company		EPA NERL	Number of Cores	5			
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft			
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A			
Logged by C. Dupree & G. Yerdon (Weston START)							
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)	
1	26"	0-5"	Light gray fine SAND and SILT, trace organics, trace medium to coarse sand, trace coarse gravel.			0	
		5-8"	Brown fine to coarse SAND, some silt, trace fine to medium gravel			0	
		8-9"	Pulverized ROCK.				
9-11"		Brown fine to coarse SAND, some silt, trace fine to medium gravel.					
2		11-19"	Dark brown SILT, little fine to coarse sand, little fine gravel, trace clay.			0	
3		19-22"	Dark brown SILT and fine to coarse SAND, some fine gravel, Wet.			0	
4	22-26"	Red medium to coarse SAND, some fine to coarse gravel, Wet.					
5	30"	0-3"	Light gray SILT and fine to coarse SAND, trace organics, trace fine gravel.			0	
		3-8"	Red-brown fine to coarse SAND, trace fine to coarse gravel, trace silt.			0	
		8-10"	Pulverized ROCK, some orange fine to coarse sand.				
10-14"		Orange and light brown fine to coarse SAND, trace fine to coarse gravel.					
6		14-16"	ROCK fragments.			0	
7		16-22"	Orange fine to coarse SAND, some silt, trace fine to medium gravel.				
8	22-25"	Gray fine to coarse SAND and SILT, some fine to coarse gravel.			0		
	25-30"	Light brown fine SAND, little medium to coarse sand, trace fine to coarse gravel.					
9	34"	0-2"	Orange-brown fine to coarse SAND and SILT, little fine to coarse gravel.			0	
		2-4"	Light brown SILT and fine to coarse SAND.				
		4-8"	Light gray and brown SILT and fine to coarse SAND, little fine gravel.				
8-9"		Orange fine to coarse SAND, little fine gravel.			0		
10		9-14"	Brown, gray, and orange fine to coarse SAND and ROCK fragments.				
11		14-19"	Light gray fine to coarse SAND, some silt, little fine to medium gravel.			0	
12	19-23"	Pulverized ROCK.					
	23-26"	Light gray fine SAND and SILT, little medium to coarse sand, trace fine gravel.			0		
	26-28"	ROCK.					
	28-34"	Light brown fine to coarse SAND, trace fine to medium gravel.					
13	28"	0-1"	ROCK.			0	
		1-3"	Light gray SILT and fine to coarse SAND, trace fine gravel.				
		3-13"	Light brown SILT and fine to coarse SAND, trace organics, trace fine to medium gravel.			0	
13-19"		Light brown and gray fine to coarse SAND, little fine to coarse gravel, trace silt.			0		
14		19-26"	Light brown fine to coarse SAND and ROCK, trace fine gravel, trace silt.			0	
15		26-28"	Light gray SILT and fine SAND and ROCK fragments (pulverized rock).				
16							
17	36"	0-3"	Brown fine to coarse SAND and SILT, trace fine gravel.			0	
		3-5"	Light gray SILT and fine to coarse SAND, trace fine gravel.				
		5-15"	Light brown fine to coarse SAND, little fine to coarse gravel, little silt.			0	
18		15-21"	Light gray fine to coarse SAND and SILT, trace fine to medium gravel.			0	
19		21-36"	Light gray and brown fine to coarse SAND, some fine to coarse gravel, trace silt.			0	
20		30-36"	Wet.			0	
Sample Collection Details							
<div><div><div><div><div>Sample SB-13A:</div><div>Sample SB-13B:</div><div>Sample SB-13C:</div><div>Sample SB-13D:</div><div>Sample SB-13E:</div><div>Sample SB-13F:</div><div>Sample SB-13G:</div><div>Sample SB-13H:</div><div>Sample SB-13I:</div><div>Sample SB-13J:</div></div><div><div>Collected at 5" (0-4 ft core) at 1548 hrs.</div><div>Collected at 19" (0-4 ft core) at 1549 hrs.</div><div>Collected at 7" (4-8 ft core) at 1600 hrs.</div><div>Collected at 25" (4-8 ft core) at 1601 hrs.</div><div>Collected at 5" (8-12 ft core) at 1613 hrs.</div><div>Collected at 32" (8-12 ft core) at 1614 hrs.</div><div>Collected at 6" (12-16 ft core) at 1631 hrs.</div><div>Collected at 19" (12-16 ft core) at 1632 hrs.</div><div>Collected at 11" (16-20 ft core) at 1702 hrs.</div><div>Collected at 30" (16-20 ft core) at 1703 hrs.</div></div><div><div>VOC</div><div>VOC, % Solid</div><div>VOC</div><div>VOC</div><div>VOC</div><div>VOC</div><div>VOC</div><div>VOC</div><div>VOC</div><div>VOC</div></div></div></div><div><div>PROPORTIONS USED (by DRY WEIGHT)</div><div>0 to 10% = TRACE</div><div>&gt;10 to 20% = LITTLE</div><div>&gt;20 to 35% = SOME</div><div>&gt;35 to 50% = AND</div><div>&gt; 50% = MAJOR</div></div></div>							
<div>Notes:</div> <div>bgs = below ground surface</div> <div>N/A = Not Applicable</div> <div>NERL = New England Regional Laboratory</div> <div>* = Burmister Soil Classification System</div> <div>PID = Photoionization detector</div> <div>ppb = parts per billion</div> <div>VOC = Volatile Organic Compound; Sample preserved in Methanol.</div> <div>hrs = hours</div> <div>ft = feet</div>							

Weston Solutions, Inc.			SOIL BORING LOG				
Project/Site	Providence Barrel		Boring ID	SB-14		Groundwater Levels	
Location	Smithfield, RI		Area	Slab		Date	Depth (ft)
Date Drilled	4/6/2021		Sampling Method	4-ft Macrocore		N/A	N/A
Drilling Company	EPA NERL		Number of Cores	5			
Drill Rig Type	Geoprobe		Completion Depth	18.0 ft			
Geoprobe Operator	Sommer/Coombs (NERL)		Surface Elevation	N/A			
Logged by			C. Dupree & G. Yerdon (Weston START)				
Depth (ft bgs)	Recovery (inches)	Soil Description *					PID (ppb)
	17"	0-3"	Light gray fine to coarse SAND and SILT, trace organics, trace fine gravel (concrete).				0
1		3-4"	ROCK.				
2		4-7"	Light brown fine to coarse SAND, little fine to medium gravel.				0
3		7-17"	Dark brown SILT, some fine to coarse sand, trace fine gravel, trace organics.				0
4	0						
	29"	0-1"	Dark brown SILT, some fine to coarse sand, trace organics, trace fine gravel.				0
5		1-5"	Light gray fine to coarse SAND, trace fine to medium gravel, trace organics (fluff).				
		5-9"	Dark brown SILT, some fine to coarse sand, little fine to coarse gravel.				0
		9-11"	Pulverized ROCK and fragments.				
6		11-14"	Brown fine to coarse SAND and SILT, some fine to coarse gravel.				
7		14-20"	Gray to light brown fine to coarse SAND, some silt, some fine to coarse gravel/rock fragments.				0
		20-24"	Light brown fine to coarse SAND, little fine to medium gravel.				0
8		24-26"	Light brown/yellow brown fine SAND, little medium to coarse sand, trace fine gravel.				
		26-29"	Red-brown fine to coarse SAND, little fine to medium gravel, trace silt.				
	28"	0-3"	Brown fine to coarse SAND, little fine to coarse gravel, little silt.				0
9		3-8"	Gray fine to coarse SAND, some silt, trace organics, trace fine to coarse gravel.				
		8-9"	Light brown fine SAND, some medium to coarse sand.				
		9-11"	Orange-brown fine to coarse SAND, trace fine gravel.				0
10		11-13"	ROCK fragments.				
		13-15"	Light brown fine SAND, some medium to coarse sand.				0
		15-16"	Orange-brown fine to coarse SAND, trace fine gravel, trace organics.				
11		16-20"	Light gray-light brown fine to coarse SAND, some silt, some fine to coarse gravel.				0
		20-22"	Brown fine to coarse SAND and SILT and large GRAVEL.				
12		22-28"	Light gray fine to coarse SAND, some fine to coarse gravel.				
	35"	0-3"	Light brown fine to coarse SAND, some silt trace fine gravel.				0
13		3-11"	Brown fine to coarse SAND and SILT, trace organics, trace fine to medium gravel.				0
		11-12"	ROCK.				
14		12-17"	Light gray fine to coarse SAND, little silt, little fine to medium gravel.				
		17-20"	Light brown coarse to fine SAND, some fine gravel.				0
15		20-23"	Light brown fine to coarse SAND, rock at 21-22".				
		23-28"	Light brown coarse to fine SAND, some fine gravel.				0
16		28-29"	ROCK.				
	29-35"	Brown to light gray fine to coarse SAND, little fine to coarse gravel, trace silt.					
	14"	0-2"	Light brown fine to coarse SAND, trace fine gravel.				0
17		2-3"	Light gray fine SAND and SILT, little medium to coarse sand, trace fine gravel.				
		3-5"	Brown fine to coarse SAND, some fine to coarse gravel, trace silt.				
		5-8"	Light brown coarse to fine SAND, some rock fragments.				0
		8-9"	ROCK				
18		9-12"	Light brown fine to coarse SAND, little fine to coarse gravel.				
		12-14"	Fine SAND, some silt, little fine to coarse gravel, trace medium to coarse sand, Wet. Refusal encountered at 18 ft.				
Sample Collection Details							
Sample SB-14A:		Collected at 12" (0-4 ft core) at 0837 hrs.		VOC		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-14B:		Collected at 17" (0-4 ft core) at 0838 hrs.		VOC, PAH			
Sample SB-14X:		Collected at 17" (0-4 ft core) at 0838 hrs.		VOC, PAH			
Sample SB-14C:		Collected at 6" (4-8 ft core) at 0846 hrs.		VOC			
Sample SB-14D:		Collected at 25" (4-8 ft core) at 0847 hrs.		VOC			
Sample SB-14E:		Collected at 7" (8-12 ft core) at 0859 hrs.		VOC			
Sample SB-14F:		Collected at 20" (8-12 ft core) at 0900 hrs.		VOC			
Sample SB-14G:		Collected at 13" (12-16 ft core) at 0912 hrs.		VOC			
Sample SB-14H:		Collected at 23" (12-16 ft core) at 0913 hrs.		VOC			
Sample SB-14I:		Collected at 14" (16-20 ft core) at 0923 hrs.		VOC			
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol. PAH = Polycyclic Aromatic Hydrocarbons. hrs = hours ft = feet							

