
Windsor Housing Project Lot #1 133 & 137 Main Street Windsor, Vermont 05089

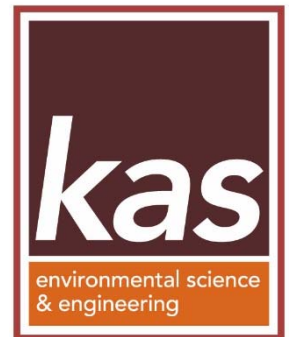
SMS #2022-5087
KAS #507210630

SITE INVESTIGATION REPORT

September 29, 2022

Prepared for:

Mount Ascutney Regional Commission
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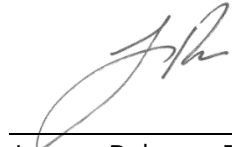
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Certification

This report, which summarizes the Site Investigation conducted at the vacant parcel located at 133 & 137 Main Street in Windsor, Vermont, State of Vermont Department of Environmental Conservation (VT DEC) #2022-5087, has been prepared under my direction.

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



Jeremy Roberts, P.G.
Principal / Environmental Program Manager

Executive Summary

A site investigation (SI) has been completed by KAS, Inc. (KAS) at the vacant parcel located at 133 & 137 Main Street in Windsor, Vermont ("Site"), which included the advancement of soil borings and the collection of soil samples.

The investigative work was proposed to further address contaminants of concern detected in soils at the Site during completion of a Phase II ESA.¹ KAS' SI work scope included the following:

- Advancement of borings to native soil depths for soil sampling and field testing to further determine the degree and extent of polycyclic aromatic hydrocarbon (PAH), arsenic and lead impacts to soil;
- Refinement of the conceptual site model presented in the work plan;
- Determination of the need for treatment and/or further monitoring that addresses soil impacts; and,
- Preparation of a summary report in accordance with the Investigation and Remediation of Contaminated Properties Rule (I-Rule).

Environmental Assessment – Soils

On July 6, 2022, twelve soil borings (SB-7 through SB-18) were advanced by KAS at various locations at the Site to further assess PAH, arsenic and lead impacts to soils. No elevated photoionization detector (PID) readings or odors were noted in any of the soil borings advanced on July 6, 2022. Discrete soil samples were collected from the soil borings advanced on July 6, 2022 at shallow and intermediate depths within the historical fill layer as well as at deeper depths within the native sand layer to assess the potential for arsenic, lead and PAH impacts.

PAHs expressed as the toxic equivalent quotient (TEQ) for Benzo(a)pyrene (BaP) exceeded the background level soil concentration for urban sites in ten of the twelve shallow soil samples collected (all locations except SB14-S and SB18-S) and in three of the twelve intermediate zone samples collected (SB8-I, SB10-I and SB13-I). No PAHs were detected in any of the native sand samples collected on July 6, 2022. A concentration of arsenic and lead was reported in all of the

¹ KAS, Inc., Phase I Environmental Site Assessment, 88 Canal Street, Bellows Falls, Vermont, March 2019



shallow, intermediate and native sand samples collected; however, the concentrations were below the applicable Vermont Soil Standard (VSS) except at SB9-S (shallow 0-18" sample) where total lead was reported at 410 mg/kg, which is slightly above the VSS of 400 mg/kg.

The source of the PAH and lead impacts is believed to be related to the historical placement of fill on the Site property and/or the Site lying in a long-time established urban environment. Fill soils containing brick, wood and slate have been observed throughout the Site down to a maximum depth of 5.0 feet below grade.

Recommendations

Based on the investigative work as well as the above-stated conclusions for the Site, KAS recommends the following:

- A Corrective Action Plan (CAP) should be prepared and implemented for the Site to protect future users from shallow PAH and lead soil impacts. The Site appears to meet the requirements for exemption from an Evaluation of Corrective Action Alternatives (ECAA) as presented in Section §35-604(b) of the I-Rule.



1.0 Introduction

This report provides a summary of the tasks completed as part of the Site Investigation (SI) at the vacant parcel located at 133 & 137 Main Street, Windsor, Vermont ("Site"; see Site Location and Site Vicinity Map, Appendix A). The Site is referred to as the Windsor Housing Lot #1. This work was performed by KAS, Inc. (KAS) for the Mount Ascutney Regional Commission (MARC) of Ascutney, Vermont on behalf of the prospective purchasers (Windham & Windsor Housing and Evernorth) and was sponsored by MARC using assessment funds from the Vermont Agency of Commerce and Community Development Brownfields Revitalization Program. The SI work was performed in accordance with the Work Plan and Cost Estimate for a Site Investigation prepared by KAS dated May 12, 2022 and revised on June 10, 2022. The SI Work Plan was approved by Ms. Cassandra Kimmey of the Vermont Department of Environmental Conservation (VT DEC) in an electronic message to KAS dated June 15, 2022. This report was prepared in accordance with the Investigation and Remediation of Contaminated Properties Rule (I-Rule), effective date July 6, 2019. The I-Rule site investigation checklist is included in Appendix G.

The owner and responsible party contact information is outlined below.

Owner / Responsible Party	Mailing Address	Contact Name	Phone / Email
Windsor Improvement Corporation	P.O. Box 455 Windsor, VT 05089	Mr. Thomas Kennedy	802-674-9201 tkennedy@marcvt.org

The Site is under consideration for purchase by Windham & Windsor Housing, Inc. (WWHT) and Evernorth (EN). WWHT and EN are currently looking to redevelop the Site property into housing referred to as the Windsor Housing project. The partnership and entity name in which WWHT and EN will form is intending on enrolling the Site property in the State of Vermont Brownfields Reuse and Environmental Liability Limitation Act (BRELLA) program. The Windsor Housing development team will begin with construction on the Site (Lot #1). Construction on the adjacent parcel to the south (Lot #2) will be conducted following completion of Lot #1.

2.0 Background

A Phase I Environmental Site Assessment (ESA) was completed at the Site property in July 2021. The Phase I assessment revealed evidence of the following recognized environmental condition (REC) in connection with the property:

1. The potential presence of historical fill material beneath the property as a result of historical urban use and historical fire(s).

In October 2021, KAS completed a Phase II ESA at the Site property and the adjacent parcel to the south (139 Main Street). The objective of the Phase II ESA work was to provide data to evaluate the potential impacts the REC may have had on the subject property soil and to provide information relevant to evaluating business environmental risk associated with potential future use and development of the subject property. The means by which this objective was completed included soil boring advancement and laboratory analysis of soil samples.



On October 6, 2021 six soil borings (SB21-1 through SB21-6) were advanced at various locations on the subject property to assess the potential presence of urban fill. No elevated photoionization detector (PID) readings or odors were noted in any of the soil borings advanced on October 6, 2021. Composite soil sampling was completed at the Site property to assess the potential for arsenic, lead and polycyclic aromatic hydrocarbon (PAH) impacts. PAHs were detected in five of the six samples at concentrations above the laboratory reporting limits. Samples COMP A (0-2'), COMP A (2-5'), COMP B (0-2') and COMP B (2-5') contained Benzo(a)pyrene (BaP) at a concentration exceeding the applicable Vermont Soil Standard (VSS) for a residential property. PAHs expressed as the Toxic Equivalent Quotient (TEQ) for BaP exceeded the background level soil concentration for urban sites in the COMP A (0-2'), COMP A (2-5'), COMP B (0-2') and COMP B (2-5') samples. A concentration of arsenic and lead was reported in all samples; however, the concentrations were below the applicable VSS.

The source of the PAH impacts is believed to be related to the historical placement of fill on the subject property. Fill soils containing brick, wood and slate were observed throughout the subject property down to a maximum depth of 5.0 feet below grade. Based on the results of the Phase II ESA, the REC identified during the Phase I ESA appears to have resulted in detectable contamination at the subject property. Soils above the native sandy layer have been shown to be impacted with PAHs above regulatory standards.

Following completion of the Phase II ESA, the report and data was shared with the VT DEC and a request for further investigation and characterization of the PAH impacts identified at the Site was requested. Copies of previous reports are on file with the VT DEC.

All previous reports are on-file at the VT DEC offices located in Montpelier, Vermont.

3.0 Scope of Work and Work Plan Deviations / Objectives

3.1 Scope of Work and Work Plan Deviations

The SI was conducted to further define the extent of PAH, arsenic and lead impacts in soils at the Site. Results of the following investigative tasks performed by KAS are presented: soil boring advancement, soil screening, sampling and laboratory analysis, an evaluation of sensitive receptors in the vicinity of the Site and refinement of the conceptual site model presented in the work plan.

No deviations to the approved work plan occurred.

3.2 Standard Operating Procedures

The following KAS standard operating procedures (SOPs) were used during the ISI. Copies of the SOPs are available upon request.

KAS Protocol	Title
001	Soil Screening Headspace Measurement
004	Soil Boring Advancement
005	Shallow Soil Sampling
006	Sample Containerization, Preservation, Handling and Packaging
034	Use and Maintenance of MiniRae Photoionization Detector

3.3 Objectives

The main objective of the site investigation was to further delineate the degree and extent of PAH, arsenic and lead impacts noted in soils during the completion of the Phase II ESA in October 2021. A goal of the proposed work scope was to collect a sufficient amount of data to properly assess the horizontal and vertical extent of impacts to soils above regulatory standard so that a Corrective Action Plan (CAP) can be developed to facilitate the proposed Site redevelopment. The preliminary redevelopment plan for the Site suggests the primary routes of exposure to potential contaminants of concern will be via direct contact with soils. A groundwater assessment was not proposed because future site use does not indicate a probable groundwater exposure risk (no wells will be drilled) and given depth to groundwater is estimated to be > 10 feet below grade. The proposed development on the Site property will use the existing Town of Windsor municipal water supply to service the property.

The Site lies in a designated urban background area according to the VT DEC and therefore the VT urban background standard for PAHs, arsenic and lead apply to the data obtained from the Site property.

4.0 Subsurface Exploration and Laboratory Analysis

4.1 Pre-Drilling Activities

Prior to initiation of the subsurface drilling activities at the Site, a site-specific Health and Safety Plan (HASP) was prepared in accordance with Vermont Occupational Safety and Health Administration (VOSHA) requirements. The Site was pre-marked, as required by Vermont Dig Safe, on June 27, 2022 and Dig Safe Number 20222600975 was assigned on June 27, 2022. All known utilities are shown on the Site Map in Appendix A.

4.2 Soil Boring Advancement

On July 6, 2022, KAS advanced twelve (12) soil borings (SB-7 through SB-18) at the Site (KAS Protocol #004²). All of the soil borings were advanced using a Geoprobe drill rig owned and operated by KAS. The soil borings were strategically placed across the Site property to characterize soils in order to evaluate the PAH, arsenic and lead contaminant distribution. No unanticipated conditions were encountered during the soil boring advancement. Photographic documentation is presented in Appendix E.

4.3 Soil Screening / Soil Sampling and Analysis

Undisturbed soil cores were collected continuously from all soil borings. The soil borings were advanced into the native sand layer, which ranged in depth of approximately 3.5 - 4.0 feet below grade. The soil cores were logged by a KAS scientist and screened for the presence of volatile organic compounds (VOCs) using a MiniRae PID. Prior to screening, the PID was calibrated with isobutylene referenced to benzene (KAS Protocol #034³). Soils were screened using KAS' Soil Screening Protocol #001⁴. Soil characteristics and contaminant concentrations were recorded by the KAS scientist in soil boring logs presented in Appendix B. Soils observed in the borings

² KAS Protocol #004: Soil Borings, revised December 2010

³ KAS Protocol #034: Use and Maintenance of MiniRAE Lite Photoionization Detector, December 2010

⁴ KAS Protocol #001: Soil Screening Headspace Measurement, revised December 2010



generally consisted of a fine to medium silty sand with gravel overlying a native poorly graded coarse sand at deeper depths. Fill material consisting of brick and slate was noted from surface grade ranging to depths up to 4.0 feet below grade. No readings above 0.0 parts per million by volume (ppmv) were measured with the PID in any of the soil borings. No petroleum or non-petroleum odors were encountered in the soil borings. The location of each boring and significant site features were logged in the field using a handheld GPS.

Soil Sample Collection – Shallow Soils

One discrete soil sample was collected at each boring location immediately below the sod layer within the 0 - 18" below grade zone. The samples were labeled with an "S" designation (i.e. SB7-S) and submitted for laboratory analysis of PAHs via EPA Method 8270d. The samples collected from SB-9, SB-12, SB-15 and SB-18 were also submitted for analysis of arsenic and lead via EPA Method 6020, which equated to one sample collected for arsenic and lead analysis every three borings.

Soil Sample Collection – Deeper Soils

A discrete soil sample was collected from each boring from the zone between 18" below grade to the native sandy layer. The discrete sampling occurred at varying depths within this zone ranging from 2 – 4 feet bsg to evaluate contaminant distribution. At four of the boring locations (SB-7, SB-11, SB-12 and SB-15), an additional sample was collected from within the native sandy layer to confirm the results obtained during the Phase II ESA. The intermediate zone samples were labeled with an "I" designation (i.e. SB7-I) and the native sand samples were labeled with an "N" designation (i.e. SB7-N). All samples were submitted for laboratory analysis of PAHs via EPA Method 8270d. The samples collected from SB-9, SB-12, SB-15 and SB-18 were also submitted for analysis of arsenic and lead via EPA Method 6020, which equated to one sample collected for arsenic and lead analysis every three borings.

Soil Sample Collection – Waste Characterization

Prior to the completion of the site investigation, KAS shared the Phase II ESA composite soil sampling data with Casella Waste Management (Casella) to determine if the data collected to date is sufficient to prepare a waste profile for approval for future soil disposal at the Coventry, VT or Bethlehem, NH landfills. Casella indicated that they would require confirmatory Toxicity Characteristic Leaching Procedure (TCLP) analysis if the concentration of lead exceeds 100 mg/kg in any particular sample. Given this information, KAS instructed the laboratory to perform TCLP-lead analysis on any lead samples with a result ≥ 100 mg/kg.

All soil samples were submitted under proper chain of custody procedures to Eastern Analytical Laboratories in Concord, NH. Soil analytical results are summarized and compared to regulatory standards in Appendix C. The laboratory report is included in Appendix D.

4.3.1 Soil Analytical Results

The following provides a summary of the soil analytical results obtained on July 6, 2022.

Shallow Soils 0 – 18"

PAHs were detected in all of the 0 – 18" samples collected on July 6, 2022, with BaP exceeding the applicable VSS in all of these samples. PAHs expressed as the TEQ for BaP exceeded the background level soil concentration for urban sites in ten of the twelve samples collected (all locations except SB14-S and SB18-S).

A concentration of arsenic and lead was reported in all samples; however, the concentrations were below the applicable Vermont Soil Standard (VSS) except at SB-9 where total lead was reported at 410 mg/kg, which is slightly above the VSS of 400 mg/kg.

Intermediate Zone Soils > 18"

PAHs were detected in eight of the twelve intermediate zone samples collected on July 6, 2022, with BaP exceeding the applicable VSS in six of these samples (SB8-I, SB10-I, SB13-I, SB15-I, SB16-I and SB17-I). PAHs expressed as the TEQ for BaP exceeded the background level soil concentration for urban sites in three of the twelve samples collected (SB8-I, SB10-I and SB13-I).

A concentration of arsenic and lead was reported in all samples; however, the concentrations were below the applicable VSS at all locations.

Native Sandy Soils

No PAHs were detected in any of native sand samples collected on July 6, 2022.

A concentration of arsenic and lead was reported in all samples; however, the concentrations were below the applicable VSS at all locations.

TCLP-Lead Waste Characterization

Soil sample SB9-S was the only location with a reported concentration of lead > 100 mg/kg. Soil sample SB12-S contained a concentration of lead close to the threshold at 98 mg/kg. Therefore, KAS instructed EAI to run a TCLP-lead analysis on both of these samples. Both samples contained a TCLP-lead concentration of < 0.5 mg/L.

4.3.2 Contaminant Distribution

Results from the July 2022 soil sampling were plotted to create a concentration map for PAHs TEQ as BaP, total arsenic and total lead (Appendix A). In general, the PAH impacted soils above urban background standard were noted to be widespread and most prominent in the 0 – 18" shallow interval. The highest PAH concentrations were generally noted to be concentrated along the northern portion of the Site near borings SB-11, SB-12 and SB-16. The concentration of lead and arsenic in soils were generally found to be consistent throughout the Site with only one location (SB-9) along the eastern portion of the Site noted to contain an elevated concentration of lead (410 mg/kg at 0 – 18").

4.3.3 Quality Assurance/Quality Control (QAQC)

For quality assurance / quality control (QAQC) measures, one duplicate sample was collected every fifteen (15) samples. The samples were submitted to EAI for laboratory analysis of PAHs via EPA Method 8270d (two total) and lead and arsenic via EPA Method 6020 (one per). The data indicates that adequate quality and assurance and control were maintained during sampling, transporting, and analysis. A relative percent difference (RPD) was calculated between the primary sample and duplicate. The RPD is defined as 100 times the difference between the actual and duplicate sample, divided by the mean of the two samples. For most analyses, RPD values were equal to or below the targeted 50% criteria for solid samples. The relative percent difference (RPD) values ranged from -2.6% to 154.8%. Several of the PAH detections for the Duplicate-3 sample were above the 50% RPD target; however, the reported concentrations were very low overall, whereby a small difference in low values results in a high RPD. The instance described above is an example of

a flaw in the RPD method and is not indicative of weaknesses in the data. The soil SVOC PAH analysis should be accepted on the basis that similar compounds were detected in the duplicate and original sample and the total TEQ benzo(a)pyrene concentration was above the urban background standard for both the duplicate and original sample. This data is presented in Appendix E.

