



**STORM WATER
DRAINAGE ANALYSIS
for
Wash Ashore Car Wash
128 Huttleston Ave
Fairhaven, Massachusetts**

Prepared for:

**Team Ventures Two, LLC
DBA Wash Ashore Car Wash
PO Box 1805
Sagamore Beach, Massachusetts 02562**

Prepared by:

**Atlantic Design Engineers, Inc.
P.O. Box 1051
Sandwich, Massachusetts 02563**

January 11, 2022
ADE Project No. 3269.00

TABLE OF CONTENTS

- 1.0 Introduction
- 2.0 Proposed Stormwater Management System
- 3.0 Compliance with Massachusetts DEP Stormwater Management Standards
- 4.0 Compliance with Fairhaven Stormwater Management-Zoning By-Laws 198-31.1

APPENDICES

- A. MassDEP Checklist for Stormwater Report
- B. Miscellaneous Calculations
- C. Long Term Stormwater Operation and Maintenance Plan
- D. NRCS Soil Survey Maps and Soil Group Descriptions
- E. Soil Borings - Phase II Limited Subsurface Investigation

1.0 INTRODUCTION

The purpose of this drainage study is to analyze the stormwater drainage conditions that will occur as a result of the proposed Automobile Car Wash redevelopment at 128 Huttleston Ave. The site consists of a previously developed ± 1.52 -acre lot where a hotel and gas station once stood. The hotel and gas station have been demolished and cleared of all structures except for concrete pads and pavement. A bordering vegetated wetland system is located along the Northern and Eastern lot lines. The subject lot is shown as Lot 240C and 243 on the Town of Fairhaven Assessors Map 25. USDA Soils mapping indicates (see report in Appendix) that a majority of the site is urban fill with a small portion of the north made up of Udorthents. A subsurface investigation (See Appendix) report shows that ground water is located at approximately 5 ft below existing grade.

2.0 PROPOSED CONDITIONS

Team Ventures Two LLC is proposing to redevelop the site to a proposed car wash with a reduction of impervious area to be 4,391 sq. ft. less than pre-existing conditions on the lot. All impervious surfaces (paved parking areas, drive aisles, sidewalks, roof, etc.), will be conveyed to either vegetated filter strips with infiltration trenches or to a check dam (located in a grassed swale) to a rain garden, all of which will provide treatment before entering the onsite and abutting wetlands. The car wash and associated wastewater will be treated through an internal reclaim system and will not drain to stormwater BMP's.

3.0 COMPLIANCE WITH MASSACHUSETTS DEP STORMWATER MANAGEMENT STANDARDS

Standard 1: No New Untreated Discharges

There are no new untreated impervious surfaces proposed. All impervious areas are being treated prior to discharge and therefore, it is our opinion that Standard 1 has been met.

Standard 2: Peak Rate Attenuation

The proposed site is a redevelopment project with an overall reduction in impervious area over existing. The following curve number analysis table (given that the Tc values for pre and post are both 6 minutes) indicates that there is an overall reduction in weighted curve number and therefore peak rate attenuation and volumes for all design storms for the post development site (2, 10, 25 and 100) will be less than pre-development. The curve numbers were taken from TR-55 Table 2-2 (TR-55, Urban Hydrology for Small Watersheds, USDA, June 1986). Pre and Post development watershed plans and calculations will not be included as part of this submittal as we have shown the proposed site reduces overall runoff by reducing the impervious surface as well as the weighted curve number.

	> 75% Grass cover, Good, HSG D (SF)	CN	Impervious (SF)	CN	Woods, good, HSG D (SF)	CN	Weighted CN (Calculated)
Pre	14,034	80	36,800	98	15,533	77	89
Post	20,655	80	32,409	98	13,303	77	88

Table 1. – Weighted CN value calculation – Pre- vs Post-Development

Standard 3: Groundwater Recharge

Groundwater recharge is being provided via two infiltration trenches and a single rain garden. Given the entire site is mapped as Urban Fill soils which are typically poor draining soils, the hydrologic soil group assigned will be a D type soil. The calculations in the appendices show that Standard 3 has been met.