Weston Solutions, Inc.		SOIL BORING LOG					
Project/Site	Providence Barrel		Boring ID	SB-15		Groundwater Levels	
Location	Smithfield, RI		Area	Slab		Date	Depth (ft)
Date Drilled	4/6/2021		Sampling Method	4-ft Macrocore		N/A	N/A
Drilling Company	EPA NERL		Number of Cores	5			
Drill Rig Type	Geoprobe		Completion Depth	20.0 ft			
Geoprobe Operator	Sommer/Coombs (NERL)		Surface Elevation	N/A			
Logged by C. Dupree & G. Yerdon (Weston START)							
Depth (ft bgs)	Recovery (inches)	Soil Description*					PID (ppb)
1	24"	0-3"	Light gray fine to coarse SAND and SILT, trace organics, trace fine to medium gravel.				0
		3-7"	Brown fine to coarse SAND and SILT, trace fine to medium gravel.				0
2		7-9"	Light gray and gray SILT and fine to coarse SAND, trace fine to medium gravel.				
3		9-12"	Brown fine to coarse SAND and SILT, trace fine gravel.				
4		12-19"	Dark brown SILT, some fine to coarse sand, trace organics, trace fine to coarse gravel.				0
		19-24"	Brown fine to coarse SAND, some fine to coarse gravel and rock fragments.				0
5	22"	0-1"	Brown SILT, some fine to coarse sand, trace fine gravel.				960
		1-4"	Light gray fine to coarse SAND, little silt, trace organics, trace fine gravel.				
6		4-6"	ROCK and ROCK fragments, some tan fine sand.				0
		6-10"	Brown fine to coarse SAND, some fine to coarse gravel, trace silt.				
7		10-12"	Pulverized ROCK fragments.				0
		12-14"	Orange-brown fine SAND and SILT, little medium to coarse sand, trace fine gravel.				
8		14-18"	Light brown coarse to fine SAND, trace fine gravel.				0
		18-22"	Pulverized ROCK fragments.				
9	24"	0-3"	Light gray fine to coarse SAND, trace fine to medium gravel, trace silt.				0
		3-8"	Brown fine to coarse SAND and SILT, trace fine to coarse gravel.				0
10		8-12"	Pulverized ROCK fragments.				
11		12-19"	Light brown fine to coarse SAND, little fine to coarse gravel.				0
12		19-24"	Light brown coarse to fine SAND, little fine to medium gravel and rock fragments.				0
13	29"	0-3"	Light brown fine to coarse SAND, trace fine to medium gravel.				0
		3-5"	Light gray fine to coarse SAND and SILT, trace fine gravel.				
		5-8"	Brown SILT and fine to coarse SAND, trace fine to medium gravel.				0
		8-11.5"	Pulverized ROCK fragments.				
		11.5-12"	Red-brown SILT, little fine to coarse sand.				
14		12-14"	Light brown coarse to fine SAND, little fine to coarse gravel.				
		14-17"	Pulverized ROCK fragments and light brown fine to coarse SAND.				0
15		17-20"	Brown coarse to fine SAND, little fine to medium gravel.				
		20-22"	ROCK fragments and light gray fine SAND, trace medium to coarse sand.				0
16		22-29"	Light brown coarse to fine SAND, little medium to coarse gravel.				
17	16"	0-2"	Light gray fine to coarse SAND, some SILT, trace fine gravel.				0
		2-5"	ROCK fragments.				0
18		5-8"	Light gray fine to coarse SAND and SILT, trace fine gravel.				
19		8-15"	Light brown coarse to fine SAND, little medium to coarse gravel, trace silt.				0
20		15-16"	Brown SILT and fine to coarse SAND.				0
Sample Collection Details							
Sample SB-15A:		Collected at 4" (0-4 ft core) at 0950 hrs.	VOC, % Solid		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR		
Sample SB-15B:		Collected at 18" (0-4 ft core) at 0951 hrs.	VOC, % Solid, PAH				
Sample SB-15C:		Collected at 3" (4-8 ft core) at 1005 hrs.	VOC				
Sample SB-15D:		Collected at 18" (4-8 ft core) at 1006 hrs.	VOC				
Sample SB-15Y:		Collected at 3" (4-8 ft core) at 1005 hrs.	VOC				
Sample SB-15E:		Collected at 6" (8-12 ft core) at 1021 hrs.	VOC				
Sample SB-15F:		Collected at 20" (8-12 ft core) at 1022 hrs.	VOC				
Sample SB-15G:		Collected at 6" (12-16 ft core) at 1035 hrs.	VOC				
Sample SB-15H:		Collected at 26" (12-16 ft core) at 1036 hrs.	VOC				
Sample SB-15I:		Collected at 7" (16-20 ft core) at 1057 hrs.	VOC				
Sample SB-15J:		Collected at 14" (16-20 ft core) at 1058 hrs.	VOC				
<b>Notes:</b>							
bgs = below ground surface		PID = Photoionization detector		hrs = hours			
N/A = Not Applicable		ppb = parts per billion		ft = feet			
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol.					
* = Burmister Soil Classification System		PAH = Polycyclic Aromatic Hydrocarbons.					