4.4 Investigation Derived Waste

No excess soils were produced during drilling activities and therefore no investigation derived waste was generated during the site investigation.

5.0 Updated Conceptual Site Model

5.1 Site Conditions

The Site property is located in Windsor, VT along the eastern side of Main Street (US Route 5) south of the corner of River Street. The Site property consists of two parcels totaling approximately 0.72 acres and is located within the central business zoning district according to the Town of Windsor. The Site is located in a mixed residential and commercial area within the Town of Windsor. The Site contains unlevelled grounds throughout with a moderate slope present along the eastern portion of the subject property. The entirety of the subject property is covered by grass vegetation. No buildings or improvements are present on the subject property except for a partially buried concrete slab along the eastern edge of the Site. A former gravel driveway is present along the southwestern side of the subject property which leads to the Windsor Diner. The Windsor Diner and area immediately around it consist of a land lease which are part of Lot #2. A Site Map which shows relevant Site features and the parcel layout is included in Appendix A.

Based on a review of topographic maps and aerial photography, the Site lies at an approximate elevation of 150 feet above mean sea level (AMSL). The nearest surface water is the Connecticut River which is located approximately 0.25 miles east. Based on Site topography, the surface drainage from the Site property is anticipated to flow in a general easterly direction. Utilities servicing the Site appear to consist of municipal sewer, with a manhole located along the northeastern portion of the Site property. No other subsurface infrastructure is known to be present beneath the Site and none was reported by the Town of Windsor during completion of the ISI.

As of July 2022, during KAS' most recent property visit, neighboring property uses consisted of the following:

North: Restaurant (Bistro Midva) / Commercial building
South: Mixed commercial / residential properties and Etta Frasier Drive
East: Residential properties
West: Windsor Diner and US Route 5 (Main Street)

5.2 Geology

The soils beneath the Site are mapped as littoral sands and pebbly sands of glacial origin.⁵ Soils encountered during soil boring advancement in October 2021 and July 2022 generally consisted of well to medium coarse silty sand with gravel underlain by a native course poorly graded sand.

⁵ Doll, 1970.

Evidence of historical fill has been noted beneath the Site and has mainly been concentrated in the upper five feet. Bedrock in the vicinity of the Site property consists of Devonian-aged Gile Mountain Formation which is described as gray phyllite and schist.⁶ No bedrock outcrop points are present at the Site and no wetland areas have been identified on the Site property according to VT DEC records.⁷

5.3 Hydrogeology

Windsor is situated within the Connecticut River watershed. As such, all land in Windsor ultimately drains to the Connecticut River, which is located approximately 0.25 miles east of the Site. Based on the topography of the local region, groundwater from the Site is expected to flow easterly towards the Connecticut River. Groundwater was encountered in one of the soil borings advanced on October 6, 2021 at a depth of approximately 10.5 feet below grade.

5.4 Apparent Source of Release

The PAH and lead impacts identified in shallow soils at the Site are believed to be related to the historical placement of fill and/or the Site lying in a long-time established urban environment. Fill soils containing brick, wood and slate have been observed throughout the Site during subsurface investigations.

5.5 Contaminant Fate and Transport

PAH impacts in excess of applicable urban background and residential soil standards have been identified in fill soils located at the Site property. Fill soils containing brick wood and/or slate have been observed throughout the Site to a maximum depth of 5.0 feet below grade. The risk for groundwater transport and/or leaching of impacts from shallow soil appears to be low given groundwater is presumed to be lie several feet below the urban fill layer based on the data collected during soil boring advancement in October 2021 and July 2022.

6.0 Sensitive Receptor Risk Assessment

A sensitive receptor risk assessment of the area surrounding the Site is provided below, and a determination of the potential risk to identified receptors has been made based on proximity to the impacted areas, groundwater flow direction, contaminant mobility and volatility, and contaminant concentration levels in soil, groundwater and/or soil vapor. To date one sensitive receptor (soil) has been identified as being impacted from the presence of urban fill.

The Site and surrounding area are serviced by the municipal water supply system. According to the Vermont Agency of Natural Resources Atlas mapping tool, there are no private wells within a ½ mile of the Site. Based on this information and the general immobile nature of PAHs and lead, there does not appear to be a risk to any nearby private drinking water wells.

The nearest surface water body is the Connecticut River, which is located approximately 0.25 miles east of the Site. Given the general immobile nature of PAHs and lead, there does not appear to be a risk to nearby by surface waters.

A buried sewer line runs along the northeastern portion of the Site. Given the type of impacts noted, utility corridors do not appear to be at risk.

⁶ Doll, 1961.

⁷ VT DEC Database

6.1 Potential Exposure Pathways

Potential exposure pathways to soil impacts identified at the Site have been evaluated. Routes of potential exposure to current and future property users include absorption via dermal contact and/or ingestion of soil. Impacted soils have been identified at shallow depths across the Site. The potential redevelopment plan proposed for the Site property consists of building residential housing which could result in a direct contact risk for future site users to shallow soils. The proposed future property uses and the identified potential exposure pathways will need to be evaluated through completion of a CAP to confirm adequate protection of human health is being accomplished.

6.2 Data Gap Analysis

Taking into consideration the conceptual site model presented in Section 5.0, KAS has completed an evaluation of potential data gaps at the Site. No data gaps have been identified. A complete picture of the Site history and use has been obtained through the completion of a Phase I ESA in July 2021. The objectives of the site investigation completed in July 2022 were met and a sufficient amount of data has been collected to date to fully evaluate potential exposure pathways and risk to nearby sensitive receptors. The only release known to have occurred at the Site is in association with the placement of historical fill and/or the Site lying in a long-time urban environment which has resulted in concentrations of PAHs and lead above regulatory standard in Site soils. No other releases have been identified and none are suspected to have occurred at the Site.

7.0 Conclusions

Based on the results of the site investigation performed at the Site, the following conclusions are offered:

1. On July 6, 2022, twelve soil borings (SB-7 through SB-18) were advanced by KAS at various locations at the Site to further assess PAH, arsenic and lead impacts to soils. No elevated PID readings or odors were noted in any of the soil borings advanced on July 6, 2022;
2. Discrete soil samples were collected from the soil borings advanced on July 6, 2022 at shallow and intermediate depths within the historical fill layer as well as at deeper depths within the native sand layer to assess the potential for arsenic, lead and PAH impacts;
3. PAHs expressed as the TEQ for BaP exceeded the background level soil concentration for urban sites in ten of the twelve shallow soil samples collected (all locations except SB14-S and SB18-S) and in three of the twelve intermediate zone samples collected (SB8-I, SB10-I and SB13-I). No PAHs were detected in any of the native sand samples collected on July 6, 2022;
4. A concentration of arsenic and lead was reported in all of the shallow, intermediate and native sand samples collected; however, the concentrations were below the applicable VSS except at SB9-S (shallow 0-18" sample) where total lead was reported at 410 mg/kg, which is slightly above the VSS of 400 mg/kg;
5. The source of the PAH and lead impacts is believed to be related to the historical placement of fill on the Site property and/or the Site lying in a long-time established urban



6. environment. Fill soils containing brick, wood and slate have been observed throughout the Site down to a maximum depth of 5.0 feet below grade;
 7. The objectives of the site investigation completed in July 2022 were met and a sufficient amount of data has been collected to date to fully evaluate potential exposure pathways and risk to nearby sensitive receptors; and,
 8. No data gaps have been identified at the Site based on available data. The potential redevelopment plan proposed for the Site consists of building residential housing which could result in a direct contact risk for future site users to shallow soils. The proposed future property uses and the identified potential exposure pathways will need to be evaluated through completion of a CAP to confirm adequate protection of human health is being accomplished.
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8.0 Recommendations

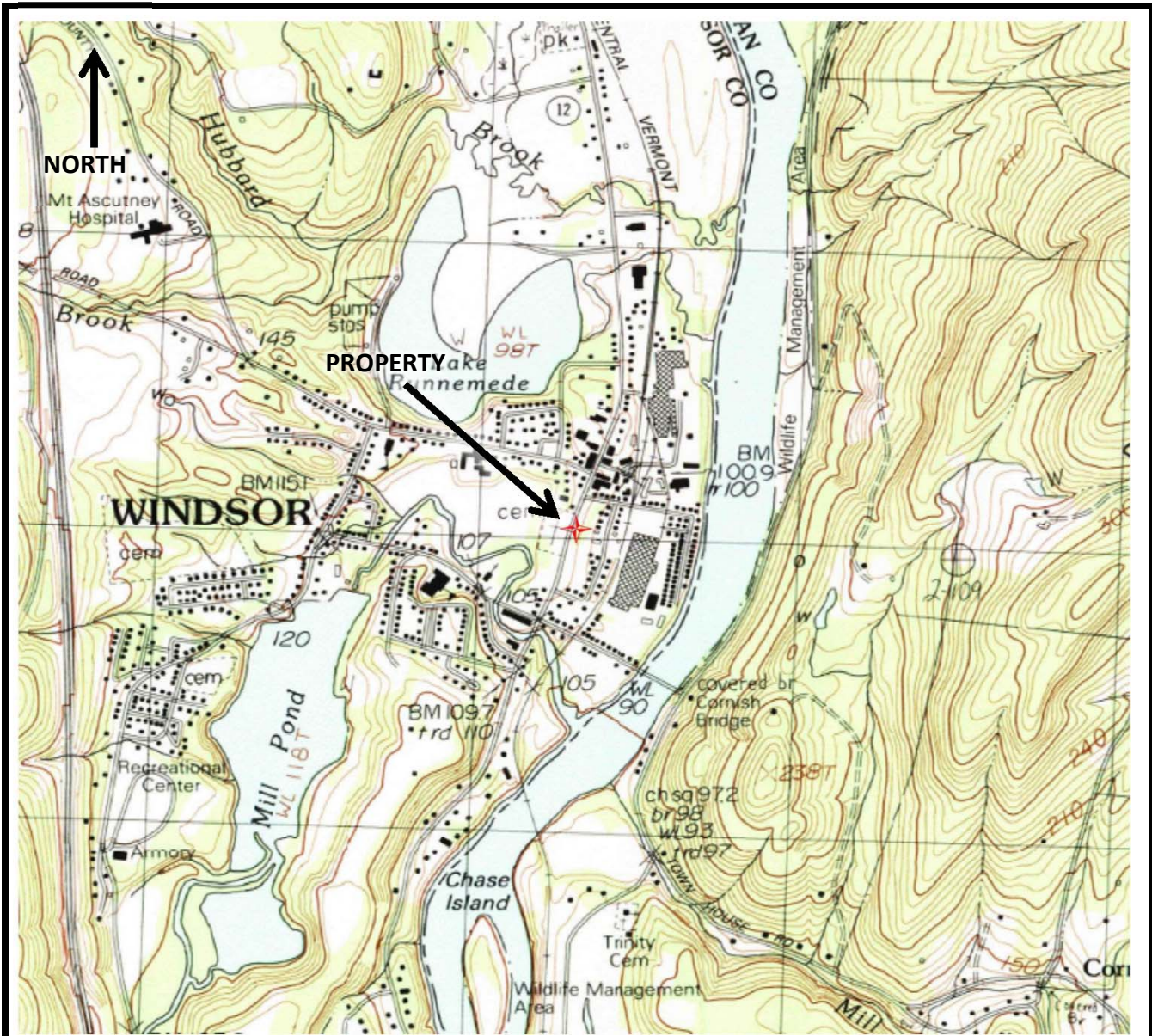
Based on the results of the site investigation conducted at 133 & 137 Main Street in Windsor, Vermont, KAS recommends the following:

- A Corrective Action Plan (CAP) should be prepared and implemented for the Site to protect future users from shallow PAH and lead soil impacts. The Site appears to meet the requirements for exemption from an Evaluation of Corrective Action Alternatives (ECAA) as presented in Section §35-604(b) of the I-Rule.



Appendix A

- 1) Site Location Map**
- 2) Site Vicinity Map**
- 3) Site Map**
- 4) Soil Concentration Map: PAHs TEQ Benzo(a)pyrene**
- 5) Soil Concentration Map: Total Arsenic**
- 6) Soil Concentration Map: Total Lead**



KAS Job #: 507210630

Source: EnviroSite



**133 - 139 Main Street
Windsor, VT 05089**

**Site Location Map
Windsor, VT Quadrangle, 1984 USGS Map**

Date: 08/18/21	Drawing No. 0	Scale: NTS	By: JR
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LEGEND

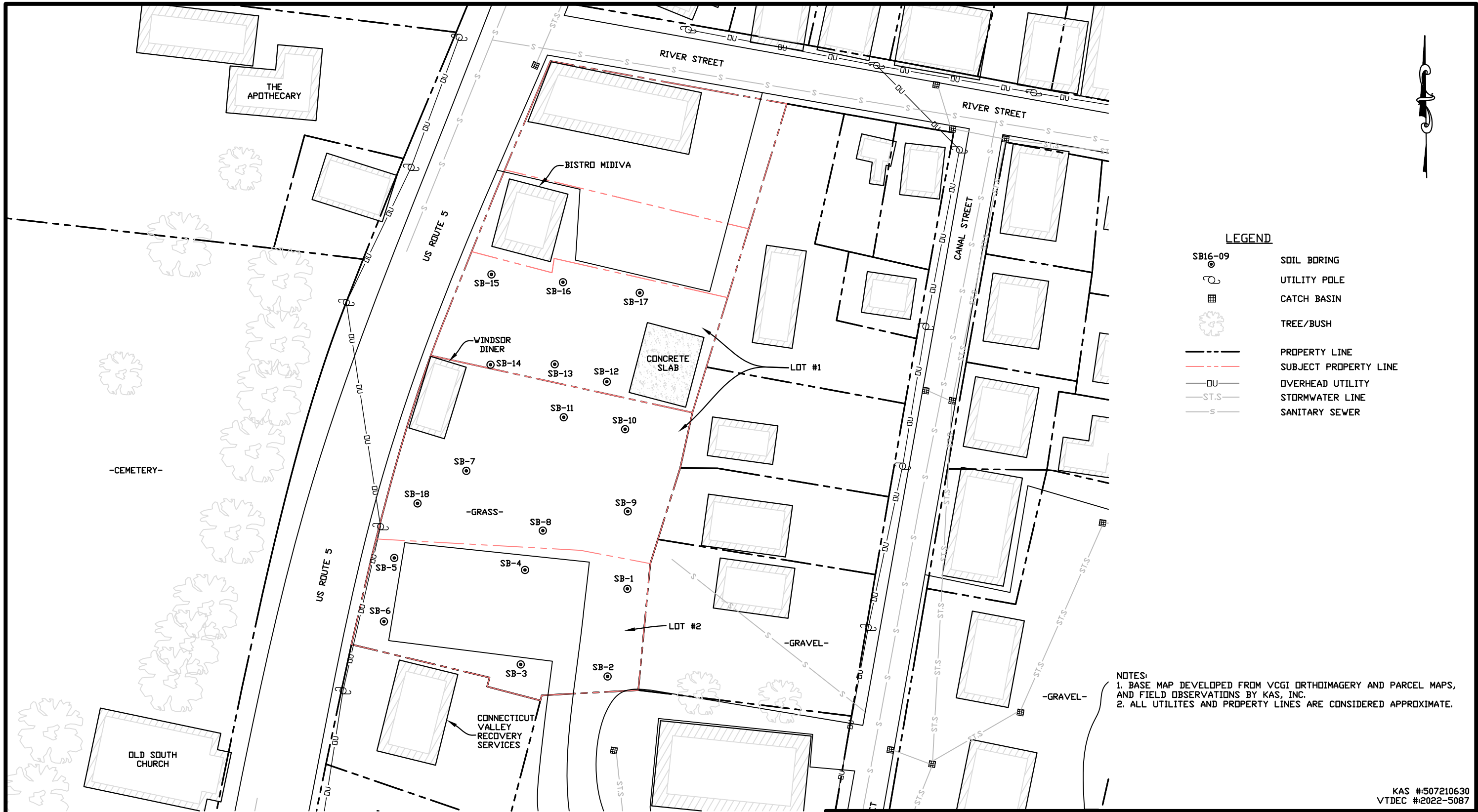
- Wetland - VSWI**
 - Class 1 Wetland
 - Class 2 Wetland
 - Buffer
- Hydrologically Connected Road Segments (MRGP)**
 - Yes
 - Yes (Catch Basin)
 - No
- Hazardous Site
- Hazardous Waste Generators
- Dry Cleaner
- Parcels (standardized)
- Roads**
 - Interstate
 - US Highway; 1
 - State Highway
 - Town Highway (Class 1)
 - Town Highway (Class 2,3)
 - Town Highway (Class 4)
 - State Forest Trail
 - National Forest Trail
 - Legal Trail
 - Private Road/Driveway
 - Proposed Roads
- Stream/River**
 - Stream
 - Intermittent Stream
- Town Boundary

1: 5,000
1in = 417 ft.
1cm = 50 meters

254.0 0 127.00 254.0 Meters
WGS_1984_Web_Mercator_Auxiliary_Sphere
© Vermont Agency of Natural Resources. May 12, 2022

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

NOTES
Map created using ANR's Natural Resources Atlas

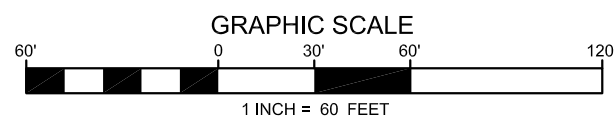


LEGEND

- SB16-09 SOIL BORING
- UTILITY POLE
- CATCH BASIN
- ☼ TREE/BUSH
- PROPERTY LINE
- - - SUBJECT PROPERTY LINE
- DU OVERHEAD UTILITY
- ST.S STORMWATER LINE
- S SANITARY SEWER

NOTES:
 1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY AND PARCEL MAPS, AND FIELD OBSERVATIONS BY KAS, INC.
 2. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.