Standard 4: Water Quality

Water quality is provided via a Forebay (check dam inside grassed swale) and Rain Garden on the Western side of the project and a vegetated filter strip and infiltration trench on the eastern and Northern sides of the project. Calculations in the appendix show the 80% minimum TSS removal rate is met. The rain garden in the western area is designed to meet the MASS DEP SW regulations as calculated below:

$$R_v = (F)(AIMP)$$

$$R_v = \text{Required Recharge Volume}$$

$$F = \text{Target Depth Factor: } 0.10 \text{ inch for D soils}$$

$$AIMP = \text{Proposed Impervious Area} = 4,772 \text{ SF}$$

$$R_v = (0.1/12)(4,772) = 39.8 \text{ cu ft}$$

This proposed rain garden will have a water quality volume of 932 cu ft which is greater than the required minimum of 39.8 cu ft. The western and northern pavement areas have been designed with BMP's to the maximum extent practicable per MASS DEP SW regulations. These BMP's provide TSS removal but only provide water quality volume to the maximum extent practicable. Therefore, it is our opinion that Standard 4 has been met.

Standard 5: Land Uses with Higher Pollutant Loads (LUHPPLs)

The proposed development is a LUHPPL and therefore Standard 5 is not applicable. This car wash is considered to be a higher potential pollutant load, however, all car wash wastewater is contained within the building in internal reclaim system and will not combine with stormwater. Based on this it is our opinion that this Standard is met.

Standard 6: Critical Areas

The project does not have any discharges within a Zone II, Interim Wellhead Protection Areas or near or to any Critical Areas as defined by the Massachusetts Stormwater Handbook. Therefore, it is our opinion that Standard 6 is not applicable.

Standard 7: Redevelopment Projects

The proposed site is a re-development project and has been designed to meet all applicable Stormwater standards to the maximum extent practicable and improves on the existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Erosion and Sedimentation Control Plan is provided on the Site plans along with notes/instructions for the contractor and details/location of all erosion control measures.

Standard 9: Long Term Operation and Maintenance Plan

A Long Term Pollution Prevention and Stormwater Operation and Maintenance Plan is provided in the Appendix.

Standard 10: Prohibition of Illicit Discharges

To our knowledge, there are no existing illicit discharges to existing stormwater systems on the Site and measures to prevent illicit discharges from the proposed development to proposed stormwater systems on the Site will be included within the Long Term Pollution Prevention Plan. As required, an Illicit Discharge Compliance Statement has been included within the Long-Term Stormwater Operation and Maintenance Plan and will also be submitted prior to the discharge of any stormwater to the post-construction stormwater Best Management Practices (BMPs). This will also be included as part of the SWPPP which will be required for this project per NPDES regulations.

4.0 COMPLIANCE WITH FAIRHAVEN STORMWATER STANDARDS - 198-31.1

In addition to meeting MASS DEP Stormwater regulations the following supplemental information below is provided to address the town specific Stormwater standards.

A(1)(a) Flooding:

See the response above for Standard 2.

A(1)(b) Water Quality:

[1] The BMP's proposed on-site will provide 80% TSS removal (see calculations in Appendix)

[2] (c-e) Water quality calculations have been provided in the appendix showing that the western area meets the towns requirements for the first flush. See Long-term Maintenance plan in the appendix.

B(2)(a)[1](h-i):

Soil borings were performed and are included in the Appendix. Groundwater was encountered in the borings and a depth was provided in the report.

B(2)(a)[2] & B(2)(b)[1], B(2)(b)[2], C(1)(a), C(1)(b):

Refer to comments above for Standard 2.