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-16	Groundwater Levels	
Location	Smithfield, RI	Area	Slab	Date	Depth (ft)
Date Drilled	4/6/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	5		
Drill Rig Type	Geoprobe	Completion Depth	20.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)					
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	24"	0-2"	Dark brown SILT and fine to coarse SAND, trace fine gravel.	0	
2		2-5"	White SILT and fine to coarse SAND, little fine to medium gravel (concrete).		
3		5-9"	Dark brown SILT and fine to coarse SAND, trace organics, trace fine gravel.	0	
4		9-17"	Pulverized ROCK and ROCK fragments.	0	
		17-24"	Light brown fine to coarse SAND, little pulverized rock and rock fragments, trace fine gravel, trace silt.	0	
5	30"	0-4"	Gray fine to coarse SAND and SILT, trace fine to medium gravel.	0	
6		4-7"	ROCK fragments and pulverized rock.		
		7-18"	Light brown coarse to fine SAND, some fine to coarse gravel.	0	
7		18-19"	ROCK fragments.	0	
		19-24"	Orange-brown to light brown fine to coarse SAND and SILT, trace fine to medium gravel.	0	
8		24-25"	ROCK fragments.		
		25-28"	Light brown fine to coarse SAND, little silt, trace fine to medium gravel.		
		28-30"	ROCK fragments and light gray to light brown fine to coarse SAND, trace silt.		
9	35"	0-10"	Light brown to gray to brown fine to coarse SAND and SILT, trace fine to medium gravel.	0	
10		10-13"	Light gray fine SAND and SILT, trace medium to coarse sand, trace fine to medium gravel.	0	
11		13-35"	Light brown and orange-brown coarse to fine SAND, little fine to coarse gravel and rock fragments.	0	
12				0	
13	35"	0-3"	Light brown fine to coarse SAND, little silt, trace fine to medium gravel.	0	
14		3-19"	Brown to light gray fine to medium SAND, some silt, trace fine to coarse gravel.	0	
15				0	
16		19-35"	Light brown coarse to fine SAND, trace fine to coarse gravel.	0	
17	35"	0-6"	Light brown fine to coarse SAND, little silt, trace fine gravel.	0	
		6-15"	Light brown fine to coarse SAND and SILT, trace fine to medium gravel.	0	
18		15-20"	Light gray fine to coarse SAND, little silt, trace fine to medium gravel.	0	
19		20-32"	Light gray fine to coarse SAND and SILT, little fine to medium gravel.	0	
20		32-35"	Light brown fine to coarse SAND, little fine to coarse gravel, trace silt, wet.		
Sample Collection Details					
Sample SB-16A:		Collected at 8" (0-4 ft core) at 1112 hrs.	VOC	<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-16B:		Collected at 20" (0-4 ft core) at 1113 hrs.	VOC		
Sample SB-16C:		Collected at 4" (4-8 ft core) at 1122 hrs.	VOC		
Sample SB-16D:		Collected at 27" (4-8 ft core) at 1124 hrs.	VOC		
Sample SB-16E:		Collected at 7" (8-12 ft core) at 1133 hrs.	VOC		
Sample SB-16F:		Collected at 32" (8-12 ft core) at 1134 hrs.	VOC		
Sample SB-16G:		Collected at 5" (12-16 ft core) at 1142 hrs.	VOC		
Sample SB-16H:		Collected at 28" (12-16 ft core) at 1143 hrs.	VOC		
Sample SB-16I:		Collected at 11" (16-20 ft core) at 1200 hrs.	VOC		
Sample SB-16J:		Collected at 27" (16-20 ft core) at 1201 hrs.	VOC		
<b>Notes:</b>					
bgs = below ground surface		PID = Photoionization detector	hrs = hours		
N/A = Not Applicable		ppb = parts per billion	ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol			
* = Burmister Soil Classification System					

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Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-18	Groundwater Levels	
Location		Smithfield, RI	Area	Slab	Date	Depth (ft)
Date Drilled		4/6/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	4		
Drill Rig Type		Geoprobe	Completion Depth	16.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	44"	0-2"	Dark brown SILT, some fine to coarse sand, trace coarse gravel, trace organics.			0
		2-8"	Dark brown to light brown to orange fine to coarse SAND and SILT, trace fine to coarse gravel.			
		8-12"	Brown SILT, little fine to coarse sand, trace debris (concrete, glass), trace organics, some yellow staining observed at 12".			2,450 @ 14"
12-15"		Black and red SILT and fine SAND and DEBRIS (possible plastic).				
15-16"		Dark brown fine to coarse SAND and SILT, trace organics.			3,520 @ 16"	
16-18"		Yellow-brown SILT, some fine sand, trace fine to medium gravel, trace clay, trace organics.				
18-22"		Brown fine to coarse SAND and SILT, trace fine to coarse gravel, trace debris (rubber).				
22-25"		Brown SILT and fine to coarse SAND, little debris (coal/asphalt), trace organics, some yellow staining observed.			0	
25-28"		Black SILT, some fine to coarse sand, some fine gravel, trace debris (plastic), trace organics.				
28-33"		Dark gray SILT, little fine to coarse sand, trace fine gravel, trace organics, trace clay.				
33-40"		Light gray to light brown fine to coarse SAND, little silt, trace fine to coarse gravel.			0	
40-44"		Red-brown to light gray fine to coarse SAND and ROCK fragments.				
5	33"	0-3"	Brown fine to coarse SAND and SILT, trace fine gravel.			0
		3-5"	Dark brown to red-brown SILT, some fine to coarse sand, trace organics.			
		5-15"	Light brown fine to coarse SAND, little fine to coarse gravel.			0
		15-16"	Light brown fine SAND, some fine to medium gravel, little medium to coarse sand.			
		16-19"	Pulverized ROCK fragments.			0
		19-23"	Orange to light brown fine to coarse SAND, little fine to coarse gravel.			
		23-25"	Light brown coarse to fine SAND, trace fine gravel.			0
		25-33"	Light brown fine to coarse SAND, some fine to coarse gravel and rock fragments.			
9	35"	0-7"	Light gray fine to coarse SAND, some silt, trace fine to medium gravel.			0
		7-9"	Brown SILT, some fine to coarse sand, trace fine gravel, trace organics.			0
		9-11"	Light gray fine to coarse SAND, some silt, trace fine gravel.			
		11-16"	Light brown coarse to fine SAND, trace fine gravel.			
		16-18"	Light brown fine to coarse SAND and ROCK fragments.			0
		18-22"	Light brown fine SAND and ROCK fragments, trace medium to coarse sand, trace fine gravel.			
		22-32"	Light brown fine to coarse SAND, some fine to medium gravel and rock fragments.			0
		32-35"	Light brown medium to coarse SAND and ROCK fragments.			
13	39"	0-16"	Light gray to light brown fine to coarse SAND and SILT, little fine to coarse gravel.			0
		16-28"	Light brown medium to coarse SAND, trace fine to coarse gravel and rock fragments, trace fine sand.			0
		28-31"	Light brown fine to coarse SAND, trace fine gravel.			0
		31-34"	Light brown medium to coarse SAND, little fine to coarse gravel, little fine sand.			
		34-39"	Light brown fine to coarse SAND, little fine gravel and rock fragments.			
Sample Collection Details						
Sample SB-18A:		Collected at 15" (0-4 ft core) at 1525 hrs.	VOC, % Solid		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-18V:		Collected at 15" (0-4 ft core) at 1525 hrs.	VOC, % Solid			
Sample SB-18B:		Collected at 32" (0-4 ft core) at 1526 hrs.	VOC, % Solid, PAH, Oil ID			
Sample SB-18C:		Collected at 14" (4-8 ft core) at 1549 hrs.	VOC			
Sample SB-18D:		Collected at 26" (4-8 ft core) at 1550 hrs.	VOC			
Sample SB-18E:		Collected at 6" (8-12 ft core) at 1606 hrs.	VOC			
Sample SB-18F:		Collected at 29" (8-12 ft core) at 1607 hrs.	VOC			
Sample SB-18G:		Collected at 11" (12-16 ft core) at 1616 hrs.	VOC			
Sample SB-18H:		Collected at 31" (12-16 ft core) at 1617 hrs.	VOC, % Solid			
<b>Notes:</b>						
bgs = below ground surface		PID = Photoionization detector		hrs = hours		
N/A = Not Applicable		ppb = parts per billion		ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol				
* = Burmister Soil Classification System		PAH = Polycyclic Aromatic Hydrocarbons				