KAS #507210630
 VTDEC #2022-5087



589 Avenue D, Suite 10
 PO Box 787
 Williston, VT 05495
www.kas-consulting.com

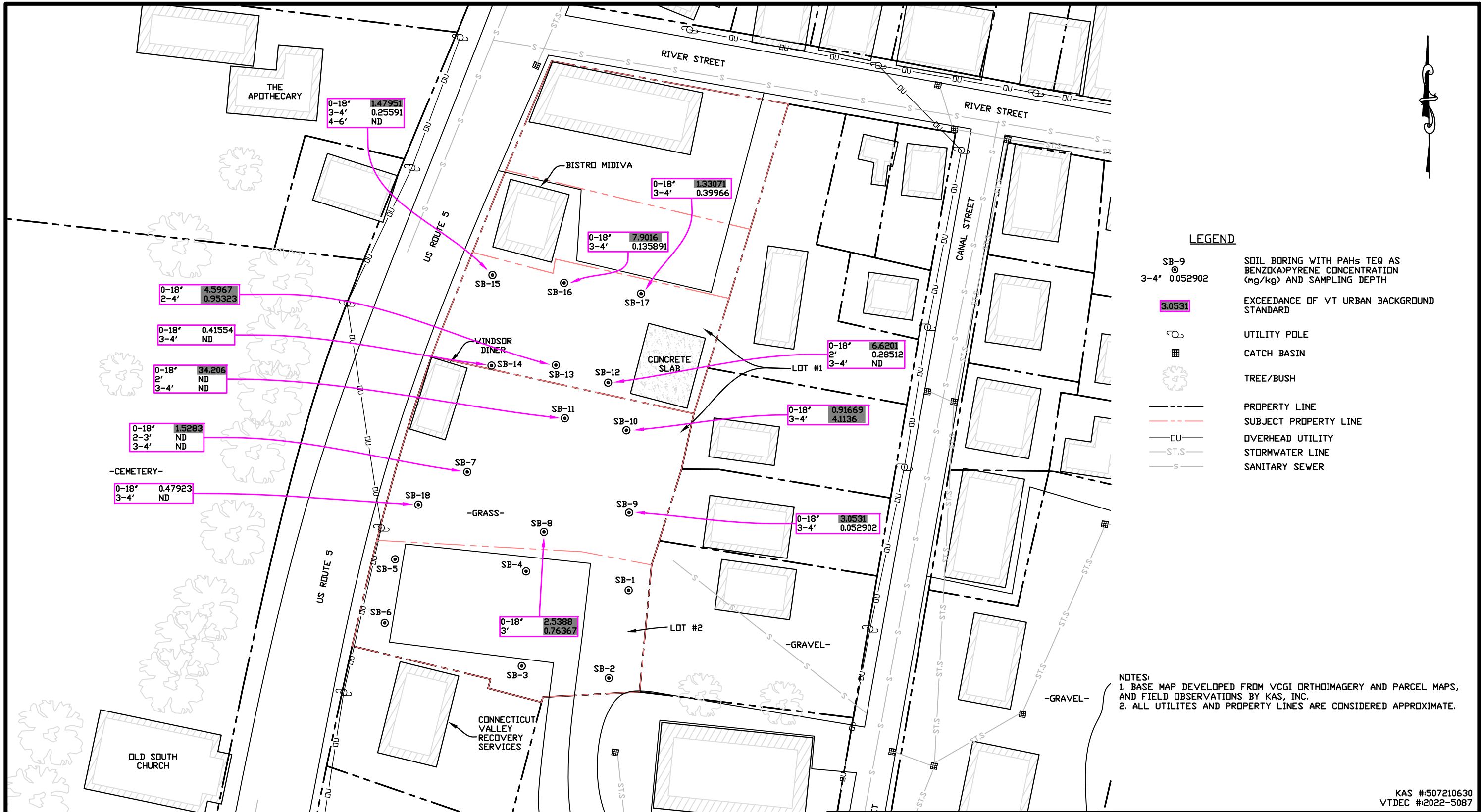
802.383.0486 p
 802.383.0490 f



WINDSOR HOUSING
 135 MAIN STREET
 WINDSOR, VERMONT

SITE MAP

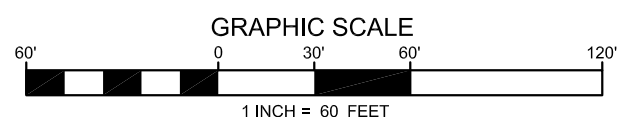
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- LEGEND**
- SB-9
⊙
3-4' 0.052902
 - 3.0531
 - ⊙
 - ⊙
 - ⊙
 -
 -
 - DU
 - ST.S
 - S
- SOIL BORING WITH PAHs TEQ AS BENZO(A)PYRENE CONCENTRATION (mg/kg) AND SAMPLING DEPTH
- EXCEEDANCE OF VT URBAN BACKGROUND STANDARD
- UTILITY POLE
- CATCH BASIN
- TREE/BUSH
- PROPERTY LINE
- SUBJECT PROPERTY LINE
- OVERHEAD UTILITY
- STORMWATER LINE
- SANITARY SEWER

NOTES:
 1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY AND PARCEL MAPS, AND FIELD OBSERVATIONS BY KAS, INC.
 2. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.

KAS #507210630
 VTDEC #2022-5087



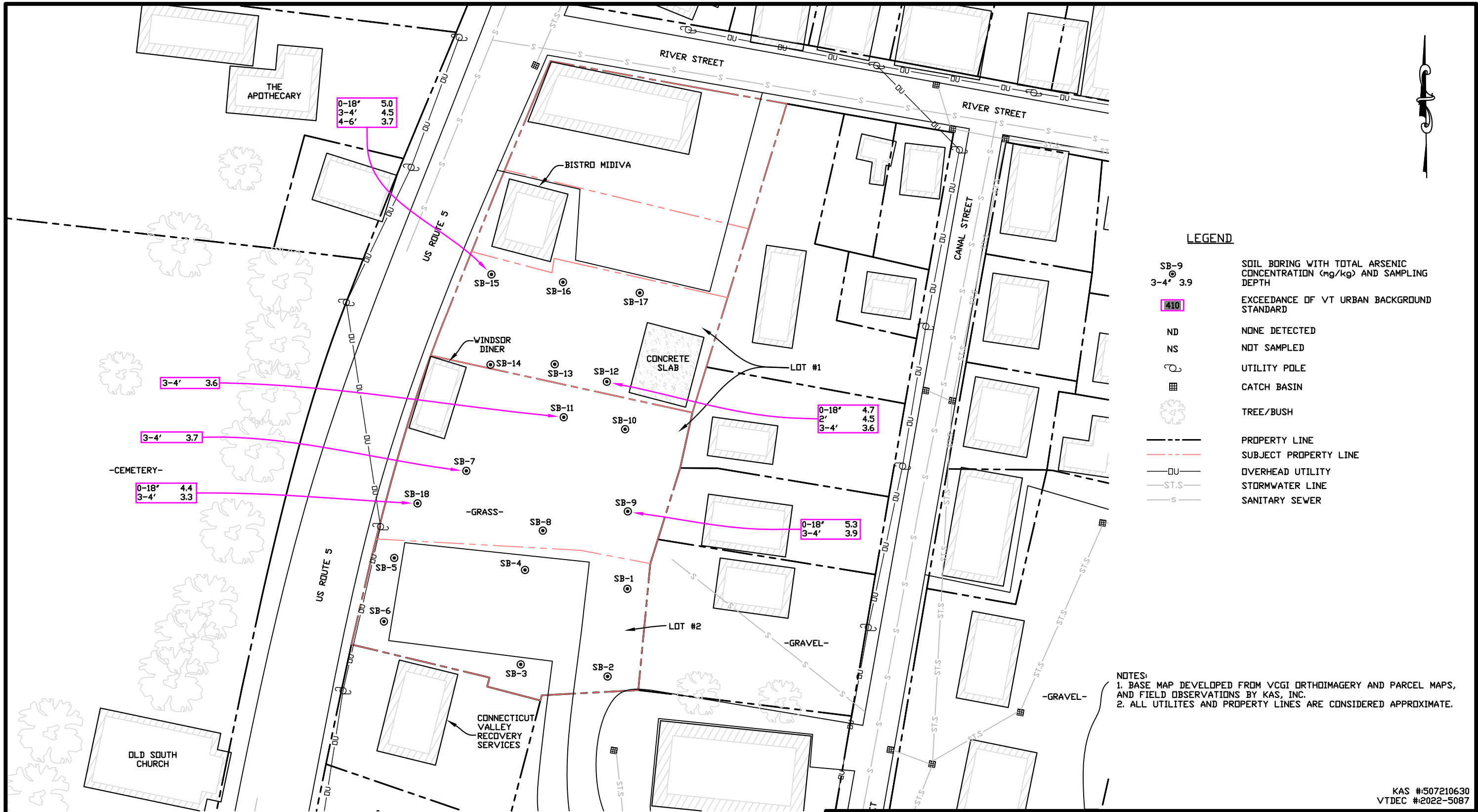
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 802.383.0490 f



WINDSOR HOUSING
 135 MAIN STREET
 WINDSOR, VERMONT

SOIL: PAHs TEQ AS BENZO(A)PYRENE
 CONCENTRATION MAP SAMPLED: 7/6/22

DATE: 9/27/22	DWG. #: 2	SCALE: 1"=60'	DRN: SB	APP: JR
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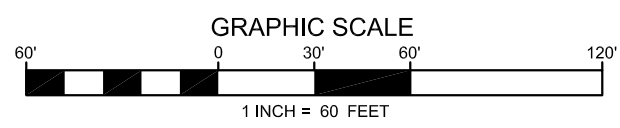


LEGEND

- SB-9
3-4' 3.9 SOIL BORING WITH TOTAL ARSENIC CONCENTRATION (mg/kg) AND SAMPLING DEPTH
- 410 EXCEEDANCE OF VT URBAN BACKGROUND STANDARD
- ND NONE DETECTED
- NS NOT SAMPLED
- UTILITY POLE
- CATCH BASIN
- TREE/BUSH
- PROPERTY LINE
- SUBJECT PROPERTY LINE
- OVERHEAD UTILITY
- ST.S STORMWATER LINE
- S SANITARY SEWER

NOTES:
 1. BASE MAP DEVELOPED FROM VCGI ORTHOIMAGERY AND PARCEL MAPS, AND FIELD OBSERVATIONS BY KAS, INC.
 2. ALL UTILITES AND PROPERTY LINES ARE CONSIDERED APPROXIMATE.

KAS #507210630
 VTDEC #2022-5087



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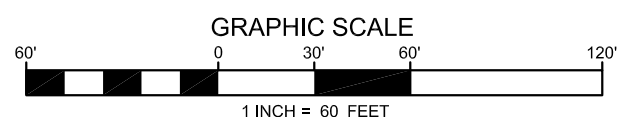
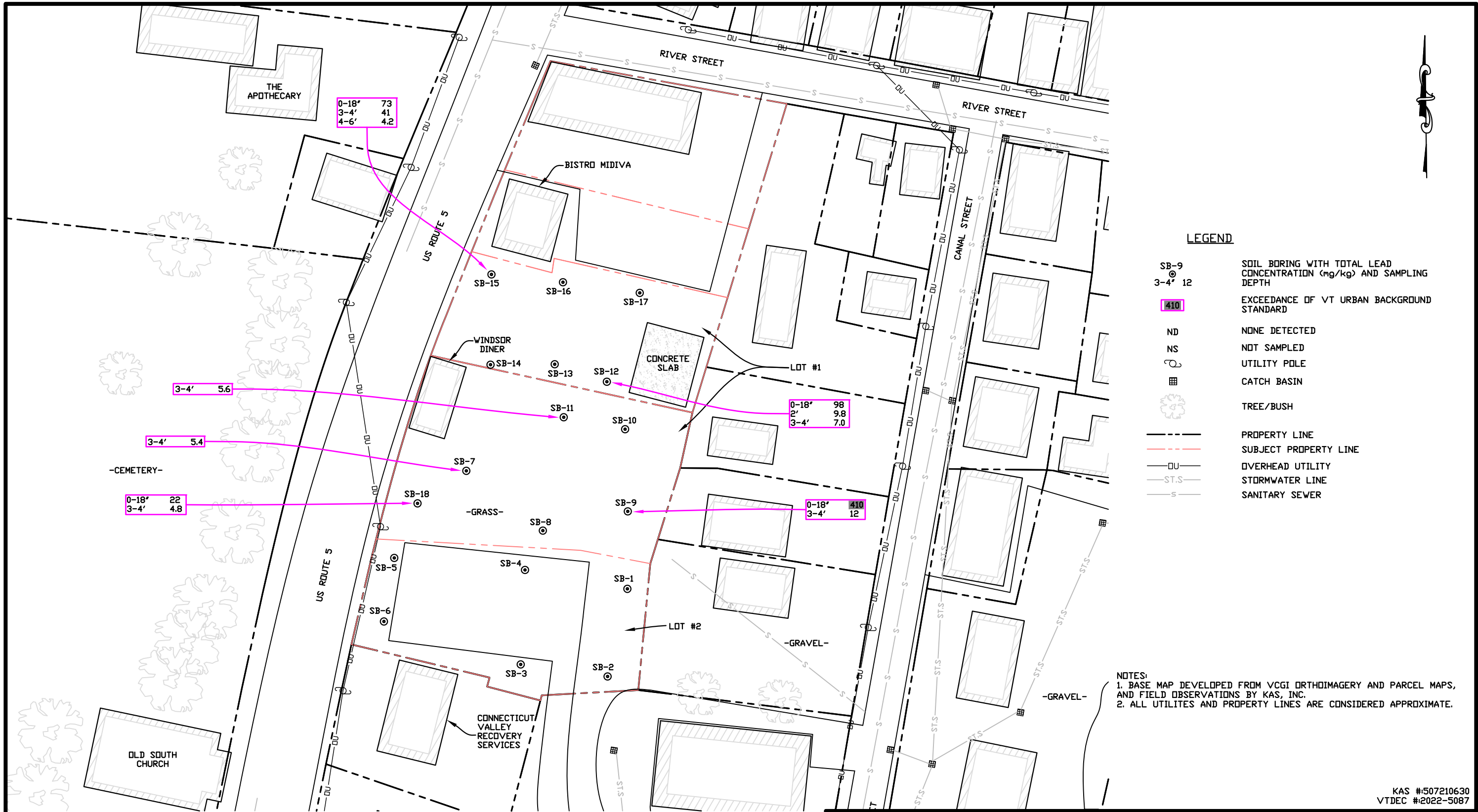


WINDSOR HOUSING
 135 MAIN STREET
 WINDSOR, VERMONT

SOIL: TOTAL ARSENIC CONCENTRATION MAP
 SAMPLED: 7/6/22

802.383.0486 p
 802.383.0490 f

DATE: 9/27/22	DWG. #: 3	SCALE: 1"=60'	DRN: SB	APP: JR
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WINDSOR HOUSING
 135 MAIN STREET
 WINDSOR, VERMONT