APPENDIX A

MassDEP Checklist for Stormwater Report



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

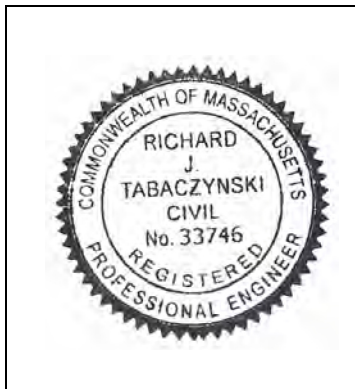
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



January 11, 2022

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of “country drainage” versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): Infiltration Basin

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
- Redevelopment Project
- Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

APPENDIX B
Miscellaneous Calculations

Required Recharge Volume

Design Engineer: Atlantic Design Engineers, INC
 Project Name: Wash Ashore Car Wash
 Location: Fairhaven, MA

Job No.: 3269.00
 Calc'd By: PMJ
 Date: 1/11/2022

The groundwater recharge volume is required for the proposed **impervious** surfaces.

$R_v = (F) (A_{imp})$
 Rv = Required Recharge Volume
 Aimp= Impervious Area on site
 F = Target Depth Factor: 0.10 inch for D soils

Total New Impervious Area for the Design Point=	32,409	sf		
Required Recharge Volume (Rv)=	32,409	* 0.10" * (1/12)=	270.08	cf
Volume Provided in stormwater BMP=			160.00	cf Infiltration Trenches (200'Lx2'Wx1'D - 40% void) & Rain Garden
			932.00	cf Rain Garden

Total Required Recharge Volume on Site=	270.08	cf	
Total Recharge Volume Provided in stormwater BMPs on Site=	1,092	cf	Standard is Met

TSS REMOVAL CALCULATION SHEET

Design Engineer: Atlantic Design Engineers, Inc Job No.: 3269.00
Project Name: Wash Ashore Care Wash Calc'd By: PMJ
Location: Fairhaven, MA Date: 1/11/2022

Treatment Train for Eastern and Northern Areas

BMP	Removal Rate	Starting TSS Load	TSS Removed	Remaining Load
Vegetative Filter Strip	10%	100.0%	10%	90.0%
Infiltration trench	80%	90.0%	72%	18.0%
Total Removed			82%	

Forebay Sizing Calculation Sheet

Design Engineer: Atlantic Design Engineers, Inc. Job No.: 3269.00
Project Name: Wash Ashore Car Wash Calc'd By: PMJ
Location: Fairhaven, MA Date: 1/11/2022

Forebay is sized for the required water quality treatment volume, calculated as follows:

$$V_{wq} = (D_{wq}) * (A_{imp})$$

V_{wq} = Required Water Quality Volume
 D_{wq} = Water Quality Depth * 1.25" (per Fairhaven SW regulations - "First Flush")
 A_{imp} = Area of Impervious (less roof area)

Western Area

Total Impervious Area for the Subcatchment= 4,772 sf
Water Quality Volume Required (V_{wq})= 4,772 * 1.25" * (1/12)= 497.1 cf
Volume Provided= 932 cf in Rain Garden
Volume Required= 497.1 < 550 **Water Quality Volume is met**