Weston Solutions, Inc.			SOIL BORING LOG			
Project/Site		Providence Barrel	Boring ID	SB-19	Groundwater Levels	
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled		4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	5		
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	28"	0-20"    Brown to orange-brown SILT and fine to medium sand, trace fine to medium gravel, trace organics.				0
2						0
3		20-28"    Orange-brown to light brown fine to coarse SAND, little silt, little fine to coarse gravel.				0
4						0
5	26"	0-4"    Light brown fine to coarse SAND, little silt, trace fine gravel.				0
6		4-8"    Brown to orange-brown SILT and fine SAND, trace fine gravel.				0
7		8-14"    Light brown fine to coarse SAND, some fine to coarse gravel and rock fragments, trace silt.				0
8		14-20"    Light brown fine to coarse SAND, little fine to medium gravel.				0
		20-22"    Light brown fine to coarse SAND and fine to medium GRAVEL.				
		22-24"    Light brown fine SAND and SILT, some coarse gravel.				
		24-26"    Light brown fine to medium SAND, trace fine gravel.				
9	34"	0-9"    Light brown fine to coarse SAND, little fine to coarse gravel.				0
		9-11"    Light brown fine to coarse SAND, some silt, trace fine to medium gravel.				0
10		11-14"    Light brown to light gray ROCK fragments and fine to coarse SAND.				
11		14-23"    Light brown coarse to fine SAND, trace fine to medium gravel.				0
12		23-32"    Light brown fine to medium SAND.				0
		32-34"    ROCK fragments.				
13	20"	0-4"    Light gray ROCK fragments, some fine to coarse sand and silt, trace fine gravel.				0
		4-8"    Light brown fine to coarse SAND, some silt, little fine to coarse gravel.				0
14		8-11"    Light brown fine to coarse SAND and fine to coarse gravel.				0
15		11-16"    Light gray to light brown SILT, some fine to coarse gravel and rock fragments, trace fine to coarse sand.				
16		16-20"    Light brown coarse to fine SAND, trace fine to medium gravel.				
17	27"	0-2"    Light gray SILT and fine to coarse SAND, little fine to medium gravel.				0
		2-11"    Light brown fine to coarse SAND, little fine to coarse gravel, trace silt.				0
18		11-18"    Light brown coarse to fine SAND, trace fine to medium gravel.				0
		18-20"    Light gray fine SAND and SILT, wet.				
19		20-24"    Light gray SILT, some fine sand, wet.				0
20		24-27"    Light gray to light brown fine to medium SAND, some silt, wet.				
Sample Collection Details						
Sample SB-19A:		Collected at 9" (0-4 ft core) at 0825 hrs.	VOC, PAH	<div>PROPORTIONS USED (by DRY WEIGHT) 0 to 10% = TRACE &gt;10 to 20% = LITTLE &gt;20 to 35% = SOME &gt;35 to 50% = AND &gt; 50% = MAJOR</div>		
Sample SB-19B:		Collected at 22" (0-4 ft core) at 0826 hrs.	VOC			
Sample SB-19C:		Collected at 8" (4-8 ft core) at 0831 hrs.	VOC			
Sample SB-19D:		Collected at 19" (4-8 ft core) at 0832 hrs.	VOC			
Sample SB-19E:		Collected at 7" (8-12 ft core) at 0840 hrs.	VOC			
Sample SB-19F:		Collected at 27" (8-12 ft core) at 0841 hrs.	VOC			
Sample SB-19U:		Collected at 27" (8-12 ft core) at 0841hrs.	VOC			
Sample SB-19G:		Collected at 5" (12-16 ft core) at 0853 hrs.	VOC			
Sample SB-19H:		Collected at 17" (12-16 ft core) at 0854 hrs.	VOC			
Sample SB-19I:		Collected at 8" (16-20 ft core) at 0914 hrs.	VOC			
Sample SB-19J:		Collected at 23" (16-20 ft core) at 0915 hrs.	VOC			
<div>Notes: bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System</div> <div>PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol</div> <div>hrs = hours ft = feet</div>						

Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-20	Groundwater Levels	
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled		4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	5		
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	22"	0-2"	Dark brown SILT, trace fine to medium gravel, trace fine to coarse sand, trace organics.			0
2		2-20"	Brown and dark brown SILT and fine SAND, trace fine to coarse gravel, trace medium to coarse sand, trace organics.			0
3						0
4		20-22"	Orange-brown SILT and fine to coarse SAND, little fine to coarse gravel, trace clay, trace organics.			0
5	22"	0-2"	Orange-brown SILT, some fine to coarse sand, trace fine gravel.			0
6		2-4"	Dark brown to black SILT and fine SAND, trace fine to medium gravel, trace organics.			
7		4-11"	Light brown fine to coarse SAND and SILT, little fine to coarse gravel.			0
8		11-22"	Light brown fine to coarse SAND, little fine to medium gravel, trace silt.			0
9	25"	0-6"	Light brown fine to coarse SAND, trace fine gravel, trace silt.			0
10		6-8"	ROCK fragments and brown fine to coarse SAND and SILT.			0
11		8-16"	Light brown fine SAND and SILT, trace fine gravel, trace medium to coarse sand.			0
12		16-19"	Light gray pulverized ROCK fragments.			0
		19-22"	Light brown fine to coarse SAND and SILT, some fine to medium gravel.			
		22-25"	Gray pulverized ROCK fragments.			
13	25"	0-4"	Light gray fine to coarse SAND and SILT, some rock fragments and fine gravel.			0
14		4-5"	ROCK.			
15		5-9"	Light brown SILT and fine to coarse SAND, trace fine gravel.			0
16		9-11"	Light gray fine to coarse SAND and fine to coarse GRAVEL, some silt.			
		11-25"	Light brown and light gray fine to coarse SAND, some fine to coarse gravel, little silt.			0
17	21"	0-2"	Light gray fine to coarse SAND and SILT, trace fine gravel.			0
18		2-12"	Light gray to light brown fine to coarse SAND, some fine to coarse gravel, trace silt.			0
19						0
20		12-21"	Light brown fine to coarse SAND, some fine to coarse gravel, wet.			0
Sample Collection Details						
Sample SB-20A:		Collected at 9" (0-4 ft core) at 0925 hrs.	VOC	<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR		
Sample SB-20B:		Collected at 19" (0-4 ft core) at 0926 hrs.	VOC			
Sample SB-20C:		Collected at 7" (4-8 ft core) at 0933 hrs.	VOC			
Sample SB-20D:		Collected at 20" (4-8 ft core) at 0934 hrs.	VOC			
Sample SB-20E:		Collected at 4" (8-12 ft core) at 0943 hrs.	VOC			
Sample SB-20F:		Collected at 16" (8-12 ft core) at 0944 hrs.	VOC			
Sample SB-20G:		Collected at 8" (12-16 ft core) at 1001 hrs.	VOC			
Sample SB-20H:		Collected at 20" (12-16 ft core) at 1002 hrs.	VOC			
Sample SB-20I:		Collected at 4" (16-20 ft core) at 1020 hrs.	VOC			
Sample SB-20J:		Collected at 15" (16-20 ft core) at 1021 hrs.	VOC			
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System						
			PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol	hrs = hours ft = feet		

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site		Boring ID		Groundwater Levels	
Location		Area		Date	Depth (ft)
Date Drilled		Sampling Method		N/A	N/A
Drilling Company		Number of Cores			
Drill Rig Type		Completion Depth			
Geoprobe Operator		Surface Elevation			
Logged by C. Dupree & G. Yerdon (Weston START)					
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	25"	0-2" Dark brown SILT and fine to medium SAND, trace organics.			0
2		2-6" Brown SILT and fine to coarse SAND, trace rock fragments, trace organics.			0
3		6-8" ROCK fragments.			0
4		8-9" Brown fine to coarse SAND and coarse GRAVEL, some silt.			0
		9-18" Brown SILT, little fine to coarse sand, trace fine to coarse gravel, trace organics.			0
		18-22" Orange-brown SILT and fine to coarse SAND, some fine to coarse gravel, trace organics.			0
		22-25" Orange-brown fine to coarse SAND, trace fine gravel, trace silt.			
Sample Collection Details					
<b>Sample SB-21A:</b> Collected at 9" (0-4 ft core) at 1031 hrs. <b>Sample SB-21B:</b> Collected at 20" (0-4 ft core) at 1032 hrs.		VOC VOC		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System					
		PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol		hrs = hours ft = feet	