SOIL: TOTAL LEAD CONCENTRATION MAP
 SAMPLED: 7/6/22

802.383.0486 p
 802.383.0490 f

DATE: 9/27/22 DWG. #: 4 SCALE: 1"=60' DRN: SB APP: JR

KAS #507210630
 VTDEC #2022-5087



Appendix B

Boring Logs



Soil Boring Summary
Lot #1 - 133 - 137 Main Street, Windsor, VT
July 6, 2022

Soil Boring #	Run Depth (ft bsg)	Group Name	PID (ppmv)	Evidence of Fill? Depth (Feet)	Soil Depth Interval Submitted for Laboratory Testing
SB-7	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 3)'	0-18", 2 - 3' & 3 - 4'
	1.5 - 3.0	Brown Silty Sand with Gravel (Fill)	0.0		
	3.0 - 4.0	Native Poorly Graded Sand	0.0		
SB-8	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill) to Native Sand	0.0		
SB-9	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3 - 4'
	1.5 - 3.5	Brown Silty Sand with Gravel (Fill)	0.0		
	3.5 - 4.0	Native Poorly Graded Sand	0.0		
SB-10	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3 - 4'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill) to Native Sand	0.0		
SB-11	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 3)'	0-18", 2' & 3 - 4'
	1.5 - 3.0	Brown Silty Sand with Gravel (Fill)	0.0		
	3.0 - 4.0	Native Poorly Graded Sand	0.0		
SB-12	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 3)'	0-18", 2' & 3 - 4'
	1.5 - 3.0	Brown Silty Sand with Gravel (Fill)	0.0		
	3.0 - 4.0	Native Poorly Graded Sand	0.0		
SB-13	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 3.5)'	0-18" & 2 - 4'
	1.5 - 3.5	Brown Silty Sand with Gravel (Fill)	0.0		
	3.5 - 4.0	Native Poorly Graded Sand	0.0		
SB-14	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3 - 4'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill) to Native Sand	0.0		
SB-15	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18", 3 - 4' & 4 - 8'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill)	0.0		
	4.0 - 8.0	Native Poorly Graded Sand	0.0		
SB-16	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3 - 4'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill) to Native Sand	0.0		
SB-17	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 4)'	0-18" & 3 - 4'
	1.5 - 4.0	Brown Silty Sand with Gravel (Fill) to Native Sand	0.0		
SB-18	0.0 - 1.5	Brown Silty Sand with Gravel (Fill)	0.0	Yes, (0 - 3.5)'	0-18" & 3 - 4'
	1.5 - 3.5	Brown Silty Sand with Gravel (Fill)	0.0		
	3.5 - 4.0	Native Poorly Graded Sand	0.0		

ft bsg = feet below surface grade

ppmv = parts per million by volume



Appendix C

Soil Quality Summary



**Summary of Soil Analytical Data - Shallow Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont**

Soil Boring ID (depth):	SB7-S	SB8-S	SB9-S	SB10-S	SB11-S	SB12-S	SB13-S	SB14-S	SB15-S	SB16-S	SB17-S	SB18-S	VSS - Resident Soil	VT Urban Background Standard
Sample Depth (below grade)	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"	0 - 18"		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22		
SVOCs (mg/kg)														
Naphthalene	0.09	0.082	0.14	0.043	0.62	0.12	0.075	0.017	0.054	0.13	0.056	0.021	2.7	-
2-Methylnaphthalene	0.051	< 0.04	< 0.07	< 0.04	0.24	0.043	< 0.04	< 0.008	0.018	< 0.04	0.023	< 0.008	-	-
1-Methylnaphthalene	0.033	< 0.04	< 0.07	< 0.04	0.16	< 0.04	< 0.04	< 0.008	0.012	< 0.04	0.019	< 0.008	-	-
Acenaphthylene	0.31	0.30	0.49	0.24	11	1.6	0.19	0.061	0.26	1.1	0.23	0.059	-	-
Acenaphthene	0.031	0.056	0.13	< 0.04	0.095	< 0.04	< 0.04	< 0.008	0.016	0.043	0.017	< 0.008	-	-
Fluorene	0.074	0.14	0.19	< 0.04	0.49	0.097	< 0.04	< 0.008	0.038	0.17	0.063	0.011	2,301	-
Phenanthrene	0.83	2.5	2.2	0.39	4.7	2.2	0.63	0.11	0.61	2.1	0.90	0.19	-	-
Anthracene	0.24	0.66	0.51	0.12	3.9	0.78	0.12	0.026	0.21	0.89	0.16	0.059	-	-
Fluoranthene	1.4	3.5	4.0	0.97	18	6.0	2.6	0.36	1.4	8.4	1.5	0.53	2,301	-
Pyrene	1.2	2.9	3.1	0.82	17	4.9	2.6	0.33	1.2	6.9	1.2	0.42	-	-
Benzo(a)anthracene	0.89	1.6	1.8	0.49	17	4.0	2.0	0.20	0.82	5.4	0.74	0.28	-	-
Chrysene	1.0	1.7	2.1	0.59	16	4.1	2.7	0.24	0.91	5.6	0.91	0.33	-	-
Benzo(b)fluoranthene	1.5	2.1	2.8	0.84	36	6.4	4.4	0.36	1.2	6.8	1.2	0.47	-	-
Benzo(k)fluoranthene	0.53	0.71	1.1	0.31	13	2.6	1.4	0.13	0.46	2.6	0.38	0.19	-	-
Benzo(a)pyrene	1.1	1.8	2.2	0.64	25	4.7	3.1	0.29	1.0	5.6	0.90	0.37	0.07	-
Indeno(1,2,3-cd)pyrene	0.53	1.1	1.2	0.42	8.6	2.3	2.6	0.21	0.82	2.9	0.72	0.11	-	-
Dibenzo(a,h)anthracene	0.13	0.25	0.26	0.098	2.9	0.62	0.58	0.047	0.19	0.76	0.16	0.021	-	-
Benzo(g,h,i)perylene	0.46	0.95	0.89	0.36	5.6	1.8	2.7	0.20	0.69	2.3	0.57	0.076	-	-
TEQ as Benzo(a)pyrene*	1.5283	2.5388	3.0531	0.91669	34.206	6.6201	4.5967	0.41554	1.47951	7.9016	1.33071	0.47923	0.07	0.580

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable standards are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA

* Sum of Toxicity Equivalent Quotients (TEQs) provided in laboratory report. Toxicity Equivalent Factors (TEFs) used by laboratory are consistent with those provided in I-Rule (July 6, 2019).



Summary of Soil Analytical Data - Intermediate Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth):	SB7-I	SB8-I	SB9-I	SB10-I	SB11-I	SB12-I	SB13-I	SB14-I	SB15-I	SB16-I	SB17-I	SB18-I	VSS - Resident Soil	VT Urban Background Standard
Sample Depth (below grade)	2 - 3'	3'	3 - 4'	3 - 4'	2'	2'	2 - 4'	3 - 4'	3 - 4'	3 - 4'	3 - 4'	3 - 4'		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22	07/06/22		
SVOCs (mg/kg)														
Naphthalene	< 0.009	0.042	< 0.008	0.18	< 0.008	< 0.008	0.038	< 0.008	< 0.009	< 0.008	0.019	< 0.008	2.7	-
2-Methylnaphthalene	< 0.009	< 0.04	< 0.008	0.047	< 0.008	< 0.008	0.014	< 0.008	< 0.009	< 0.008	< 0.008	< 0.008	-	-
1-Methylnaphthalene	< 0.009	< 0.04	< 0.008	< 0.04	< 0.008	< 0.008	0.016	< 0.008	< 0.009	< 0.008	< 0.008	< 0.008	-	-
Acenaphthylene	< 0.009	0.15	< 0.008	0.56	< 0.008	< 0.008	0.10	< 0.008	0.015	0.014	0.059	< 0.008	-	-
Acenaphthene	< 0.009	< 0.04	< 0.008	0.062	< 0.008	< 0.008	0.026	< 0.008	< 0.009	< 0.008	< 0.008	< 0.008	-	-
Fluorene	< 0.009	< 0.04	< 0.008	0.13	< 0.008	< 0.008	0.054	< 0.008	< 0.009	< 0.008	0.016	< 0.008	2,301	-
Phenanthrene	< 0.009	0.32	0.017	2.1	< 0.008	< 0.008	0.80	< 0.008	0.085	0.068	0.28	< 0.008	-	-
Anthracene	< 0.009	0.10	< 0.008	0.47	< 0.008	< 0.008	0.18	< 0.008	0.018	0.0098	0.030	< 0.008	-	-
Fluoranthene	< 0.009	0.81	0.052	4.4	< 0.008	0.018	1.1	< 0.008	0.29	0.15	0.49	< 0.008	2,301	-
Pyrene	< 0.009	0.69	0.050	3.9	< 0.008	0.019	1.1	< 0.008	0.26	0.13	0.40	< 0.008	-	-
Benzo(a)anthracene	< 0.009	0.44	0.031	2.4	< 0.008	0.014	0.59	< 0.008	0.15	0.072	0.19	< 0.008	-	-
Chrysene	< 0.009	0.47	0.032	2.6	< 0.008	0.014	0.63	< 0.008	0.15	0.081	0.26	< 0.008	-	-
Benzo(b)fluoranthene	< 0.009	0.72	0.052	3.4	< 0.008	0.028	0.80	< 0.008	0.22	0.12	0.37	< 0.008	-	-
Benzo(k)fluoranthene	< 0.009	0.22	0.017	1.1	< 0.008	0.0098	0.26	< 0.008	0.076	0.041	0.14	< 0.008	-	-
Benzo(a)pyrene	< 0.009	0.57	0.041	2.9	< 0.008	0.022	0.67	< 0.008	0.18	0.095	0.27	< 0.008	0.07	-
Indeno(1,2,3-cd)pyrene	< 0.009	0.23	0.034	2.0	< 0.008	0.022	0.46	< 0.008	0.13	0.072	0.24	< 0.008	-	-
Dibenzo(a,h)anthracene	< 0.009	0.052	< 0.008	0.42	< 0.008	< 0.008	0.095	< 0.008	0.025	0.014	0.048	< 0.008	-	-
Benzo(g,h,i)perylene	< 0.009	0.18	0.030	1.6	< 0.008	0.021	0.39	< 0.008	0.11	0.063	0.21	< 0.008	-	-
TEQ as Benzo(a)pyrene*	ND	0.76367	0.052902	4.1136	ND	0.28512	0.95323	ND	0.25591	0.135891	0.39966	ND	0.07	0.580

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable standards are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA

* Sum of Toxicity Equivalent Quotients (TEQs) provided in laboratory report. Toxicity Equivalent Factors (TEFs) used by laboratory are consistent with those provided in I-Rule (July 6, 2019).



Summary of Soil Analytical Data - Native Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth):	SB7-N	SB11-N	SB12-N	SB15-N	VSS - Resident Soil	VT Urban Background Standard
Sample Depth (below grade)	3 - 4'	3 - 4'	3 - 4'	4 - 6'		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22		
SVOCs (mg/kg)						
Naphthalene	< 0.008	< 0.008	< 0.008	< 0.007	2.7	-
2-Methylnaphthalene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
1-Methylnaphthalene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Acenaphthylene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Acenaphthene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Fluorene	< 0.008	< 0.008	< 0.008	< 0.007	2,301	-
Phenanthrene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Anthracene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Fluoranthene	< 0.008	< 0.008	< 0.008	< 0.007	2,301	-
Pyrene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Benzo(a)anthracene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Chrysene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Benzo(b)fluoranthene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Benzo(k)fluoranthene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Benzo(a)pyrene	< 0.008	< 0.008	< 0.008	< 0.007	0.07	-
Indeno(1,2,3-cd)pyrene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Dibenzo(a,h)anthracene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
Benzo(g,h,i)perylene	< 0.008	< 0.008	< 0.008	< 0.007	-	-
TEQ as Benzo(a)pyrene*	ND	ND	ND	ND	0.07	0.580

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable standards are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA

* Sum of Toxicity Equivalent Quotients (TEQs) provided in laboratory report. Toxicity Equivalent Factors (TEFs) used by laboratory are consistent with those provided in I-Rule (July 6, 2019).



Summary of Soil Analytical Data - Shallow Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth):	SB9-S	SB12-S	SB15-S	SB18-S	VSS - Resident Soil	EPA RSL - Resident Soil
Sample Depth (below grade)	0 - 18"	0 - 18"	0 - 18"	0 - 18"		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22		
METALS (mg/kg)						
Total Arsenic	5.3	4.7	5.0	4.4	16	0.68
Total Lead	410	98	73	22	400	400

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

EPA RSL = Environmental Protection Agency Regional Screening Level (May 2022 EPA Regional Screening Level Summary Table)

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable Vermont standard are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA



Summary of Soil Analytical Data - Intermediate Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth):	SB9-I	SB12-I	SB15-I	SB18-I	VSS - Resident Soil	EPA RSL - Resident Soil
Sample Depth (below grade)	3 - 4'	2'	3 - 4'	3 - 4'		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22		
METALS (mg/kg)						
Total Arsenic	3.9	4.5	4.5	3.3	16	0.68
Total Lead	12	9.8	41	4.8	400	400

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

EPA RSL = Environmental Protection Agency Regional Screening Level (May 2022 EPA Regional Screening Level Summary Table)

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable Vermont standard are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA



Summary of Soil Analytical Data - Native Depths
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth):	SB7-N	SB11-N	SB12-N	SB15-N	VSS - Resident Soil	EPA RSL - Resident Soil
Sample Depth (below grade)	3 - 4'	3 - 4'	3 - 4'	4 - 6'		
Sample Date:	07/06/22	07/06/22	07/06/22	07/06/22		
METALS (mg/kg)						
Total Arsenic	3.7	3.6	3.6	3.7	16	0.68
Total Lead	5.4	5.6	7.0	4.2	400	400

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

EPA RSL = Environmental Protection Agency Regional Screening Level (May 2022 EPA Regional Screening Level Summary Table)

VSS = Vermont Soil Standards (Investigation and Remediation of Contaminated Properties Rule (I-Rule), July 6, 2019)

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

Detection limits and reported concentrations at or above the the applicable Vermont standard are shaded.

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA



Summary of Soil Analytical Data - QAQC
Lot #1, 133 - 137 Main Street
Windsor, Vermont

Soil Boring ID (depth in feet):	SB18-S	Duplicate-3	RPD (%)	SB13-S	Duplicate-4	RPD (%)
Sample Date:	07/06/22	07/06/22		07/06/22	07/06/22	
PAHs (mg/kg)						
Naphthalene	0.082	0.023	112.4	0.075	0.077	-2.6
2-Methylnaphthalene	< 0.04	0.0083	-	< 0.04	< 0.04	-
1-Methylnaphthalene	< 0.04	< 0.007	-	< 0.04	< 0.04	-
Acenaphthylene	0.30	0.089	108.5	0.19	0.24	-23.3
Acenaphthene	0.056	0.0095	142.0	< 0.04	< 0.04	-
Fluorene	0.14	0.020	150.0	< 0.04	< 0.04	-
Phenanthrene	2.5	0.32	154.6	0.63	0.67	-6.2
Anthracene	0.66	0.084	154.8	0.12	0.16	-28.6
Fluoranthene	3.5	0.67	135.7	2.6	2.4	8.0
Pyrene	2.90	0.60	131.4	2.6	2.3	12.2
Benzo(a)anthracene	1.6	0.38	123.2	2.0	1.8	10.5
Chrysene	1.7	0.45	116.3	2.7	2.4	11.8
Benzo(b)fluoranthene	2.1	0.63	107.7	4.4	3.9	12.0
Benzo(k)fluoranthene	0.71	0.20	112.1	1.4	1.3	7.4
Benzo(a)pyrene	1.8	0.50	113.0	3.1	2.8	10.2
Indeno(1,2,3-cd)pyrene	1.1	0.39	95.3	2.6	2.2	16.7
Dibenzo(a,h)anthracene	0.25	0.083	100.3	0.58	0.50	14.8
Benzo(g,h,i)perylene	0.95	0.33	96.9	2.7	2.1	25.0
TEQ as Benzo(a)pyrene*	2.5388	0.72545	111.1	4.5967	4.1054	11.3

Soil Boring ID (depth):	SB 15-N	Duplicate-5	RPD (%)
Sample Date:	07/06/22	07/06/22	
METALS (mg/kg)			
Total Arsenic	3.7	2.6	34.9
Total Lead	4.2	3.4	21.1

NOTES:

All values reported in mg/kg, dry, unless otherwise indicated.

<xx = Compound not detected above detection limit (xx)

Results reported above detection limits are indicated in bold

"-" indicates not analyzed or that a screening level is not provided in the I-Rule/EPA

* Sum of Toxicity Equivalent Quotients (TEQs) provided in laboratory report. Toxicity Equivalent Factors (TEFs) used by laboratory are consistent with those provided in I-Rule (July 6, 2019).

RPD - Relative Percent Difference



Appendix D

Analytical Laboratory Reports



Eastern Analytical, Inc.

professional laboratory and drilling services

Jeremy Roberts
KAS, Inc.
PO Box 787
Williston, VT 05495



Laboratory Report for:

Eastern Analytical, Inc. ID: 245635
Client Identification: Windsor Housing Lot #1 | 507210630
Date Received: 7/8/2022

Enclosed are the analytical results per the Chain of Custody for sample(s) in the referenced project. All analyses were performed in accordance with our QA/QC Program, NELAP and other applicable state requirements. All quality control criteria was within acceptance criteria unless noted on the report pages. Results are for the exclusive use of the client named on this report and will not be released to a third party without consent.

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the written approval of the laboratory.

The following standard abbreviations and conventions apply to all EAI reports:

- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery

Certifications:

Eastern Analytical, Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012), New York (12072), West Virginia (9910C) and Alabama (41620). Please refer to our website at www.easternanalytical.com for a copy of our certificates and accredited parameters.


References:

- EPA 600/4-79-020, 1983
- Standard Methods for Examination of Water and Wastewater, 20th, 21st, 22nd & 23rd edition or noted revision year.
- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992

If you have any questions regarding the results contained within, please feel free to contact customer service. Unless otherwise requested, we will dispose of the sample(s) 6 weeks from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,


Lorraine Olashaw, Lab Director

7.20.22
Date



SAMPLE CONDITIONS PAGE

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Temperature upon receipt (°C): 0.7

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
245635.01	SB18-S	7/8/22	7/6/22 12:25	soil	88.5	Adheres to Sample Acceptance Policy
245635.02	SB7-S	7/8/22	7/6/22 12:37	soil	88.2	Adheres to Sample Acceptance Policy
245635.03	SB8-S	7/8/22	7/6/22 12:55	soil	92.0	Adheres to Sample Acceptance Policy
245635.04	SB9-S	7/8/22	7/6/22 13:20	soil	94.0	Adheres to Sample Acceptance Policy
245635.05	SB10-S	7/8/22	7/6/22 13:40	soil	91.7	Adheres to Sample Acceptance Policy
245635.06	SB11-S	7/8/22	7/6/22 13:50	soil	93.8	Adheres to Sample Acceptance Policy
245635.07	SB12-S	7/8/22	7/6/22 14:03	soil	94.0	Adheres to Sample Acceptance Policy
245635.08	SB13-S	7/8/22	7/6/22 14:20	soil	89.4	Adheres to Sample Acceptance Policy
245635.09	SB14-S	7/8/22	7/6/22 14:32	soil	87.5	Adheres to Sample Acceptance Policy
245635.1	SB15-S	7/8/22	7/6/22 14:46	soil	90.1	Adheres to Sample Acceptance Policy
245635.11	SB16-S	7/8/22	7/6/22 15:12	soil	91.1	Adheres to Sample Acceptance Policy
245635.12	SB17-S	7/8/22	7/6/22 15:27	soil	94.1	Adheres to Sample Acceptance Policy
245635.13	SB18-I	7/8/22	7/6/22 12:30	soil	89.9	Adheres to Sample Acceptance Policy
245635.14	SB7-I	7/8/22	7/6/22 12:42	soil	81.8	Adheres to Sample Acceptance Policy
245635.15	SB8-I	7/8/22	7/6/22 13:10	soil	92.4	Adheres to Sample Acceptance Policy
245635.16	SB9-I	7/8/22	7/6/22 13:31	soil	84.8	Adheres to Sample Acceptance Policy
245635.17	SB10-I	7/8/22	7/6/22 13:44	soil	83.1	Adheres to Sample Acceptance Policy
245635.18	SB11-I	7/8/22	7/6/22 13:56	soil	85.6	Adheres to Sample Acceptance Policy
245635.19	SB12-I	7/8/22	7/6/22 14:11	soil	83.9	Adheres to Sample Acceptance Policy
245635.2	SB13-I	7/8/22	7/6/22 14:23	soil	85.4	Adheres to Sample Acceptance Policy
245635.21	SB14-I	7/8/22	7/6/22 14:41	soil	83.2	Adheres to Sample Acceptance Policy
245635.22	SB15-I	7/8/22	7/6/22 14:54	soil	80.8	Adheres to Sample Acceptance Policy

All results contained in this report relate only to the above listed samples.