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-22	Groundwater Levels	
Location	Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled	4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	4		
Drill Rig Type	Geoprobe	Completion Depth	16.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by		C. Dupree & G. Yerdon (Weston START)			
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1 2 3 4	30"	0-7"	Dark brown SILT, some fine to coarse sand, trace fine gravel, trace organics, trace debris (glass).	0	
		7-12"	Brown to orange-brown SILT and fine to coarse SAND, trace fine gravel, trace organics.	0	
		12-17"	Light brown coarse to fine SAND, little fine to medium gravel, trace silt.	0	
		17-19"	Light gray fine to coarse SAND and coarse GRAVEL.		
		19-24"	Light brown medium to coarse SAND, little fine gravel, little fine sand.	0	
		24-27"	Light brown fine to coarse SAND, trace fine gravel.		
4		27-30"	Light gray fine SAND, some fine to coarse gravel and rock fragments, trace medium to coarse sand.		
5 6 7 8	31"	0-2"	Light gray fine to coarse SAND, some silt, trace fine to medium gravel.	0	
		2-4"	Dark brown to black SILT and fine SAND, trace organics.		
		4-12"	Light gray fine SAND, little fine to coarse gravel, little medium to coarse sand.	0	
		12-14"	Light gray SILT and ROCK fragments, some fine to coarse sand.		
		14-16"	Light brown fine to coarse SAND, some fine to coarse gravel.	0	
		16-20"	Light brown coarse to fine SAND, little fine to coarse gravel.		
		20-21"	Coarse GRAVEL, some brown fine to coarse sand.		
		21-25"	Light brown fine to coarse SAND and fine to medium GRAVEL.	0	
9 10 11 12	39"	0-2"	Light brown coarse to fine SAND, trace fine to medium gravel.	0	
		2-12"	Light brown to light gray fine to coarse SAND and SILT, trace fine to coarse gravel.	0	
		12-23"	Light brown fine to coarse SAND, little fine to coarse gravel, trace silt.	0	
		23"	Pulverized ROCK fragments.		
		23-29"	Light brown coarse to fine SAND, trace fine gravel.		
		29-30"	Brown SILT and fine SAND, trace fine gravel.		
12		30-39"	Light brown fine to coarse SAND, trace fine gravel.	0	
13 14 15 16	29"	0-1"	Light gray SILT and fine to coarse SAND, trace fine gravel.	0	
		1-13"	Light brown fine to coarse SAND, trace fine gravel.	0	
		13-15"	Light brown fine to coarse SAND and fine to coarse GRAVEL.	0	
		15-18"	Light brown SILT and fine SAND, little fine to medium gravel, trace medium to coarse sand.		
		18-23"	Light brown fine to coarse SAND, little fine to coarse gravel.	0	
		23-29"	Light brown to light gray SILT and fine to coarse SAND and ROCK fragments, trace fine to medium gravel.		
Sample Collection Details					
Sample SB-22A:		Collected at 9" (0-4 ft core) at 1040 hrs.	VOC	<b>PROPORTIONS USED</b> (by DRY WEIGHT) 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-22B:		Collected at 25" (0-4 ft core) at 1041 hrs.	VOC		
Sample SB-22C:		Collected at 6" (4-8 ft core) at 1052 hrs.	VOC		
Sample SB-22D:		Collected at 18" (4-8 ft core) at 1053 hrs.	VOC		
Sample SB-22E:		Collected at 6" (8-12 ft core) at 1103 hrs.	VOC		
Sample SB-22F:		Collected at 29" (8-12 ft core) at 1104 hrs.	VOC		
Sample SB-22G:		Collected at 7" (12-16 ft core) at 1114 hrs.	VOC		
Sample SB-22H:		Collected at 18" (12-16 ft core) at 1115 hrs.	VOC		
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System  PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol  hrs = hours ft = feet					

Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-23	Groundwater Levels	
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled		4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	5		
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	29"	0-4" Dark brown SILT, some fine to coarse sand, little organics.				0
		4-9" Brown SILT, some fine to coarse sand, little fine to coarse gravel, trace organics.				
2		9-12" Fine to coarse SAND and fine to coarse GRAVEL.				0
		12-15" Light gray SILT and fine to coarse SAND and fine to coarse GRAVEL and ROCK fragments.				0
		15-19" Light brown fine to coarse SAND and ROCK fragments.				0
		19-21" Orange-brown and gray SILT and fine to coarse SAND, trace fine gravel.				
3		21-29" Light brown fine to coarse SAND, little fine to coarse gravel, little silt.				
4						
5	38"	0-4" Light brown fine SAND and SILT, little medium to coarse SAND, trace fine gravel.				0
		4-6" Light gray fine to coarse SAND, some silt, little fine to medium gravel.				
		6-8" Dark brown SILT, little fine to coarse sand, trace organics.				
6		8-11" Light gray to light brown fine to coarse SAND, some silt, little fine to medium gravel.				0
		11-18" Light brown fine to coarse SAND, little fine to coarse gravel.				
		18-22" Light brown fine SAND, little medium to coarse sand, trace silt.				0
7		22-25" Coarse to fine SAND, trace fine gravel.				
8		25-38" Light brown fine SAND, trace medium to coarse sand.				0
9	39"	0-5" Light brown fine to coarse SAND, trace fine to medium gravel.				0
		5-12" Light brown fine to coarse SAND, little fine to coarse gravel, trace silt.				0
10		12-21" Light brown fine SAND, trace medium to coarse sand.				0
		21-22" Light brown coarse to fine SAND, some coarse gravel.				
		22-24" Light brown fine SAND, trace medium to coarse sand.				
		24-39" Light brown to light gray fine to coarse SAND and fine to coarse GRAVEL and ROCK fragments.				0
11						
12						
13	36"	0-6" Light gray to light brown fine SAND, trace silt, trace medium to coarse sand, trace fine gravel.				0
		6-13" Light brown fine to coarse SAND, trace fine gravel.				0
14		13-17" Light brown to light gray SILT and fine to coarse SAND, little medium to coarse gravel.				
		17-23" Light brown coarse to fine SAND, trace fine to medium gravel.				0
		23-25" ROCK fragments, some light brown fine to coarse sand and silt.				
15		25-29" Light brown coarse to fine SAND, little fine to medium gravel.				0
		29-32" Light brown fine SAND, trace fine gravel, trace medium to coarse sand.				
		32-36" Light brown medium to coarse SAND, little fine sand, trace fine gravel.				
17	13"	0-13" Light gray to light brown medium to coarse SAND, trace fine to coarse gravel, trace fine sand.				0
18						0
19						0
20						0
Sample Collection Details						
Sample SB-23A:		Collected at 7" (0-4 ft core) at 1253 hrs.		VOC		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR
Sample SB-23B:		Collected at 21" (0-4 ft core) at 1254 hrs.		VOC		
Sample SB-23C:		Collected at 15" (4-8 ft core) at 1303 hrs.		VOC		
Sample SB-23D:		Collected at 32" (4-8 ft core) at 1304 hrs.		VOC		
Sample SB-23E:		Collected at 14" (8-12 ft core) at 1313 hrs.		VOC		
Sample SB-23F:		Collected at 39" (8-12 ft core) at 1314 hrs.		VOC		
Sample SB-23T:		Collected at 14" (8-12 ft core) at 1313 hrs.		VOC		
Sample SB-23G:		Collected at 8" (12-16 ft core) at 1325 hrs.		VOC		
Sample SB-23H:		Collected at 34" (12-16 ft core) at 1326 hrs.		VOC, PAH		
Sample SB-23I:		Collected at 6" (16-20 ft core) at 1338 hrs.		VOC		
<b>Notes:</b>						
bgs = below ground surface		PID = Photoionization detector		hrs = hours		
N/A = Not Applicable		ppb = parts per billion		ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol				
* = Burmister Soil Classification System		PAH = Polyveelic Aromatic Hydrocarbons				

Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site	Providence Barrel	Boring ID	SB-24	Groundwater Levels		
Location	Smithfield, RI	Area	Southeast	Date	Depth (ft)	
Date Drilled	4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A	
Drilling Company	EPA NERL	Number of Cores	2			
Drill Rig Type	Geoprobe	Completion Depth	8.0 ft			
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A			
Logged by		C. Dupree & G. Yerdon (Weston START)				
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)	
1	26"	0-3"	Dark brown SILT and fine to coarse SAND, trace fine to medium gravel, trace organics.			800 @ 2"
		3-10"	Brown fine to coarse SAND and SILT, little medium to coarse gravel, some yellow staining observed at 5 inches.			500 @ 8"
2		10-12"	Dark brown and black fine to coarse SAND and DEBRIS (glass, metal, rubber, unknown).			65,600 @ 12-15"
		12-15"	Black, red, and off-white DEBRIS, striated layers of resin-like material, fibrous like material, and plastic/rubber.			
3		15-18"	Dark brown fine to coarse SAND, little fine to medium gravel.			
	18-26"	Light brown to light gray fine to coarse SAND, little fine to coarse gravel, metal fragment at 21 inches (drum lid).			10,000 @ 21"	
4		Debris from 12-15 inches put in bag, head space reading 567 ppm.			1,580 @ 24"	
		Drum lid found at boring location.				
5	26"	0-4"	Light gray to brown SILT and fine to coarse SAND, trace fine gravel.			10,530 @ at 3"
6		4-18"	Reddish-brown fine to coarse SAND, little fine to coarse gravel.			440 @ at 6"
						520 @ at 12"
7		18-21"	Pulverized ROCK fragments.			190 @ at 24"
		21-24"	Light gray to brown SILT and fine to coarse SAND, some fine gravel.			
8	24-26"	Brown medium to coarse SAND, little rock fragments, trace silt, trace fine sand.				
Sample Collection Details						
Sample SB-24A:	Collected at 10" (0-4 ft core) at 1350 hrs.	VOC	<div>PROPORTIONS USED (by DRY WEIGHT) 0 to 10% = TRACE &gt;10 to 20% = LITTLE &gt;20 to 35% = SOME &gt;35 to 50% = AND &gt; 50% = MAJOR</div>			
Sample SB-24B:	Collected at 18" (0-4 ft core) at 1351 hrs.	VOC				
Sample SB-24Z:	Collected at 10" (0-4 ft core) at 1350 hrs.	VOC				
Sample SB-24M:	Collected at 12" (0-4 ft core) at 1409 hrs.	VOC, % Solid				
Sample SB-24C:	Collected at 3" (4-8 ft core) at 1440 hrs.	VOC, % Solid				
Sample SB-24D:	Collected at 17" (4-8 ft core) at 1441 hrs.	VOC				
<div>Notes:</div> <div>bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System</div> <div>PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol</div> <div>hrs = hours ft = feet</div>						