Unless otherwise noted:

- Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.
- Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.
- Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.
- Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.



SAMPLE CONDITIONS PAGE

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Temperature upon receipt (°C): 0.7

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
245635.23	SB16-I	7/8/22	7/6/22 15:15	soil	81.4	Adheres to Sample Acceptance Policy
245635.24	SB17-I	7/8/22	7/6/22 15:30	soil	84.2	Adheres to Sample Acceptance Policy
245635.25	SB7-N	7/8/22	7/6/22 12:45	soil	91.1	Adheres to Sample Acceptance Policy
245635.26	SB11-N	7/8/22	7/6/22 13:58	soil	87.4	Adheres to Sample Acceptance Policy
245635.27	SB12-N	7/8/22	7/6/22 14:12	soil	87.8	Adheres to Sample Acceptance Policy
245635.28	SB15-N	7/8/22	7/6/22 14:58	soil	93.5	Adheres to Sample Acceptance Policy
245635.29	Duplicate 3	7/8/22	7/6/22 12:55	soil	93.0	Adheres to Sample Acceptance Policy
245635.3	Duplicate 4	7/8/22	7/6/22 14:20	soil	89.8	Adheres to Sample Acceptance Policy
245635.31	Duplicate 5	7/8/22	7/6/22 14:58	soil	93.1	Adheres to Sample Acceptance Policy

All results contained in this report relate only to the above listed samples.

Unless otherwise noted:

- Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.
- Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.
- Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.
- Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

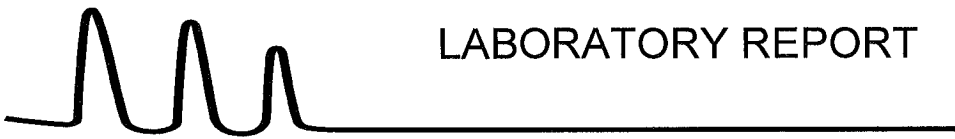
Client Sample ID: SB18-S
Lab Sample ID: 245635.01
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.021	1	7/12/22		
2-Methylnaphthalene	< 0.008	1	7/12/22		
1-Methylnaphthalene	< 0.008	1	7/12/22		
Acenaphthylene	0.059	1	7/12/22		
Acenaphthene	< 0.008	1	7/12/22		
Fluorene	0.011	1	7/12/22		
Phenanthrene	0.19	1	7/12/22		
Anthracene	0.059	1	7/12/22		
Fluoranthene	0.53	1	7/12/22		
Pyrene	0.42	1	7/12/22		
Benzo[a]anthracene	0.28	1	7/12/22	0.1	.028
Chrysene	0.33	1	7/12/22	0.001	.00033
Benzo[b]fluoranthene	0.47	1	7/12/22	0.1	.047
Benzo[k]fluoranthene	0.19	1	7/12/22	0.01	.0019
Benzo[a]pyrene	0.37	1	7/12/22	1	.37
Indeno[1,2,3-cd]pyrene	0.11	1	7/12/22	0.1	.011
Dibenz[a,h]anthracene	0.021	1	7/12/22	1	.021
Benzo[g,h,i]perylene	0.076	1	7/12/22		
p-Terphenyl-D14 (surr)	67 %R		7/12/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB7-S
Lab Sample ID: 245635.02
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.086	1	7/13/22		
2-Methylnaphthalene	0.051	1	7/13/22		
1-Methylnaphthalene	0.033	1	7/13/22		
Acenaphthylene	0.31	1	7/13/22		
Acenaphthene	0.031	1	7/13/22		
Fluorene	0.074	1	7/13/22		
Phenanthrene	0.83	1	7/13/22		
Anthracene	0.24	1	7/13/22		
Fluoranthene	1.4	1	7/13/22		
Pyrene	1.2	1	7/13/22		
Benzo[a]anthracene	0.89	1	7/13/22	0.1	.089
Chrysene	1.0	1	7/13/22	0.001	.001
Benzo[b]fluoranthene	1.5	1	7/13/22	0.1	.15
Benzo[k]fluoranthene	0.53	1	7/13/22	0.01	.0053
Benzo[a]pyrene	1.1	1	7/13/22	1	1.1
Indeno[1,2,3-cd]pyrene	0.53	1	7/13/22	0.1	.053
Dibenz[a,h]anthracene	0.13	1	7/13/22	1	.13
Benzo[g,h,i]perylene	0.46	1	7/13/22		
p-Terphenyl-D14 (surr)	65 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB8-S
Lab Sample ID: 245635.03
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

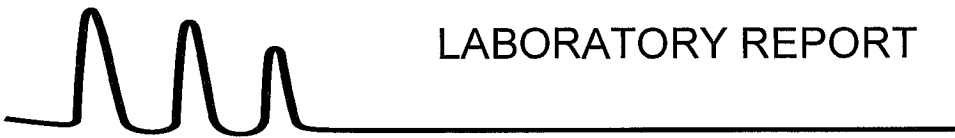
	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.082	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	0.30	5	7/13/22		
Acenaphthene	0.056	5	7/13/22		
Fluorene	0.14	5	7/13/22		
Phenanthrene	2.5	5	7/13/22		
Anthracene	0.66	5	7/13/22		
Fluoranthene	3.5	5	7/13/22		
Pyrene	2.9	5	7/13/22		
Benzo[a]anthracene	1.6	5	7/13/22	0.1	.16
Chrysene	1.7	5	7/13/22	0.001	.0017
Benzo[b]fluoranthene	2.1	5	7/13/22	0.1	.21
Benzo[k]fluoranthene	0.71	5	7/13/22	0.01	.0071
Benzo[a]pyrene	1.8	5	7/13/22	1	1.8
Indeno[1,2,3-cd]pyrene	1.1	5	7/13/22	0.1	.11
Dibenz[a,h]anthracene	0.25	5	7/13/22	1	.25
Benzo[g,h,i]perylene	0.95	5	7/13/22		
p-Terphenyl-D14 (surr)	86 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB9-S
 Lab Sample ID: 245635.04
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.14	10	7/13/22		
2-Methylnaphthalene	< 0.07	10	7/13/22		
1-Methylnaphthalene	< 0.07	10	7/13/22		
Acenaphthylene	0.49	10	7/13/22		
Acenaphthene	0.13	10	7/13/22		
Fluorene	0.19	10	7/13/22		
Phenanthrene	2.2	10	7/13/22		
Anthracene	0.51	10	7/13/22		
Fluoranthene	4.0	10	7/13/22		
Pyrene	3.1	10	7/13/22		
Benzo[a]anthracene	1.8	10	7/13/22	0.1	.18
Chrysene	2.1	10	7/13/22	0.001	.0021
Benzo[b]fluoranthene	2.8	10	7/13/22	0.1	.28
Benzo[k]fluoranthene	1.1	10	7/13/22	0.01	.011
Benzo[a]pyrene	2.2	10	7/13/22	1	2.2
Indeno[1,2,3-cd]pyrene	1.2	10	7/13/22	0.1	.12
Dibenz[a,h]anthracene	0.26	10	7/13/22	1	.26
Benzo[g,h,i]perylene	0.89	10	7/13/22		
p-Terphenyl-D14 (surr)	85 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB10-S
Lab Sample ID: 245635.05
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.043	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	0.24	5	7/13/22		
Acenaphthene	< 0.04	5	7/13/22		
Fluorene	< 0.04	5	7/13/22		
Phenanthrene	0.39	5	7/13/22		
Anthracene	0.12	5	7/13/22		
Fluoranthene	0.97	5	7/13/22		
Pyrene	0.82	5	7/13/22		
Benzo[a]anthracene	0.49	5	7/13/22	0.1	.049
Chrysene	0.59	5	7/13/22	0.001	.00059
Benzo[b]fluoranthene	0.84	5	7/13/22	0.1	.084
Benzo[k]fluoranthene	0.31	5	7/13/22	0.01	.0031
Benzo[a]pyrene	0.64	5	7/13/22	1	.64
Indeno[1,2,3-cd]pyrene	0.42	5	7/13/22	0.1	.042
Dibenz[a,h]anthracene	0.098	5	7/13/22	1	.098
Benzo[g,h,i]perylene	0.36	5	7/13/22		
p-Terphenyl-D14 (surr)	81 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB11-S
Lab Sample ID: 245635.06
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

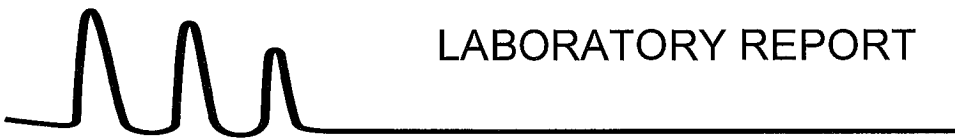
	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.62	11	7/13/22		
2-Methylnaphthalene	0.24	11	7/13/22		
1-Methylnaphthalene	0.16	11	7/13/22		
Acenaphthylene	11	11	7/13/22		
Acenaphthene	0.095	11	7/13/22		
Fluorene	0.49	11	7/13/22		
Phenanthrene	4.7	11	7/13/22		
Anthracene	3.9	11	7/13/22		
Fluoranthene	18	11	7/13/22		
Pyrene	17	11	7/13/22		
Benzo[a]anthracene	17	11	7/13/22	0.1	1.7
Chrysene	16	11	7/13/22	0.001	.016
Benzo[b]fluoranthene	36	11	7/13/22	0.1	3.6
Benzo[k]fluoranthene	13	11	7/13/22	0.01	.13
Benzo[a]pyrene	25	11	7/13/22	1	25
Indeno[1,2,3-cd]pyrene	8.6	11	7/13/22	0.1	.86
Dibenz[a,h]anthracene	2.9	11	7/13/22	1	2.9
Benzo[g,h,i]perylene	5.6	11	7/13/22		
p-Terphenyl-D14 (surr)	83 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB12-S
 Lab Sample ID: 245635.07
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.12	5	7/13/22		
2-Methylnaphthalene	0.043	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	1.6	5	7/13/22		
Acenaphthene	< 0.04	5	7/13/22		
Fluorene	0.097	5	7/13/22		
Phenanthrene	2.2	5	7/13/22		
Anthracene	0.78	5	7/13/22		
Fluoranthene	6.0	5	7/13/22		
Pyrene	4.9	5	7/13/22		
Benzo[a]anthracene	4.0	5	7/13/22	0.1	.4
Chrysene	4.1	5	7/13/22	0.001	.0041
Benzo[b]fluoranthene	6.4	5	7/13/22	0.1	.64
Benzo[k]fluoranthene	2.6	5	7/13/22	0.01	.026
Benzo[a]pyrene	4.7	5	7/13/22	1	4.7
Indeno[1,2,3-cd]pyrene	2.3	5	7/13/22	0.1	.23
Dibenz[a,h]anthracene	0.62	5	7/13/22	1	.62
Benzo[g,h,i]perylene	1.8	5	7/13/22		
p-Terphenyl-D14 (surr)	76 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB13-S
 Lab Sample ID: 245635.08
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

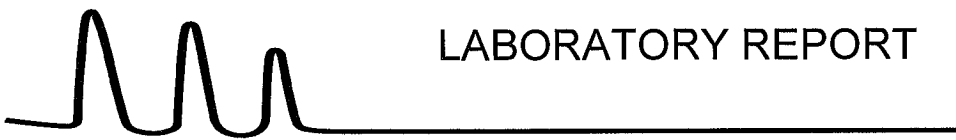
	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.075	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	0.19	5	7/13/22		
Acenaphthene	< 0.04	5	7/13/22		
Fluorene	< 0.04	5	7/13/22		
Phenanthrene	0.63	5	7/13/22		
Anthracene	0.12	5	7/13/22		
Fluoranthene	2.6	5	7/13/22		
Pyrene	2.6	5	7/13/22		
Benzo[a]anthracene	2.0	5	7/13/22	0.1	.2
Chrysene	2.7	5	7/13/22	0.001	.0027
Benzo[b]fluoranthene	4.4	5	7/13/22	0.1	.44
Benzo[k]fluoranthene	1.4	5	7/13/22	0.01	.014
Benzo[a]pyrene	3.1	5	7/13/22	1	3.1
Indeno[1,2,3-cd]pyrene	2.6	5	7/13/22	0.1	.26
Dibenz[a,h]anthracene	0.58	5	7/13/22	1	.58
Benzo[g,h,i]perylene	2.7	5	7/13/22		
p-Terphenyl-D14 (surr)	83 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

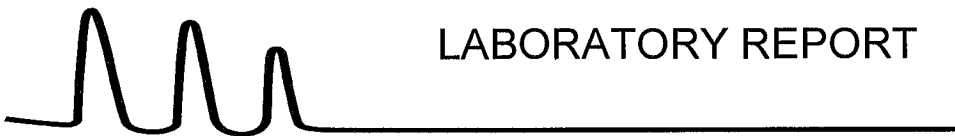
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 Lab Sample ID: 245635.09
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.017	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	0.061	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	0.11	1	7/13/22		
Anthracene	0.026	1	7/13/22		
Fluoranthene	0.36	1	7/13/22		
Pyrene	0.33	1	7/13/22		
Benzo[a]anthracene	0.20	1	7/13/22	0.1	.02
Chrysene	0.24	1	7/13/22	0.001	.00024
Benzo[b]fluoranthene	0.36	1	7/13/22	0.1	.036
Benzo[k]fluoranthene	0.13	1	7/13/22	0.01	.0013
Benzo[a]pyrene	0.29	1	7/13/22	1	.29
Indeno[1,2,3-cd]pyrene	0.21	1	7/13/22	0.1	.021
Dibenz[a,h]anthracene	0.047	1	7/13/22	1	.047
Benzo[g,h,i]perylene	0.20	1	7/13/22		
p-Terphenyl-D14 (surr)	72 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB15-S
 Lab Sample ID: 245635.1
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.054	1	7/13/22		
2-Methylnaphthalene	0.018	1	7/13/22		
1-Methylnaphthalene	0.012	1	7/13/22		
Acenaphthylene	0.26	1	7/13/22		
Acenaphthene	0.016	1	7/13/22		
Fluorene	0.038	1	7/13/22		
Phenanthrene	0.61	1	7/13/22		
Anthracene	0.21	1	7/13/22		
Fluoranthene	1.4	1	7/13/22		
Pyrene	1.2	1	7/13/22		
Benzo[a]anthracene	0.82	1	7/13/22	0.1	.082
Chrysene	0.91	1	7/13/22	0.001	.00091
Benzo[b]fluoranthene	1.2	1	7/13/22	0.1	.12
Benzo[k]fluoranthene	0.46	1	7/13/22	0.01	.0046
Benzo[a]pyrene	1.0	1	7/13/22	1	1
Indeno[1,2,3-cd]pyrene	0.82	1	7/13/22	0.1	.082
Dibenz[a,h]anthracene	0.19	1	7/13/22	1	.19
Benzo[g,h,i]perylene	0.69	1	7/13/22		
p-Terphenyl-D14 (surr)	59 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB16-S
Lab Sample ID: 245635.11
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.13	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	1.1	5	7/13/22		
Acenaphthene	0.043	5	7/13/22		
Fluorene	0.17	5	7/13/22		
Phenanthrene	2.1	5	7/13/22		
Anthracene	0.89	5	7/13/22		
Fluoranthene	8.4	5	7/13/22		
Pyrene	6.9	5	7/13/22		
Benzo[a]anthracene	5.4	5	7/13/22	0.1	.54
Chrysene	5.6	5	7/13/22	0.001	.0056
Benzo[b]fluoranthene	6.8	5	7/13/22	0.1	.68
Benzo[k]fluoranthene	2.6	5	7/13/22	0.01	.026
Benzo[a]pyrene	5.6	5	7/13/22	1	5.6
Indeno[1,2,3-cd]pyrene	2.9	5	7/13/22	0.1	.29
Dibenz[a,h]anthracene	0.76	5	7/13/22	1	.76
Benzo[g,h,i]perylene	2.3	5	7/13/22		
p-Terphenyl-D14 (surr)	77 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB17-S
 Lab Sample ID: 245635.12
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.056	1	7/13/22		
2-Methylnaphthalene	0.023	1	7/13/22		
1-Methylnaphthalene	0.019	1	7/13/22		
Acenaphthylene	0.23	1	7/13/22		
Acenaphthene	0.017	1	7/13/22		
Fluorene	0.063	1	7/13/22		
Phenanthrene	0.90	1	7/13/22		
Anthracene	0.16	1	7/13/22		
Fluoranthene	1.5	1	7/13/22		
Pyrene	1.2	1	7/13/22		
Benzo[a]anthracene	0.74	1	7/13/22	0.1	.074
Chrysene	0.91	1	7/13/22	0.001	.00091
Benzo[b]fluoranthene	1.2	1	7/13/22	0.1	.12
Benzo[k]fluoranthene	0.38	1	7/13/22	0.01	.0038
Benzo[a]pyrene	0.90	1	7/13/22	1	.9
Indeno[1,2,3-cd]pyrene	0.72	1	7/13/22	0.1	.072
Dibenz[a,h]anthracene	0.16	1	7/13/22	1	.16
Benzo[g,h,i]perylene	0.57	1	7/13/22		
p-Terphenyl-D14 (surr)	68 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB18-I
 Lab Sample ID: 245635.13
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	65 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