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-N24	Groundwater Levels	
Location	Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled	4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	1		
Drill Rig Type	Geoprobe	Completion Depth	1.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)					
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	12"	0-12" Dark brown to brown fine to coarse SAND and SILT, trace fine to medium gravel, trace organics.  Refusal encountered at 1 ft. Bottom of core wet. Debris observed at 6 inches (possible asbestos). Yellow staining observed 9-12 inches. Discoloration on cutting shoe.			0       0
Sample Collection Details					
Sample SB-N24: Collected at 9" (0-4 ft core) at 1456 hrs.		VOC, PAH		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol PAH = Polycyclic Aromatic Hydrocarbons hrs = hours ft = feet					

Weston Solutions, Inc.			SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-25	Groundwater Levels		
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)	
Date Drilled		4/7/2021	Sampling Method	4-ft Macrocore	N/A	N/A	
Drilling Company		EPA NERL	Number of Cores	4			
Drill Rig Type		Geoprobe	Completion Depth	16.0 ft			
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A			
Logged by C. Dupree & G. Yerdon (Weston START)							
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)	
1	29"	0-1" Dark brown SILT and fine SAND, trace organics.				0 @ 5"	
		1-3" Suspected CONCRETE.					
		3-7" Brown fine to coarse SAND and SILT, trace fine to medium gravel, trace debris (brick).					
		7-11" Dark brown SILT, trace fine to coarse sand, trace fine to medium gravel, trace debris (unknown), trace organics.				2,230 @ 12"	
2	29"	11-16" Black, red, beige DEBRIS (metal, rubber, plastic, ash, brick, unknown).				67,200 @ 14"	
		16-19" Black to dark brown SILT and fine to coarse SAND, little fine to medium gravel, trace debris (ash, metal).				37,100 @ 18"	
3		19-23" Red-brown fine to coarse SAND, little fine to coarse gravel.				620 @ 23"	
		23-29" Pulverized ROCK fragments.					
5	6"	0-4" Brown fine to coarse SAND, little fine to coarse gravel, wet.				89,600 @ 3"	
		4-6" Brown fine to coarse SAND and SILT and coarse GRAVEL, trace fine gravel, wet.					
9	25"	0-1" ROCK.				2,350 @ 3"	
		1-4" Light gray SILT and fine SAND, little fine to coarse gravel, little medium to coarse sand.					
		4-6" Pulverized ROCK fragments.				550 @ 6"	
		6-13" Brown fine to coarse SAND, some fine to coarse gravel.				80 @ 12"	
10	25"	13-25" Light brown medium to coarse SAND, little fine sand, trace fine to coarse gravel.				60 @ 20"	
13		17"	0-2" Brown medium to coarse SAND, little fine gravel.				2,680 @ 2"
			2-3" ROCK.				
	3-8" Light brown fine to coarse SAND.				2,000 @ 6"		
	8-15" Light brown fine to coarse SAND, little fine to coarse gravel, little silt.				1,860 @ 12"		
14	17"	15-17" ROCK fragments.					
17		13"	0-2" Light gray SILT, some fine to coarse sand, little fine to coarse gravel.				4,160 @ 2"
			2-5" Light gray to light brown fine to coarse SAND and SILT, some fine to medium gravel.				
	5-6" ROCK fragments and light brown fine to coarse SAND.				840 @ 6"		
	6-11" Light brown medium to coarse SAND, some fine to coarse gravel, trace fine sand and silt.						
18	13"	11-13" Light brown coarse SAND, some fine to medium sand, little fine gravel.				160 @ 12"	
19		13"					
20	13"						
Sample Collection Details							
Sample SB-25A:		Collected at 9" (0-4 ft core) at 1503 hrs.		VOC		<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-25B:		Collected at 18" (0-4 ft core) at 1504 hrs.		VOC, % Solid			
Sample SB-25C:		Collected at 1" (4-8 ft core) at 1521 hrs.		VOC			
Sample SB-25E:		Collected at 3" (8-12 ft core) at 1526 hrs.		VOC			
Sample SB-25F:		Collected at 14" (8-12 ft core) at 1527 hrs.		VOC			
Sample SB-25G:		Collected at 6" (12-16 ft core) at 1535 hrs.		VOC			
Sample SB-25H:		Collected at 12" (12-16 ft core) at 1536 hrs.		VOC			
Sample SB-25I:		Collected at 3" (12-16 ft core) at 1619 hrs.		VOC			
Sample SB-25J:		Collected at 12" (12-16 ft core) at 1620 hrs.		VOC			
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System							
			PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol		hrs = hours ft = feet		

Weston Solutions, Inc.		SOIL BORING LOG					
Project/Site		Providence Barrel	Boring ID	SB-26	Groundwater Levels		
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)	
Date Drilled		4/8/2021	Sampling Method	4-ft Macrocore	N/A	N/A	
Drilling Company		EPA NERL	Number of Cores	5			
Drill Rig Type		Geoprobe	Completion Depth	20.0 ft			
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A			
Logged by		C. Dupree & G. Yerdon (Weston START)					
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)	
1	31"	0-1"	Dark brown SILT, trace fine to coarse sand, trace organics.			30 @ 2"	
		1-5"	Dark brown to brown SILT and fine to coarse SAND, trace fine gravel, trace organics.				
		5-15"	Brown fine to coarse SAND, some silt, little fine to coarse gravel, trace organics.			40 @ 8"	
		15-16"	Dark brown fine to coarse SAND and SILT, trace organics, trace debris.			1,970 @ 15"	
16-18"		DEBRIS layer (unknown) and coarse GRAVEL.			65,700 @ 17"		
18-20"		Brown SILT and fine SAND, trace organics.					
20-22"		Pulverized ROCK fragments.					
22-30"		Light brown fine to coarse SAND, some medium to coarse gravel and rock fragments, little silt.			270 @ 24"		
30-31"	Pulverized ROCK fragments.						
5	29"	0-1"	Brown fine to coarse SAND, little silt, trace fine gravel.			0	
		1-4"	Dark brown SILT and fine to coarse SAND, trace organics, trace fine gravel (fluff).			8,300 @ 6"	
		4-6"	Light gray fine to coarse SAND and SILT, trace fine to medium gravel.			110 @ 9"	
		6-14"	Light brown to light gray fine to coarse SAND, some fine to coarse gravel, trace silt.			20 @ 16"	
14-29"		Light gray to light brown medium to coarse SAND, little fine to medium gravel, little fine sand.			10 @ 25"		
9		33"	0-9"	Light brown fine to coarse SAND, some fine to medium gravel, some silt.			1,410 @ 2"
			9-10"	Dark brown SILT and fine SAND, trace fine gravel, trace organics.			2,000 @ 7"
			10-13"	Brown to light brown fine to coarse SAND and SILT, little fine to medium gravel.			160 @ 14"
	13-19"		Light brown fine SAND, some fine to coarse gravel and rock fragments, little medium to coarse sand.			0	
19-20"	Orange-brown SILT, some fine to coarse sand, trace fine gravel.			0			
20-33"	Light brown to light gray fine to coarse SAND, some fine to coarse gravel and rock fragments, trace silt.			0			
13	30"		0-8"	Light brown to light gray fine to coarse SAND, some silt, little fine to medium gravel.			960 @ 2"
			8-10"	Fine to coarse GRAVEL and ROCK fragments, some brown silt and fine sand.			2,910 @ 11"
		10-15"	Light gray fine to coarse SAND, little fine to medium gravel, little silt.			40 @ 18"	
		15-19"	Light brown fine to coarse SAND, some fine to coarse gravel.			0	
19-22"		ROCK fragments, some light gray medium to coarse sand, little fine gravel.			0		
22-30"		ROCK fragments and fine to coarse GRAVEL, some light brown fine to coarse sand.			0		
17	18"	0-1"	Light gray SILT and fine to coarse SAND, trace fine gravel.			180 @ 2"	
		1-10"	Light brown to light gray fine to coarse SAND and fine to coarse GRAVEL, trace silt.			0	
		10-18"	Light gray medium to coarse SAND, little fine to coarse gravel, wet.			0	
Sample Collection Details							
Sample SB-26A:		Collected at 8" (0-4 ft core) at 0827 hrs.		VOC		PROPORTIONS USED (by DRY WEIGHT) 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR	
Sample SB-26B:		Collected at 23" (0-4 ft core) at 0828 hrs.		VOC			
Sample SB-26M:		Collected at 16" (0-4 ft core) at 0829 hrs.		VOC, % Solid, Oil ID			
Sample SB-26C:		Collected at 6" (4-8 ft core) at 0900 hrs.		VOC			
Sample SB-26D:		Collected at 20" (4-8 ft core) at 0901 hrs.		VOC			
Sample SB-26E:		Collected at 14" (8-12 ft core) at 0908 hrs.		VOC			
Sample SB-26F:		Collected at 20" (8-12 ft core) at 0909 hrs.		VOC			
Sample SB-26G:		Collected at 11" (12-16 ft core) at 0918 hrs.		VOC			
Sample SB-26H:		Collected at 20" (12-16 ft core) at 0919 hrs.		VOC			
Sample SB-26I:		Collected at 5" (16-20 ft core) at 0940 hrs.		VOC			
Sample SB-26J:		Collected at 16" (16-20 ft core) at 0941 hrs.		VOC			
Notes:							
bgs = below ground surface		PID = Photoionization detector		hrs = hours			
N/A = Not Applicable		ppb = parts per billion		ft = feet			
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol					
* = Burmister Soil Classification System							

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-27	Groundwater Levels	
Location	Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled	4/8/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	2		
Drill Rig Type	Geoprobe	Completion Depth	8.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by		C. Dupree & G. Yerdon (Weston START)			
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	17"	0-7"	Dark brown to brown SILT, some fine to coarse sand, little fine to coarse gravel, trace organics.		0
2		7-13"	Light brown medium to coarse SAND, trace fine to coarse gravel and rock fragments, trace organics.		0
3		13-14"	ROCK fragments.		0
4		14-17"	Brown fine to coarse SAND, trace fine gravel.		0
5	28"	0-2"	Light gray fine to coarse SAND and SILT, trace fine gravel.		0
6		2-4"	Light brown fine to medium SAND, some silt, trace fine gravel.		
7		4-5"	Dark brown SILT and fine to coarse SAND, trace fine to medium gravel, trace organics.		
8		5-7"	Light ray fine to coarse SAND and SILT, little fine to coarse gravel.		
		7-10"	Light brown fine to coarse SAND, trace fine gravel, trace silt.		0
		10-11"	Orange-brown SILT and fine SAND.		
		11-24"	Light gray to light brown fine to coarse SAND, little fine to coarse gravel and rock fragments, trace silt.		0
		24-28"	Light brown fine to coarse SAND, trace fine gravel.		0
Sample Collection Details					
Sample SB-27A:	Collected at 6" (0-4 ft core) at 0946 hrs.	VOC	<div>PROPORTIONS USED (by DRY WEIGHT) 0 to 10% = TRACE &gt;10 to 20% = LITTLE &gt;20 to 35% = SOME &gt;35 to 50% = AND &gt; 50% = MAJOR</div>		
Sample SB-27B:	Collected at 15" (0-4 ft core) at 0947 hrs.	VOC			
Sample SB-27C:	Collected at 8" (4-8 ft core) at 0956 hrs.	VOC			
Sample SB-27D:	Collected at 25" (4-8 ft core) at 0957 hrs.	VOC			
Notes:					
bgs = below ground surface		PID = Photoionization detector	hrs = hours		
N/A = Not Applicable		ppb = parts per billion	ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol			
* = Burmister Soil Classification System					

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-28	Groundwater Levels	
Location	Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled	4/8/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	2		
Drill Rig Type	Geoprobe	Completion Depth	8.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by		C. Dupree & G. Yerdon (Weston START)			
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1 ----- 2 ----- 3 ----- 4	33"	0-2"	Dark brown SILT, little fine to coarse sand, trace fine gravel, trace organics.	0	
		2-9"	Pulverized ROCK fragments (4-9 inches possible concrete).	0	
		9-16"	Dark brown SILT, some fine to coarse sand, trace fine to medium gravel, trace organics.		
		16-23"	Orange-brown SILT, trace fine gravel, trace fine to coarse sand, trace organics.	0	
		23-26"	Light gray fine to coarse SAND and fine to coarse GRAVEL and ROCK fragments.	0	
		26-30"	Brown SILT and fine to coarse SAND, trace fine to medium gravel, trace organics.		
		30-33"	Light gray fine to medium SAND, trace fine gravel.		
5 ----- 6 ----- 7 ----- 8	33"	0-2"	Light brown to light gray fine to coarse SAND and SILT, little fine to medium gravel.	400 @ 4"	
		2-3"	Dark brown SILT and fine to coarse SAND, trace fine gravel, trace organics.		
		3-4"	Brown fine to coarse SAND, some silt, trace fine gravel.		
		4-8"	Light brown fine to coarse SAND, some fine to coarse gravel, trace organics.		
			8-17"	Light brown fine to medium SAND, trace fine gravel.	250 @ 9"
			17-21"	ROCK fragments, little light brown fine to coarse sand, trace silt, trace fine gravel.	0
			21-27"	Orange-brown fine SAND and SILT.	0
			27-33"	Light brown fine to coarse SAND, some fine to coarse gravel.	
Sample Collection Details					
Sample SB-28A:	Collected at 16" (0-4 ft core) at 1008 hrs.	VOC, % Solid	<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR		
Sample SB-28B:	Collected at 29" (0-4 ft core) at 1009 hrs.	VOC			
Sample SB-28C:	Collected at 9" (4-8 ft core) at 1022 hrs.	VOC			
Sample SB-28D:	Collected at 24" (4-8 ft core) at 1023 hrs.	VOC			
<b>Notes:</b>					
bgs = below ground surface		PID = Photoionization detector	hrs = hours		
N/A = Not Applicable		ppb = parts per billion	ft = feet		
NERL = New England Regional Laboratory		VOC = Volatile Organic Compound; Sample preserved in Methanol			
* = Burmister Soil Classification System					

Weston Solutions, Inc.		SOIL BORING LOG				
Project/Site		Providence Barrel	Boring ID	SB-29	Groundwater Levels	
Location		Smithfield, RI	Area	Southeast	Date	Depth (ft)
Date Drilled		4/8/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company		EPA NERL	Number of Cores	3		
Drill Rig Type		Geoprobe	Completion Depth	12.0 ft		
Geoprobe Operator		Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)						
Depth (ft bgs)	Recovery (inches)	Soil Description*				PID (ppb)
1	31"	0-2"	Dark brown SILT, little fine to coarse sand, trace organics.			0
2		2-3"	ROCK fragments.			0
3		3-10"	Brown SILT and fine to coarse SAND, trace fine to coarse gravel, trace organics, some yellow staining observed.			0
4		10-16"	Black and brown SILT and fine to coarse SAND, some fine to coarse gravel and rock fragments.			0
		16-23"	Brown fine to coarse SAND and SILT, little fine to coarse gravel.			140 @ 29"
		23-28"	ROCK fragments and pulverized ROCK, little light brown fine to coarse sand.			
		28-31"	Light brown fine to coarse SAND, trace fine to medium gravel, trace silt.			
5	34"	0-7"	Light gray fine to coarse SAND and SILT, trace fine gravel.			730 @ 5"
6		7-19"	Light brown fine to coarse SAND, some fine to coarse gravel and rock fragments, trace silt.			70 @ 12"
7		19-26"	Light brown fine SAND, little fine to medium gravel and rock fragments, little medium to coarse sand.			0
8		26-30"	Light gray fine SAND, trace fine gravel, trace silt, trace medium to coarse sand.			0
		30-34"	Red-brown to light brown medium to coarse SAND, trace fine gravel, trace fine sand.			
9	43"	0-3"	Orange-brown fine to medium SAND, little silt, trace fine gravel, trace coarse sand.			130 @ 3"
10		3-8"	Light gray fine to coarse SAND and SILT, trace fine to coarse gravel.			290 @ 13"
11		8-9"	Brown SILT and fine to coarse SAND, trace fine gravel, trace organics.			100 @ 23"
12		9-15"	Light brown to light gray fine to coarse SAND and SILT, little fine to coarse gravel and rock fragments.			30 @ 37"
		15-23"	Light brown to orange-brown fine to coarse SAND, little fine to medium gravel.			
		23-33"	Light gray coarse to fine SAND, some rock fragments and fine to coarse gravel.			
		33-43"	Light brown to light gray fine SAND and SILT, moist.			
Sample Collection Details						
Sample SB-29A:		Collected at 6" (0-4 ft core) at 1030 hrs.	VOC	<b>PROPORTIONS USED (by DRY WEIGHT)</b> 0 to 10% = TRACE >10 to 20% = LITTLE >20 to 35% = SOME >35 to 50% = AND > 50% = MAJOR		
Sample SB-29B:		Collected at 21" (0-4 ft core) at 1031 hrs.	VOC			
Sample SB-29C:		Collected at 4" (4-8 ft core) at 1042 hrs.	VOC			
Sample SB-29D:		Collected at 28" (4-8 ft core) at 1043 hrs.	VOC, PAH			
Sample SB-29Y:		Collected at 28" (4-8 ft core) at 1043 hrs.	VOC			
Sample SB-29E:		Collected at 13" (8-12 ft core) at 1113 hrs.	VOC			
Sample SB-29F:		Collected at 33" (8-12 ft core) at 1114 hrs.	VOC			
<b>Notes:</b>						
bgs = below ground surface			PID = Photoionization detector		hrs = hours	
N/A = Not Applicable			ppb = parts per billion		ft = feet	
NERL = New England Regional Laboratory			VOC = Volatile Organic Compound; Sample preserved in Methanol			
* = Burmister Soil Classification System			PAH = Polycyclic Aromatic Hydrocarbons			