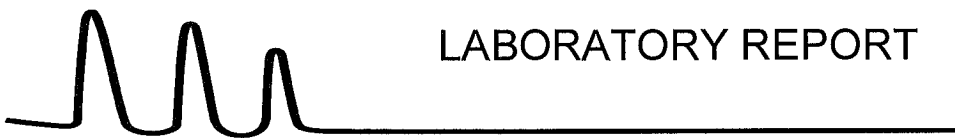
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 Lab Sample ID: 245635.14
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	7/13/22		
2-Methylnaphthalene	< 0.009	1	7/13/22		
1-Methylnaphthalene	< 0.009	1	7/13/22		
Acenaphthylene	< 0.009	1	7/13/22		
Acenaphthene	< 0.009	1	7/13/22		
Fluorene	< 0.009	1	7/13/22		
Phenanthrene	< 0.009	1	7/13/22		
Anthracene	< 0.009	1	7/13/22		
Fluoranthene	< 0.009	1	7/13/22		
Pyrene	< 0.009	1	7/13/22		
Benzo[a]anthracene	< 0.009	1	7/13/22	0.1	< .0009
Chrysene	< 0.009	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.009	1	7/13/22	0.1	< .0009
Benzo[k]fluoranthene	< 0.009	1	7/13/22	0.01	< .00009
Benzo[a]pyrene	< 0.009	1	7/13/22	1	< .009
Indeno[1,2,3-cd]pyrene	< 0.009	1	7/13/22	0.1	< .0009
Dibenz[a,h]anthracene	< 0.009	1	7/13/22	1	< .009
Benzo[g,h,i]perylene	< 0.009	1	7/13/22		
p-Terphenyl-D14 (surr)	62 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB8-I
 Lab Sample ID: 245635.15
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.042	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	0.15	5	7/13/22		
Acenaphthene	< 0.04	5	7/13/22		
Fluorene	< 0.04	5	7/13/22		
Phenanthrene	0.32	5	7/13/22		
Anthracene	0.10	5	7/13/22		
Fluoranthene	0.81	5	7/13/22		
Pyrene	0.69	5	7/13/22		
Benzo[a]anthracene	0.44	5	7/13/22	0.1	.044
Chrysene	0.47	5	7/13/22	0.001	.00047
Benzo[b]fluoranthene	0.72	5	7/13/22	0.1	.072
Benzo[k]fluoranthene	0.22	5	7/13/22	0.01	.0022
Benzo[a]pyrene	0.57	5	7/13/22	1	.57
Indeno[1,2,3-cd]pyrene	0.23	5	7/13/22	0.1	.023
Dibenz[a,h]anthracene	0.052	5	7/13/22	1	.052
Benzo[g,h,i]perylene	0.18	5	7/13/22		
p-Terphenyl-D14 (surr)	72 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB9-I
 Lab Sample ID: 245635.16
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	0.017	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	0.052	1	7/13/22		
Pyrene	0.050	1	7/13/22		
Benzo[a]anthracene	0.031	1	7/13/22	0.1	.0031
Chrysene	0.032	1	7/13/22	0.001	.000032
Benzo[b]fluoranthene	0.052	1	7/13/22	0.1	.0052
Benzo[k]fluoranthene	0.017	1	7/13/22	0.01	.00017
Benzo[a]pyrene	0.041	1	7/13/22	1	.041
Indeno[1,2,3-cd]pyrene	0.034	1	7/13/22	0.1	.0034
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	0.030	1	7/13/22		
p-Terphenyl-D14 (surr)	67 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB10-I
 Lab Sample ID: 245635.17
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.18	6	7/13/22		
2-Methylnaphthalene	0.047	6	7/13/22		
1-Methylnaphthalene	< 0.04	6	7/13/22		
Acenaphthylene	0.56	6	7/13/22		
Acenaphthene	0.062	6	7/13/22		
Fluorene	0.13	6	7/13/22		
Phenanthrene	2.1	6	7/13/22		
Anthracene	0.47	6	7/13/22		
Fluoranthene	4.4	6	7/13/22		
Pyrene	3.9	6	7/13/22		
Benzo[a]anthracene	2.4	6	7/13/22	0.1	.24
Chrysene	2.6	6	7/13/22	0.001	.0026
Benzo[b]fluoranthene	3.4	6	7/13/22	0.1	.34
Benzo[k]fluoranthene	1.1	6	7/13/22	0.01	.011
Benzo[a]pyrene	2.9	6	7/13/22	1	2.9
Indeno[1,2,3-cd]pyrene	2.0	6	7/13/22	0.1	.2
Dibenz[a,h]anthracene	0.42	6	7/13/22	1	.42
Benzo[g,h,i]perylene	1.6	6	7/13/22		
p-Terphenyl-D14 (surr)	79 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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Detection limits elevated due to higher than normal final extract volume.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB11-I
 Lab Sample ID: 245635.18
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	70 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB12-I
 Lab Sample ID: 245635.19
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	0.018	1	7/13/22		
Pyrene	0.019	1	7/13/22		
Benzo[a]anthracene	0.014	1	7/13/22	0.1	.0014
Chrysene	0.014	1	7/13/22	0.001	.000014
Benzo[b]fluoranthene	0.028	1	7/13/22	0.1	.0028
Benzo[k]fluoranthene	0.0098	1	7/13/22	0.01	.000098
Benzo[a]pyrene	0.022	1	7/13/22	1	.022
Indeno[1,2,3-cd]pyrene	0.022	1	7/13/22	0.1	.0022
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	0.021	1	7/13/22		
p-Terphenyl-D14 (surr)	73 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB13-I
Lab Sample ID: 245635.2
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.038	1	7/13/22		
2-Methylnaphthalene	0.014	1	7/13/22		
1-Methylnaphthalene	0.016	1	7/13/22		
Acenaphthylene	0.10	1	7/13/22		
Acenaphthene	0.026	1	7/13/22		
Fluorene	0.054	1	7/13/22		
Phenanthrene	0.80	1	7/13/22		
Anthracene	0.18	1	7/13/22		
Fluoranthene	1.1	1	7/13/22		
Pyrene	1.1	1	7/13/22		
Benzo[a]anthracene	0.59	1	7/13/22	0.1	.059
Chrysene	0.63	1	7/13/22	0.001	.00063
Benzo[b]fluoranthene	0.80	1	7/13/22	0.1	.08
Benzo[k]fluoranthene	0.26	1	7/13/22	0.01	.0026
Benzo[a]pyrene	0.67	1	7/13/22	1	.67
Indeno[1,2,3-cd]pyrene	0.46	1	7/13/22	0.1	.046
Dibenz[a,h]anthracene	0.095	1	7/13/22	1	.095
Benzo[g,h,i]perylene	0.39	1	7/13/22		
p-Terphenyl-D14 (surr)	64 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

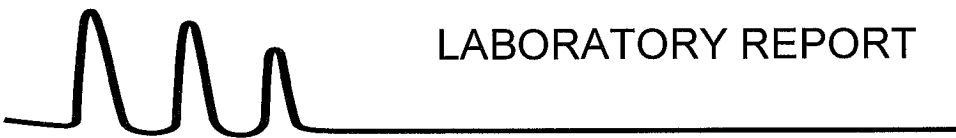
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Lab Sample ID: 245635.21
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	65 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB15-I
 Lab Sample ID: 245635.22
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	7/13/22		
2-Methylnaphthalene	< 0.009	1	7/13/22		
1-Methylnaphthalene	< 0.009	1	7/13/22		
Acenaphthylene	0.015	1	7/13/22		
Acenaphthene	< 0.009	1	7/13/22		
Fluorene	< 0.009	1	7/13/22		
Phenanthrene	0.085	1	7/13/22		
Anthracene	0.018	1	7/13/22		
Fluoranthene	0.29	1	7/13/22		
Pyrene	0.26	1	7/13/22		
Benzo[a]anthracene	0.15	1	7/13/22	0.1	.015
Chrysene	0.15	1	7/13/22	0.001	.00015
Benzo[b]fluoranthene	0.22	1	7/13/22	0.1	.022
Benzo[k]fluoranthene	0.076	1	7/13/22	0.01	.00076
Benzo[a]pyrene	0.18	1	7/13/22	1	.18
Indeno[1,2,3-cd]pyrene	0.13	1	7/13/22	0.1	.013
Dibenz[a,h]anthracene	0.025	1	7/13/22	1	.025
Benzo[g,h,i]perylene	0.11	1	7/13/22		
p-Terphenyl-D14 (surr)	61 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB16-I
Lab Sample ID: 245635.23
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	0.014	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	0.068	1	7/13/22		
Anthracene	0.0098	1	7/13/22		
Fluoranthene	0.15	1	7/13/22		
Pyrene	0.13	1	7/13/22		
Benzo[a]anthracene	0.072	1	7/13/22	0.1	.0072
Chrysene	0.081	1	7/13/22	0.001	.000081
Benzo[b]fluoranthene	0.12	1	7/13/22	0.1	.012
Benzo[k]fluoranthene	0.041	1	7/13/22	0.01	.00041
Benzo[a]pyrene	0.095	1	7/13/22	1	.095
Indeno[1,2,3-cd]pyrene	0.072	1	7/13/22	0.1	.0072
Dibenz[a,h]anthracene	0.014	1	7/13/22	1	.014
Benzo[g,h,i]perylene	0.063	1	7/13/22		
p-Terphenyl-D14 (surr)	56 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

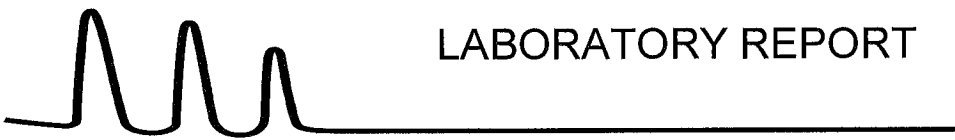
Client Sample ID: SB17-I
 Lab Sample ID: 245635.24
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.019	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	0.059	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	0.016	1	7/13/22		
Phenanthrene	0.28	1	7/13/22		
Anthracene	0.030	1	7/13/22		
Fluoranthene	0.49	1	7/13/22		
Pyrene	0.40	1	7/13/22		
Benzo[a]anthracene	0.19	1	7/13/22	0.1	.019
Chrysene	0.26	1	7/13/22	0.001	.00026
Benzo[b]fluoranthene	0.37	1	7/13/22	0.1	.037
Benzo[k]fluoranthene	0.14	1	7/13/22	0.01	.0014
Benzo[a]pyrene	0.27	1	7/13/22	1	.27
Indeno[1,2,3-cd]pyrene	0.24	1	7/13/22	0.1	.024
Dibenz[a,h]anthracene	0.048	1	7/13/22	1	.048
Benzo[g,h,i]perylene	0.21	1	7/13/22		
p-Terphenyl-D14 (surr)	62 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

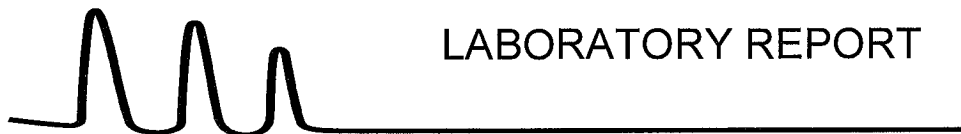
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 Lab Sample ID: 245635.25
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	72 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB11-N
 Lab Sample ID: 245635.26
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

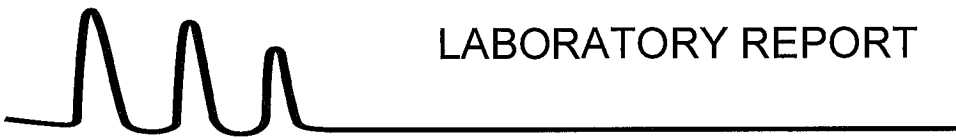
Dilution

	Results	Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	76 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: SB12-N
 Lab Sample ID: 245635.27
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	7/13/22		
2-Methylnaphthalene	< 0.008	1	7/13/22		
1-Methylnaphthalene	< 0.008	1	7/13/22		
Acenaphthylene	< 0.008	1	7/13/22		
Acenaphthene	< 0.008	1	7/13/22		
Fluorene	< 0.008	1	7/13/22		
Phenanthrene	< 0.008	1	7/13/22		
Anthracene	< 0.008	1	7/13/22		
Fluoranthene	< 0.008	1	7/13/22		
Pyrene	< 0.008	1	7/13/22		
Benzo[a]anthracene	< 0.008	1	7/13/22	0.1	< .0008
Chrysene	< 0.008	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.008	1	7/13/22	0.1	< .0008
Benzo[k]fluoranthene	< 0.008	1	7/13/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	7/13/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	7/13/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	7/13/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	7/13/22		
p-Terphenyl-D14 (surr)	75 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

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LABORATORY REPORT

EAI ID#: 245635

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Client Sample ID: SB15-N
Lab Sample ID: 245635.28
Matrix: soil
Date Sampled: 7/6/22
Date Received: 7/8/22
Date Prepared: 7/12/22
Units: mg/kg
Method: 8270D
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.007	1	7/13/22		
2-Methylnaphthalene	< 0.007	1	7/13/22		
1-Methylnaphthalene	< 0.007	1	7/13/22		
Acenaphthylene	< 0.007	1	7/13/22		
Acenaphthene	< 0.007	1	7/13/22		
Fluorene	< 0.007	1	7/13/22		
Phenanthrene	< 0.007	1	7/13/22		
Anthracene	< 0.007	1	7/13/22		
Fluoranthene	< 0.007	1	7/13/22		
Pyrene	< 0.007	1	7/13/22		
Benzo[a]anthracene	< 0.007	1	7/13/22	0.1	< .0007
Chrysene	< 0.007	1	7/13/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.007	1	7/13/22	0.1	< .0007
Benzo[k]fluoranthene	< 0.007	1	7/13/22	0.01	< .00007
Benzo[a]pyrene	< 0.007	1	7/13/22	1	< .007
Indeno[1,2,3-cd]pyrene	< 0.007	1	7/13/22	0.1	< .0007
Dibenz[a,h]anthracene	< 0.007	1	7/13/22	1	< .007
Benzo[g,h,i]perylene	< 0.007	1	7/13/22		
p-Terphenyl-D14 (surr)	78 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

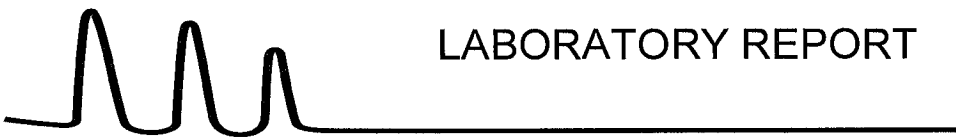
Client Sample ID: Duplicate 3
 Lab Sample ID: 245635.29
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.023	1	7/13/22		
2-Methylnaphthalene	0.0083	1	7/13/22		
1-Methylnaphthalene	< 0.007	1	7/13/22		
Acenaphthylene	0.089	1	7/13/22		
Acenaphthene	0.0095	1	7/13/22		
Fluorene	0.020	1	7/13/22		
Phenanthrene	0.32	1	7/13/22		
Anthracene	0.084	1	7/13/22		
Fluoranthene	0.67	1	7/13/22		
Pyrene	0.60	1	7/13/22		
Benzo[a]anthracene	0.38	1	7/13/22	0.1	.038
Chrysene	0.45	1	7/13/22	0.001	.00045
Benzo[b]fluoranthene	0.63	1	7/13/22	0.1	.063
Benzo[k]fluoranthene	0.20	1	7/13/22	0.01	.002
Benzo[a]pyrene	0.50	1	7/13/22	1	.5
Indeno[1,2,3-cd]pyrene	0.39	1	7/13/22	0.1	.039
Dibenz[a,h]anthracene	0.083	1	7/13/22	1	.083
Benzo[g,h,i]perylene	0.33	1	7/13/22		
p-Terphenyl-D14 (surr)	65 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



LABORATORY REPORT

EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Client Sample ID: Duplicate 4
 Lab Sample ID: 245635.3
 Matrix: soil
 Date Sampled: 7/6/22
 Date Received: 7/8/22
 Date Prepared: 7/12/22
 Units: mg/kg
 Method: 8270D
 Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	0.077	5	7/13/22		
2-Methylnaphthalene	< 0.04	5	7/13/22		
1-Methylnaphthalene	< 0.04	5	7/13/22		
Acenaphthylene	0.24	5	7/13/22		
Acenaphthene	< 0.04	5	7/13/22		
Fluorene	< 0.04	5	7/13/22		
Phenanthrene	0.67	5	7/13/22		
Anthracene	0.16	5	7/13/22		
Fluoranthene	2.4	5	7/13/22		
Pyrene	2.3	5	7/13/22		
Benzo[a]anthracene	1.8	5	7/13/22	0.1	.18
Chrysene	2.4	5	7/13/22	0.001	.0024
Benzo[b]fluoranthene	3.9	5	7/13/22	0.1	.39
Benzo[k]fluoranthene	1.3	5	7/13/22	0.01	.013
Benzo[a]pyrene	2.8	5	7/13/22	1	2.8
Indeno[1,2,3-cd]pyrene	2.2	5	7/13/22	0.1	.22
Dibenz[a,h]anthracene	0.50	5	7/13/22	1	.5
Benzo[g,h,i]perylene	2.1	5	7/13/22		
p-Terphenyl-D14 (surr)	80 %R		7/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.

Detection limits elevated due to higher than normal final extract volume.



QC REPORT

EAI ID#: 245635

Client: KAS, Inc.

Batch ID: 637932-07797/S071222PAH1

Client Designation: Windsor Housing Lot #1 | 507210630

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Naphthalene	< 0.007	1.2 (74 %R)	1.3 (77 %R) (4 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
2-Methylnaphthalene	< 0.007	1.4 (81 %R)	1.4 (84 %R) (4 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
1-Methylnaphthalene	< 0.007	1.3 (78 %R)	1.3 (80 %R) (3 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Acenaphthylene	< 0.007	1.3 (77 %R)	1.3 (80 %R) (3 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Acenaphthene	< 0.007	1.2 (73 %R)	1.2 (75 %R) (2 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Fluorene	< 0.007	1.4 (84 %R)	1.4 (86 %R) (3 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Phenanthrene	< 0.007	1.3 (78 %R)	1.3 (80 %R) (2 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Anthracene	< 0.007	1.4 (84 %R)	1.4 (86 %R) (3 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Fluoranthene	< 0.007	1.4 (81 %R)	1.4 (83 %R) (2 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Pyrene	< 0.007	1.4 (82 %R)	1.4 (84 %R) (2 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Benzo[a]anthracene	< 0.007	1.3 (78 %R)	1.3 (80 %R) (3 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Chrysene	< 0.007	1.4 (84 %R)	1.4 (84 %R) (1 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Benzo[b]fluoranthene	< 0.007	1.4 (85 %R)	1.4 (82 %R) (4 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Benzo[k]fluoranthene	< 0.007	1.3 (79 %R)	1.4 (83 %R) (5 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Benzo[a]pyrene	< 0.007	1.3 (81 %R)	1.4 (82 %R) (1 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Indeno[1,2,3-cd]pyrene	< 0.007	1.4 (84 %R)	1.4 (83 %R) (1 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Dibenz[a,h]anthracene	< 0.007	1.4 (81 %R)	1.4 (82 %R) (0 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
Benzo[g,h,i]perylene	< 0.007	1.3 (80 %R)	1.3 (80 %R) (1 RPD)	7/12/2022	mg/kg	40 - 140	30	8270D
p-Terphenyl-D14 (surr)	79 %R	80 %R	82 %R	7/12/2022	mg/kg	30 - 130		8270D

*/I Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



QC REPORT

EAI ID#: 245635

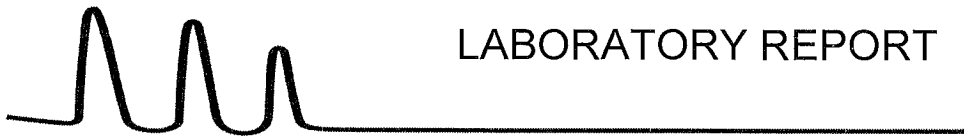
Client: KAS, Inc.

Batch ID: 637932-08120/S071222PAH2

Client Designation: Windsor Housing Lot #1 | 507210630

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Naphthalene	< 0.007	1.3 (76 %R)	1.2 (74 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
2-Methylnaphthalene	< 0.007	1.4 (82 %R)	1.3 (79 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
1-Methylnaphthalene	< 0.007	1.3 (79 %R)	1.3 (76 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Acenaphthylene	< 0.007	1.3 (81 %R)	1.3 (77 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Acenaphthene	< 0.007	1.3 (78 %R)	1.2 (74 %R) (5 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Fluorene	< 0.007	1.4 (85 %R)	1.4 (84 %R) (1 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Phenanthrene	< 0.007	1.4 (81 %R)	1.4 (83 %R) (2 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Anthracene	< 0.007	1.4 (83 %R)	1.4 (85 %R) (2 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Fluoranthene	< 0.007	1.3 (81 %R)	1.4 (84 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Pyrene	< 0.007	1.3 (79 %R)	1.4 (83 %R) (5 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Benzo[a]anthracene	< 0.007	1.3 (79 %R)	1.4 (83 %R) (5 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Chrysene	< 0.007	1.4 (83 %R)	1.4 (86 %R) (3 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Benzo[b]fluoranthene	< 0.007	1.4 (83 %R)	1.5 (88 %R) (6 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Benzo[k]fluoranthene	< 0.007	1.4 (83 %R)	1.4 (86 %R) (3 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Benzo[a]pyrene	< 0.007	1.4 (81 %R)	1.4 (84 %R) (4 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Indeno[1,2,3-cd]pyrene	< 0.007	1.4 (83 %R)	1.5 (87 %R) (5 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Dibenz[a,h]anthracene	< 0.007	1.4 (83 %R)	1.5 (89 %R) (7 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
Benzo[g,h,i]perylene	< 0.007	1.3 (79 %R)	1.4 (82 %R) (3 RPD)	7/13/2022	mg/kg	40 - 140	30	8270D
p-Terphenyl-D14 (surr)	82 %R	81 %R	84 %R	7/13/2022	mg/kg	30 - 130		8270D

*! Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



LABORATORY REPORT

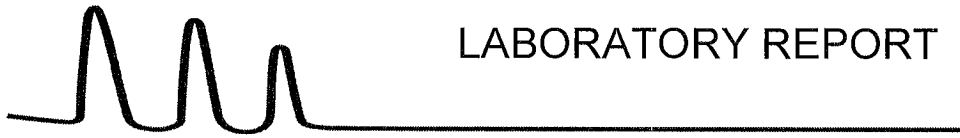
EAI ID#: **245635**

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Sample ID:	SB18-S	SB15-S	SB18-I	SB9-I					
Lab Sample ID:	245635.01	245635.1	245635.13	245635.16					
Matrix:	soil	soil	soil	soil					
Date Sampled:	7/6/22	7/6/22	7/6/22	7/6/22	Analytical		Date of		
Date Received:	7/8/22	7/8/22	7/8/22	7/8/22	Matrix	Units	Analysis	Method	Analyst
Arsenic	4.4	5.0	3.3	3.9	SolTotDry	mg/kg	7/13/22	6020A	DS
Lead	22	73	4.8	12	SolTotDry	mg/kg	7/13/22	6020A	DS

Sample ID:	SB12-I	SB15-I	SB7-N	SB11-N					
Lab Sample ID:	245635.19	245635.22	245635.25	245635.26					
Matrix:	soil	soil	soil	soil					
Date Sampled:	7/6/22	7/6/22	7/6/22	7/6/22	Analytical		Date of		
Date Received:	7/8/22	7/8/22	7/8/22	7/8/22	Matrix	Units	Analysis	Method	Analyst
Arsenic	4.5	4.5	3.7	3.6	SolTotDry	mg/kg	7/13/22	6020A	DS
Lead	9.8	41	5.4	5.6	SolTotDry	mg/kg	7/13/22	6020A	DS



LABORATORY REPORT

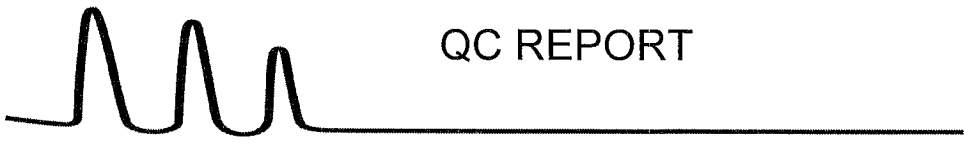
EAI ID#: 245635

Client: KAS, Inc.

Client Designation: Windsor Housing Lot #1 | 507210630

Sample ID:	SB12-N	SB15-N	Duplicate 5						
Lab Sample ID:	245635.27	245635.28	245635.31						
Matrix:	soil	soil	soil						
Date Sampled:	7/6/22	7/6/22	7/6/22						
Date Received:	7/8/22	7/8/22	7/8/22						
				Analytical Matrix	Units	Date of Analysis	Method	Analyst	
Arsenic	3.6	3.7	2.6	SoITotDry	mg/kg	7/13/22	6020A	DS	
Lead	7.0	4.2	3.4	SoITotDry	mg/kg	7/13/22	6020A	DS	

Sample ID:	SB9-S	SB12-S							
Lab Sample ID:	245635.04	245635.07							
Matrix:	soil	soil							
Date Sampled:	7/6/22	7/6/22							
Date Received:	7/8/22	7/8/22							
				Analytical Matrix	Units	Date of Analysis	Method	Analyst	
Arsenic	5.3	4.7		SoITotDry	mg/kg	7/13/22	6020A	DS	
Lead	410	98		SoITotDry	mg/kg	7/13/22	6020A	DS	
Lead	< 0.5	< 0.5		TCLPsolid	mg/L	7/18/22	6020A	DS	



QC REPORT

EAI ID#: **245635**

Client: **KAS, Inc.**

Client Designation: **Windsor Housing Lot #1 | 507210630**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Arsenic	< 0.5	39 (97 %R)		NA mg/kg	7/13/22	80 - 120	20	6020A
Lead	< 0.5	40 (99 %R)		NA mg/kg	7/13/22	80 - 120	20	6020A
Lead	< 0.5	1.0 (98 %R)		NA mg/L	7/18/22	80 - 120	20	6020A

*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.



Appendix E

Photographs



Photographic Documentation
Site Investigation
Lot #1 133 - 137 Main Street
Windsor, Vermont
KAS # 507210630

Photograph ID: 001
Date: July 6, 2022
Location:
Property
Direction:
Facing north
Comments:
View during the advancement of
soil boring SB-7.



Photograph ID: 002
Date: July 6, 2022
Location:
Property
Direction:
Facing northwest
Comments:
View during the advancement of
soil boring SB-16 along the
northern portion of the property.





Photographic Documentation
Site Investigation
Lot #1 133 - 137 Main Street
Windsor, Vermont
KAS # 507210630

Photograph ID: 003
Date: July 6, 2022
Location:
Property
Direction:
Facing north
Comments:

View during the advancement of soil boring SB-17 along the northeast corner of the property.



Photograph ID: 004
Date: July 6, 2022
Location:
Property
Direction:
Facing south
Comments:

View during the advancement of soil boring SB-18 along the southern portion of the property.





Appendix F

Field Notes

Proposed Housing Development
 133 - 139 Main St, Windsor, VT
 Project #507210630

Date: 7/6/22
 Personnel: AMH, HG, J, SD
 Arrival: 8:00
 Departure: 15:45
 Weather: occasional clouds mid 70's

Equipment: PID Hand Auger
 GPS Sample Kits
 Gloves Ice

SPECIAL INSTRUCTIONS:

1. KAS to advance twelve (12) soil borings on Lot #1 and six (6) soil borings on Lot #2 using a hand auger and Geoprobe for soil sampling down to native soil depths. The native sandy soil was previously found at depths ranging from 2 - 5 feet below grade. Label the borings SB22-1, etc. It is preferred that a hand auger is used for the shallow samples 0-18" so that a clear representative sample is collected from that depth. After the shallow sample is collected, the Geoprobe should be used to advance the boring further.
2. KAS to provide oversight during drilling to collect soil samples for laboratory analysis and screen samples for VOCs. Separate your time and materials for each lot
3. Collect soil samples in accordance with the approved work scope (see attached work plans) and submit for analysis of 8270-PAHs, lead and arsenic, as appropriate.
4. Please log the soils on the attached boring logs, note the depth all samples are obtained, screen the soils with a PID and mark the location of the site plan. Samples to be sent to Eastern Analytical.
5. Collect one duplicate every 15 samples at each project lot.

LOT #1 Shallow 0 - 18"

Sample ID	Boring Location	Sample Time	Analysis
SB18-S	SB 18	12:25	8270d 6020
SB7-S	SB 7	12:37	
SB8-S	SB 8	12:38	
SB9-S	SB 9	13:20	6020
SB10-S	SB 10	13:40	
SB11-S	SB 11	13:50	
SB12-S	SB 12	14:03	6020
SB13-S	SB 13	14:20	
SB14-S	SB 14	14:32	
SB15-S	SB 15	14:46	6020
SB16-S	SB 16	15:12	
SB17-S	SB 17	15:27	

LOT #1 Intermediate Depth

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
SB18-J	SB 18	3-4	12:30	8270d 6020
SB7-J	SB 7	2-3	12:42	
SB8-J	SB 8	3	13:10	
SB9-J	SB 9	2-4	13:31	6020
SB10-J	SB 10	3-4	13:44	
SB11-J	SB 11	2	13:56	
SB12-J	SB 12	2	14:11	6020
SB13-J	SB 13	2-4	14:23	
SB14-J	SB 14	3-4	14:41	
SB15-J	SB 15	3-4	14:54	6020
SB16-J	SB 16	3-4	15:15	
SB17-J	SB 17	3-4	15:30	

Proposed Housing Development
 133 - 139 Main St, Windsor, VT
 Project #507210630

LOT #1 Native Soil Depth

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
SB1-N	SB7	3-4	12:45	8270D + 6020 ↓
SB11-N	SB11	3-4	13:58	
SB12-N	SB12	3-4	14:12	
SB15-N	SB15	4-8	14:58	

LOT #1 Duplicate Samples

SB6-S

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
Duplicate 3	SB8-S	0-18	12:55	8270D ↓
Duplicate 4	SB13-S	0-18	14:20	
Duplicate 5	SB15-N	4-8	14:58	

LOT #2 Shallow 0 - 18"

Sample ID	Boring Location	Sample Time	Analysis
SB1-S	SB1	8:45	8270D + 6020 ↓
SB2-S	SB2	9:30	
SB3-S	SB3	10:02	
SB4-S	SB4	10:37	
SB5-S	SB5	11:20	
SB6-S	SB6	11:49	

LOT #2 Intermediate Depth

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
SB1-I	SB1	18-48	9:00	8270D + 6020 ↓
SB2-I	SB2	17-48	9:34	
SB3-I	SB3		10:19	
SB4-I	SB4		11:03	
SB5-I	SB5		11:31	
SB6-I	SB6		11:53	

LOT #2 Native Soil Depth

SB5-N

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
SB1-N	SB1	7'	9:23	8270D + 6020 ↓
SB2-N	SB2	7'	9:48	
SB3-N	SB3	7'	11:38	

LOT #2 Duplicate Samples

Duplicate 1 (SB3-I)
4

Sample ID	Boring Location	Sample Depth	Sample Time	Analysis
Duplicate 1	SB1	7'	9:23	8270D + 6020
Duplicate 2	SB2	18-48	11:03	

Comments:

- no hand auguring done in lot #2 or lot #1

Time: - lot 2 8-12
 - lot 1 12-15:30

Project Manager: JR

PROJECT: Windsor

Log of Soil Boring SB7

Project No.: 507210630

Site location: lot #1 133 & 137 Main St.

Logged by: AM

Site sketch (required):

Date: 7/6/22

Time: 12-30

Checked by:

Drilling Co.: Kas

Method:

Hammer weight/drop:

Hammer type:

Sampler type:

Total depth: 4

Boring diameter: 2

SAMPLES

OVN (ppm)	Blow Count	Recovery (inches)	SAMPLE	LITHOLOGY	DEPTH (feet)
0.0	NA	64	X-S	S	1
0.0			X-I	I	2
0.0		24	X-N	N	3
0.0			X-N	N	4

MATERIAL DESCRIPTION

Ground Surface Elevation: feet

Depth 0-18 ID

GW GP GM SW SP SM SC ML CL OL CH OH
20 % G (gravel) 60 % S (sand) (fine, med, coarse) 20 % F (fines)

Color: DYB

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: 0 M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: 0 W M S

Other: fine sand/silt w some

large gravel

Depth 18-48 ID

GW GP GM SW SP SM SC ML CL OL CH OH
20 % G (gravel) 50 % S (sand) (fine, med, coarse) 20 % F (fines)

Color: DYD

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: 0 M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: Shale a 2 fby SAA

Depth 36-48 ID

GW GP GM SW SP SM SC ML CL OL CH OH
100 % G (gravel) 00 % S (sand) (fine, med, coarse) % F (fines)

Color: DYB

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: 0 M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: 0 W M S

Other:

Depth ID

GW GP GM SW SP SM SC ML CL OL CH OH
 % G (gravel) % S (sand) (fine, med, coarse) % F (fines)

Color:

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other:

Depth ID

GW GP GM SW SP SM SC ML CL OL CH OH
 % G (gravel) % S (sand) (fine, med, coarse) % F (fines)

Color:

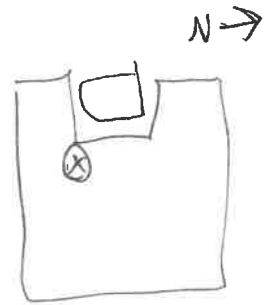
Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other:



WELL COMPLETION INFORMATION

Top of Casing:

Screen Diameter:

Screen Length:

Screen Type/Size:

Casing Diameter:

Casing Length:

Casing Type:

Sand Size:

Sand Interval:

Bentonite Interval:

Grout Interval:

Road Box

Monument Box

GROUNDWATER INFORMATION

Water Level (Initial):

Water Level (static):

Screen/Product:

Odor: N W M S

Color:

Other:

Other notes:

Site

All sections must be completed in the field.