Weston Solutions, Inc.		SOIL BORING LOG			
<b>Project/Site</b>	Providence Barrel	<b>Boring ID</b>	SB-30	<b>Groundwater Levels</b>	
<b>Location</b>	Smithfield, RI	<b>Area</b>	Southeast	<b>Date</b>	<b>Depth (ft)</b>
<b>Date Drilled</b>	4/8/2021	<b>Sampling Method</b>	4-ft Macrocore	N/A	N/A
<b>Drilling Company</b>	EPA NERL	<b>Number of Cores</b>	2		
<b>Drill Rig Type</b>	Geoprobe	<b>Completion Depth</b>	8.0 ft		
<b>Geoprobe Operator</b>	Sommer/Coombs (NERL)	<b>Surface Elevation</b>	N/A		
<b>Logged by</b> C. Dupree & G. Yerdon (Weston START)					
<b>Depth (ft bgs)</b>	<b>Recovery (inches)</b>	<b>Soil Description*</b>			<b>PID (ppb)</b>
1	31"	0-6" Brown to dark brown SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace debris (plastic).			0
2		6-13" Dark brown to black fine to coarse SAND and SILT, little fine to coarse gravel, minimal yellow staining observed.			90 @ 10"
3		13-18" Red-brown fine to coarse SAND, some fine to coarse gravel.			0
4		18-20" Light gray fine to coarse SAND, some fine to coarse gravel.			
		20-23" Orange-brown fine SAND, little fine to coarse gravel, trace medium to coarse sand.			
		23-25" ROCK fragments.			0
		25-28" Light brown fine to coarse SAND and ROCK fragments.			
		28-31" Pulverized ROCK fragments, some brown silt and fine to coarse sand.			
5	36"	0-4" Light brown fine to coarse SAND, trace fine gravel.			0
6		4-6" Red-brown SILT and fine to coarse SAND, trace fine gravel.			
7		6-9" Light gray fine to coarse SAND and SILT, some fine to medium gravel.			0
8		9-12" Brown coarse to fine SAND, trace fine gravel.			
		12-13" ROCK fragment.			0
		13-17" Light brown fine to coarse SAND, trace fine gravel.			
		17-36" Light brown to light gray fine SAND and SILT.			0
<b>Sample Collection Details</b>					
<div> <div> <b>Sample SB-30A:</b> Collected at 12" (0-4 ft core) at 1126 hrs.           VOC, % Solid         </div> <div> <b>PROPORTIONS USED (by DRY WEIGHT)</b>            0 to 10% = TRACE            &gt;10 to 20% = LITTLE            &gt;20 to 35% = SOME            &gt;35 to 50% = AND            &gt; 50% = MAJOR         </div> </div>					
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System					
PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol					
hrs = hours ft = feet					

Weston Solutions, Inc.		SOIL BORING LOG			
<b>Project/Site</b>	Providence Barrel	<b>Boring ID</b>	SB-31	<b>Groundwater Levels</b>	
<b>Location</b>	Smithfield, RI	<b>Area</b>	Slab	<b>Date</b>	<b>Depth (ft)</b>
<b>Date Drilled</b>	4/8/2021	<b>Sampling Method</b>	4-ft Macrocore	N/A	N/A
<b>Drilling Company</b>	EPA NERL	<b>Number of Cores</b>	2		
<b>Drill Rig Type</b>	Geoprobe	<b>Completion Depth</b>	8.0 ft		
<b>Geoprobe Operator</b>	Sommer/Coombs (NERL)	<b>Surface Elevation</b>	N/A		
<b>Logged by</b> C. Dupree & G. Yerdon (Weston START)					
<b>Depth (ft bgs)</b>	<b>Recovery (inches)</b>	<b>Soil Description*</b>			<b>PID (ppb)</b>
1	21"	0-8" Light brown fine to coarse SAND and SILT, trace fine gravel, trace medium to coarse sand, rock fragment at 6 inches and 8 inches.			0
2		8-12" Dark brown to red-brown SILT and fine to coarse SAND, some fine to coarse gravel.			0
3		12-15" Orange-brown fine to coarse SAND, some fine to coarse gravel, trace silt.			0
4		15-21" Light brown fine to coarse SAND, some fine to coarse gravel, trace silt.			0
5	29"	0-29" Light brown to light gray fine to coarse SAND, little fine to coarse gravel and rock fragments, little silt.			0
6					0
7					0
8					0
<b>Sample Collection Details</b>					
<div> <div> <b>Sample SB-31A:</b> Collected at 11" (0-4 ft core) at 1143 hrs.           VOC         </div> <div> <b>PROPORTIONS USED (by DRY WEIGHT)</b>            0 to 10% = TRACE            &gt;10 to 20% = LITTLE            &gt;20 to 35% = SOME            &gt;35 to 50% = AND            &gt; 50% = MAJOR         </div> </div>					
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System					
PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol					
hrs = hours ft = feet					

Weston Solutions, Inc.		SOIL BORING LOG			
Project/Site	Providence Barrel	Boring ID	SB-32	Groundwater Levels	
Location	Smithfield, RI	Area	Slab	Date	Depth (ft)
Date Drilled	4/8/2021	Sampling Method	4-ft Macrocore	N/A	N/A
Drilling Company	EPA NERL	Number of Cores	2		
Drill Rig Type	Geoprobe	Completion Depth	8.0 ft		
Geoprobe Operator	Sommer/Coombs (NERL)	Surface Elevation	N/A		
Logged by C. Dupree & G. Yerdon (Weston START)					
Depth (ft bgs)	Recovery (inches)	Soil Description*			PID (ppb)
1	19"	0-8" Dark brown and black SILT and fine to coarse SAND, little fine to coarse gravel, trace organics.			0
2					0
3		8-15" Dark brown SILT, some fine to coarse sand, trace fine gravel, trace organics.			0
					0
		15-16" ROCK.			
4		16-19" Orange-brown SILT and fine SAND, trace fine gravel, trace medium to coarse sand, trace organics.			
	28"	0-2" Orange-brown SILT and fine SAND, trace fine gravel, trace medium to coarse sand, trace			
		2-4" Dark brown SILT and fine to coarse SAND, trace fine gravel, trace organics.			0
5		4-7" Brown fine to coarse SAND, trace fine to medium gravel, trace silt.			
6					0
7		7-24" Light brown to light gray fine to coarse SAND, trace fine to coarse gravel, trace silt			0
8		24-28" Pulverized ROCK fragments.			0
Sample Collection Details					
<div> <div> <b>Sample SB-32A:</b> Collected at 9" (0-4 ft core) at 1152 hrs.           VOC         </div> <div> <b>PROPORTIONS USED</b>            (by DRY WEIGHT)            0 to 10% = TRACE            &gt;10 to 20% = LITTLE            &gt;20 to 35% = SOME            &gt;35 to 50% = AND            &gt; 50% = MAJOR         </div> </div>					
<b>Notes:</b> bgs = below ground surface N/A = Not Applicable NERL = New England Regional Laboratory * = Burmister Soil Classification System					
PID = Photoionization detector ppb = parts per billion VOC = Volatile Organic Compound; Sample preserved in Methanol					
hrs = hours ft = feet					