PROJECT: Windsor
Project No.: 507210630

Log of Soil Boring SBS8

Site location: lot #1, 133 & 137 Main St.
Date: 7/6/22 Time: 12:50
Drilling Co.: Kas Method:

Logged by: AM
Checked by:



Hammer weight/drop: Hammer type:
Sampler type: Total depth: 4 Boring diameter: 2

SAMPLES					DEPTH (feet)	MATERIAL DESCRIPTION
QVM (ppm)	Blow Count	Recovery (inches)	SAMPLE	LITHOLOGY		
0.0	NA	13	X	SD	1	Depth <u>0-18</u> ID <u> </u> GW GP GM SW SP SM SC ML CL OL CH OH <u>30</u> % G (gravel) <u>60</u> % S (sand) (fine, med, coarse) <u>10</u> % F (fines) Color: <u>0Y3</u> Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
0.0	NA	18	X	I	2	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					3	Other: <u>fine sand w large gravel pieces</u>
					4	Depth <u>18-48</u> ID <u> </u> GW GP GM SW SP SM SC ML CL OL CH OH <u>20</u> % G (gravel) <u>40</u> % S (sand) (fine, med, coarse) <u>40</u> % F (fines) Color: <u> </u> Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u>grey staining at 3.5 ft</u> <u>fine sand w some clay</u>
					5	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					6	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					7	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					8	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					9	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					10	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					11	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
					12	Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
						Depth <u> </u> ID <u> </u> GW GP GM SW SP SM SC ML CL OL CH OH <u> </u> % G (gravel) <u> </u> % S (sand) (fine, med, coarse) <u> </u> % F (fines) Color: <u> </u> Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>
						Depth <u> </u> ID <u> </u> GW GP GM SW SP SM SC ML CL OL CH OH <u> </u> % G (gravel) <u> </u> % S (sand) (fine, med, coarse) <u> </u> % F (fines) Color: <u> </u> Density: (sand/gravel) VL L MD <u>D</u> VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: <u>N</u> SP <u>P</u> VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u> </u>

WELL COMPLETION INFORMATION

Top of Casing:
Screen Diameter:
Screen Length:
Screen Type/Size:
Casing Diameter:
Casing Length:
Casing Type:
Sand Size:
Sand Interval:
Bentonite Interval:
Grout Interval:

Road Box
Monument Box

GROUNDWATER INFORMATION

Water Level (Initial):
Water Level (static):
Sheen/Product:
Odor: N W M S
Color:
Other:

Other notes:
moved after first 18
couple of feet

Stopped

All sections must be completed in the field.

PROJECT: Windsor

Log of Soil Boring SB10

Project No.: 507210630

Site location: lot #1 133 & 137 Main St.

Logged by: AM

Date: 7/6/22

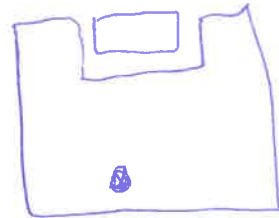
Time: 13:35

Checked by: _____

Drilling Co.: Kas

Method: _____

Site sketch (required):



Hammer weight/drop: _____

Hammer type: _____

Sampler type: _____

Total depth: _____

Boring diameter: _____

SAMPLES			SAMPLE	LITHOLOGY	DEPTH (feet)
QVM (ppm)	Blow Count	Recovery (inches)			
0.0	NA	16	I-S		1
0.0	NA	8	I-I		2
					3
					4
					5
					6
					7
					8
					9
					10
					11
					12

MATERIAL DESCRIPTION
Ground Surface Elevation: _____ feet

Depth 0-18 ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: DYB
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Depth 18-48 ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: SAA

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

WELL COMPLETION INFORMATION

Top of Casing: _____
 Screen Diameter: _____
 Screen Length: _____
 Screen Type/Size: _____
 Casing Diameter: _____
 Casing Length: _____
 Casing Type: _____
 Sand Size: _____
 Sand Interval: _____
 Bentonite Interval: _____
 Grout Interval: _____
 Road Box
 Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____
 Water Level (static): _____
 Sheen/Product: _____
 Odor: N W M S
 Color: _____
 Other: _____

Other notes: _____

2/10/22

All sections must be completed in the field.

PROJECT: Windsor

Log of Soil Boring SB11

Project No.: 507210630

Site location: lot #1, 133 & 137 Main St.

Logged by: AM

Site sketch (required):

Date: 7/6/22

Time: 13:45

Checked by: _____

N →

Drilling Co.: Kas

Method: _____

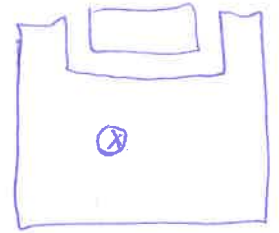
Hammer weight/drop: _____

Hammer type: _____

Sampler type: _____

Total depth: 4

Boring diameter: 2



SAMPLES			SAMPLE	LITHOLOGY	DEPTH (feet)	MATERIAL DESCRIPTION
OVM (ppm)	Blow Count	Recovery (inches)				
0.0	NA	17	X-S		1	Depth <u>0-18</u> ID _____ GW GP GM SW SP SM SC ML CL OL CH OH <u>10</u> % G (gravel) <u>10</u> % S (sand) (fine, med, coarse) <u>10</u> % F (fines) Color: <u>DYB</u> Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
0.0			X-I		2	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: <u>DYB</u> Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
			X-N		3	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					4	Depth <u>18-48</u> ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) <u>100</u> % S (sand) (fine, med, coarse) _____ % F (fines) Color: <u>DYB</u> Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u>Very fine, consistent sand/silt</u>
					5	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					6	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					7	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					8	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					9	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					10	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					11	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
					12	Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____
						Depth _____ ID _____ GW GP GM SW SP SM SC ML CL OL CH OH _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines) Color: _____ Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>0</u> M W S; Angularity: R SR SA A Plastic: <u>NP</u> SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: _____

WELL COMPLETION INFORMATION

Top of Casing: _____

Screen Diameter: _____

Screen Length: _____

Screen Type/Size: _____

Casing Diameter: _____

Casing Length: _____

Casing Type: _____

Sand Size: _____

Sand Interval: _____

Bentonite Interval: _____

Grout Interval: _____

Road Box

Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____

Water Level (static): _____

Sheen/Product: _____

Odor: N W M S

Color: _____

Other: _____

Other notes: _____

Stop

All sections must be completed in the field.

PROJECT: Windsor

Project No.: 507210630

Log of Soil Boring SB12

Site location: lot #1 133 & 137 Main St.

Logged by: AM

Site sketch (required):

Date: 7/6/22

Time: 1:55

Checked by:



Drilling Co.: K&S

Method:

Hammer weight/drop:

Hammer type:

Sampler type:

Total depth: 4

Boring diameter: 2



SAMPLES

QVM (ppm)	Blow Count	Recovery (inches)	SAMPLE	LITHOLOGY	DEPTH (feet)
0.0	NA	22	X-S		1
			X-I		2
		24			3
			X-N		4

MATERIAL DESCRIPTION

Ground Surface Elevation: feet

Depth 0-18 ID

GW GP GM SW SP SM SC ML CL OL CH OH
70 % G (gravel) 40 % S (sand) (fine, med, coarse) 40 % F (fines)

Color: DYB

Density: (sand/gravel) VL MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: Denser and darker toward 18'ig

Depth 18-48 ID

GW GP GM SW SP SM SC ML CL OL CH OH
40 % G (gravel) 40 % S (sand) (fine, med, coarse) 20 % F (fines)

Color: DYB

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: sandy dense SILT layer

Depth 36-48 ID

GW GP GM SW SP SM SC ML CL OL CH OH
100 % G (gravel) 100 % S (sand) (fine, med, coarse) % F (fines)

Color:

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: fine sands

Depth ID

GW GP GM SW SP SM SC ML CL OL CH OH
% G (gravel) % S (sand) (fine, med, coarse) % F (fines)

Color:

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other:

Depth ID

GW GP GM SW SP SM SC ML CL OL CH OH
% G (gravel) % S (sand) (fine, med, coarse) % F (fines)

Color:

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other:

WELL COMPLETION INFORMATION

Top of Casing: _____

Screen Diameter: _____

Screen Length: _____

Screen Type/Size: _____

Casing Diameter: _____

Casing Length: _____

Casing Type: _____

Sand Size: _____

Sand Interval: _____

Bentonite Interval: _____

Grout Interval: _____

Road Box

Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____

Water Level (static): _____

Sheen/Product: _____

Odor: N W M S

Color: _____

Other: _____

Other notes:

stop

All sections must be completed in the field.

PROJECT: Windsor

Log of Soil Boring SB14

Project No.: 507210630

Site location: lot #1 133 & 137 Main St.

Logged by: AM

Site sketch (required):
N →

Date: 7/6/22

Time: 14:25

Checked by:

Drilling Co.: Kas

Method:

Hammer weight/drop:

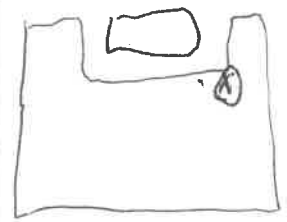
Hammer type:

Sampler type:

Total depth: 4

Boring diameter: 2

SAMPLES			SAMPLE	LITHOLOGY	DEPTH (feet)	MATERIAL DESCRIPTION
QVM (ppm)	Blow Count	Recovery (inches)				
00	NA	IS	X-S		1	Depth <u>0-18</u> ID GW GP GM SW SP <u>SM</u> SC ML CL OL CH OH % G (gravel) <u>10</u> % S (sand) (fine, med, coarse) <u>40</u> % F (fines) Color: <u>DYK</u> Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H Moisture: <u>D</u> M W S; Angularity: R SR SA A Plastic: NP SP P VP EH; Grading: W M P Odor: <u>N</u> W M S Other: <u>fine sand top soil</u>
00	NA		X-H		2	
					3	
					4	
					5	
					6	
					7	
					8	
					9	
					10	
					11	
					12	



WELL COMPLETION INFORMATION

Top of Casing: _____
 Screen Diameter: _____
 Screen Length: _____
 Screen Type/Size: _____
 Casing Diameter: _____
 Casing Length: _____
 Casing Type: _____
 Sand Size: _____
 Sand Interval: _____
 Bentonite Interval: _____
 Grout Interval: _____

Road Box
 Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____
 Water Level (static): _____
 Sheen/Product: _____
 Odor: N W M S
 Color: _____
 Other: _____

Other notes:

stop

All sections must be completed in the field.

PROJECT: Windsor

Log of Soil Boring SB 16

PAGE OF

Project No.: 507210630

Site location: lot #1, 133 & 137 Main St.

Logged by: AM

Site sketch (required):

Date: 7/6/22

Time:

Checked by:

Drilling Co.: KCS

Method:

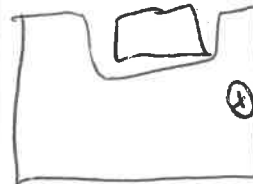
Hammer weight/drop:

Hammer type:

Sampler type:

Total depth:

Boring diameter:



SAMPLES			SAMPLE	LITHOLOGY	DEPTH (feet)
QVM (ppm)	Blow Count	Recovery (inches)			
0.0	NA	4	X-S		1
0.0	NA	4	X-I		2

MATERIAL DESCRIPTION

Ground Surface Elevation: feet

Depth 0-18 ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
10 % G (gravel) 70 % S (sand) (fine, med, coarse) 10 % F (fines)
 Color: DYB
 Density: (sand/gravel) VL (L) MD D VD (silt/clay) VS S MST ST VST H
 Moisture: (D) M W S; Angularity: R SR SA A
 Plastic: (NP) SP P VP EH; Grading: W M P
 Odor: (N) W M S
 Other: Sandy gravelly top soil

WELL COMPLETION INFORMATION

Top of Casing: _____
 Screen Diameter: _____
 Screen Length: _____
 Screen Type/Size: _____
 Casing Diameter: _____
 Casing Length: _____
 Casing Type: _____
 Sand Size: _____
 Sand Interval: _____
 Bentonite Interval: _____
 Grout Interval: _____

Road Box
 Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____
 Water Level (static): _____
 Sheen/Product: _____
 Odor: N W M S
 Color: _____
 Other: _____

Depth 18-48 ID Sandy top soil
 GW GP GM SW SP SM SC ML CL OL CH OH
10 % G (gravel) 60 % S (sand) (fine, med, coarse) 30 % F (fines)
 Color: DYB
 Density: (sand/gravel) VL (L) MD D VD (silt/clay) VS S MST ST VST H
 Moisture: (D) M W S; Angularity: R SR SA A
 Plastic: (NP) SP P VP EH; Grading: W M P
 Odor: (N) W M S
 Other: _____

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Depth _____ ID _____
 GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)
 Color: _____
 Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H
 Moisture: D M W S; Angularity: R SR SA A
 Plastic: NP SP P VP EH; Grading: W M P
 Odor: N W M S
 Other: _____

Other notes:
low recovery so re bored next to to fill sample jars.

All sections must be completed in the field.

PROJECT: Windsor

Log of Soil Boring SB17

Project No.: 507210630

Site location: lot #1, 133 & 137 Main St.

Logged by: AM

Site sketch (required):

Date: 7/6/22

Time: 15:15

Checked by: _____

Drilling Co.: Kas

Method: _____

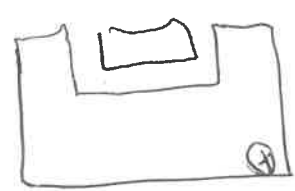
Hammer weight/drop: _____

Hammer type: _____

Sampler type: _____

Total depth: 4

Boring diameter: 2



SAMPLES			SAMPLE	LITHOLOGY	DEPTH (feet)
QVM (ppm)	Blow Count	Recovery (inches)			
<u>0.0</u>	<u>NA</u>	<u>14</u>	<u>X</u>	<u>S</u>	<u>1</u>
<u>0.0</u>	<u>NA</u>	<u>8</u>	<u>X</u>	<u>I</u>	<u>2</u>

MATERIAL DESCRIPTION

Ground Surface Elevation: _____ feet

Depth 0-18 ID _____

GW GP GM SW SP SM SC ML CL OL CH OH
30 % G (gravel) 40 % S (sand) (fine, med, coarse) 30 % F (fines)

Color: light grey

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: brake brick @ 18' by

WELL COMPLETION INFORMATION

Top of Casing: _____

Screen Diameter: _____

Screen Length: _____

Screen Type/Size: _____

Casing Diameter: _____

Casing Length: _____

Casing Type: _____

Sand Size: _____

Sand Interval: _____

Bentonite Interval: _____

Grout Interval: _____

Road Box

Monument Box

GROUNDWATER INFORMATION

Water Level (Initial): _____

Water Level (static): _____

Sheen/Product: _____

Odor: N W M S

Color: _____

Other: _____

Other notes: _____

Stop

All sections must be completed in the field.

Depth 18-48 ID _____

GW GP GM SW SP SM SC ML CL OL CH OH
10 % G (gravel) 40 % S (sand) (fine, med, coarse) 50 % F (fines)

Color: _____

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: silty sand

Depth _____ ID _____

GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)

Color: _____

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: _____

Depth _____ ID _____

GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)

Color: _____

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: _____

Depth _____ ID _____

GW GP GM SW SP SM SC ML CL OL CH OH
 _____ % G (gravel) _____ % S (sand) (fine, med, coarse) _____ % F (fines)

Color: _____

Density: (sand/gravel) VL L MD D VD (silt/clay) VS S MST ST VST H

Moisture: D M W S; Angularity: R SR SA A

Plastic: NP SP P VP EH; Grading: W M P

Odor: N W M S

Other: _____



Appendix G

I-Rule Site Investigation Checklist

**Vermont Department of Environmental Conservation
Waste Management and Prevention Division
Sites Management Section
I-Rule SITE INVESTIGATION Report Checklist**

Site Number: 2022-5087
Site Name: Windsor Housing Project – Lot #1
Site Address: 133 & 137 Main Street
Site City/Town: Windsor
Report Title: Site Investigation Report
Report Date: September 29, 2022
Consultant: KAS, Inc.
Report Author: Jeremy Roberts, P.G.

Deliverable	YES	N/A	Comments	WMPD Use Only	
				Adequate	Inadequate
Subchapter 3. Site Investigation					
§35-305. Site Investigation Report					
Executive Summary	YES				
Site Information. Table of names, addresses, email addresses, and phone numbers	YES				
Current use of property and adjacent properties	YES				
Site Description	YES				
Lat/Long of the site	YES				
Property history	YES				
Site Contaminant background	YES				
Work Plan deviations	YES				
Sample collection documentation	YES				
Contaminated media characterization (tabulated and compared to standard or site-specific risk assessment)	YES				
Maps: Vicinity Map Site Map Groundwater Flow Direction Map Contaminant Distribution Map	YES YES YES YES	N/A			
Discussion	YES				
Data presentation	YES				
QA/QC sample results	YES				

Deliverable	YES	N/A	Comments	WMPD Use Only	
				Adequate	Inadequate
Subchapter 3. Site Investigation					
§35-305. Site Investigation Report					
IDW		N/A			
Conclusions and Recommendations	YES				
Signature and Certification	YES				
List of SOPs used during investigation	YES				
Appendices: Monitoring well and soil boring logs Photographic documentation Field notes Laboratory results Calculations Risk Assessment calculations Hydrogeologic cross sections	YES YES YES YES	N/A N/A N/A			