Stage-Area-Storage for Pond 1P: Proposed Rain Garden

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
29.00	307	0	30.06	749	540
29.02	313	6	30.08	762	555
29.04	320	13	30.10	774	570
29.06	327	19	30.12	787	586
29.08	333	26	30.14	799	602
29.10	340	32	30.16	812	618
29.12	347	39	30.18	825	634
29.14	354	46	30.20	838	651
29.16	361	53	30.22	851	668
29.18	368	61	30.24	864	685
29.20	375	68	30.26	877	702
29.22	382	76	30.28	890	720
29.24	389	83	30.30	904	738
29.26	396	91	30.32	917	756
29.28	404	99	30.34	931	775
29.30	411	107	30.36	945	793
29.32	419	116	30.38	959	812
29.34	426	124	30.40	972	832
29.36	434	133	30.42	986	851
29.38	441	141	30.44	1,001	871
29.40	449	150	30.46	1,015	891
29.42	457	159	30.48	1,029	912
29.44	465	169	30.50	1,044	932
29.46	473	178	30.52	1,058	954
29.48	481	188	30.54	1,073	975
29.50	489	197	30.56	1,087	996
29.52	497	207	30.58	1,102	1,018
29.54	505	217	30.60	1,117	1,041
29.56	514	227	30.62	1,132	1,063
29.58	522	238	30.64	1,147	1,086
29.60	530	248	30.66	1,163	1,109
29.62	539	259	30.68	1,178	1,132
29.64	547	270	30.70	1,193	1,156
29.66	556	281	30.72	1,209	1,180
29.68	565	292	30.74	1,225	1,204
29.70	574	303	30.76	1,240	1,229
29.72	582	315	30.78	1,256	1,254
29.74	591	327	30.80	1,272	1,279
29.76	600	339	30.82	1,288	1,305
29.78	609	351	30.84	1,304	1,331
29.80	618	363	30.86	1,321	1,357
29.82	627	375	30.88	1,337	1,384
29.84	637	388	30.90	1,353	1,411
29.86	646	401	30.92	1,370	1,438
29.88	655	414	30.94	1,386	1,465
29.90	665	427	30.96	1,403	1,493
29.92	674	440	30.98	1,420	1,521
29.94	684	454	31.00	1,437	1,550
29.96	694	468			
29.98	703	482			
30.00	713	496			
30.02	725	510			
30.04	737	525			

APPENDIX C

Long term Stormwater Operation and Maintenance Plan

Wash Ashore Car Wash
At
128 Huttleston Ave Fairhaven, MA 02634
Post-Construction
Long Term Stormwater Operation & Maintenance Plan
January 11, 2022

A. GENERAL NOTES

1. The contractor shall be responsible for the proper inspection and maintenance of all stormwater and erosion control facilities until the project construction has completed. The contractor shall clean all components of the stormwater management system and sweep all paved areas at the completion of construction, immediately prior to turning over operation and maintenance responsibility to the owner.
2. Upon completion of construction, the operation and maintenance of all components of the stormwater management system will be the responsibility of the owner:

Team Ventures Two LLC.
DBA Wash Ashore Car Wash
P.O. BOX 1805
Sagamore Beach, MA 02562

3. Disposal of accumulated sediment and hydrocarbons to be in accordance with applicable local, state, and federal guidelines and regulations.
4. There shall be no illicit discharge of any waste or wastewater into the stormwater management system. The maintenance of the facility shall be undertaken in such a manner as to prevent any discharge of waste or wastewater into stormwater management system. Any waste products generated during maintenance shall be properly disposed of off-site.

B. STORMWATER SYSTEM/BMPs

Vegetated Filter Strip/pea Gravel Diaphragm

Inspect semi-annually during the first year (and annually thereafter). inspect the pea gravel diaphragm for sediment buildup and the vegetation for signs of erosion, bare spots, and overall health. regular, frequent mowing of the grass is required and should be performed at least four times per year (quarterly). Remove sediment from the toe of slope

or pea gravel diaphragm and reseed bare spots, as necessary. Periodically, remove sediment that accumulates near the top of the strip to maintain the appropriate slope and prevent formation of a "berm" that could impede the distribution of runoff as sheet flow.

Grassed Swales w/ Check Dams

Inspect at a minimum of twice a year, or after major storm events (2" or greater). repair eroded spots immediately after inspection. Additional inspections should be scheduled during the first few months to ensure that the vegetation in the channels has established adequately. Accumulated sediment shall be removed at least once a year or before it exceeds 0.5' in depth, whichever occurs first. Sediment shall be disposed of in a suitable area and protected from erosion by either structural or vegetative means.

Rain Garden

Inspect after every major storm event (2" or greater) during construction and for the first few months after construction to ensure proper stabilization and function. Thereafter, inspect at least twice per year during wet weather to ensure the rain garden is draining properly and vegetation is thriving. check for erosion, invasive tree growth, clogging and trash and remove organic matter, weeds, trash, and debris, as necessary. Re-seed eroded or barren spots immediately after inspection. remove sediment as necessary during construction, while dry, and at least every five years after construction.

APPENDIX D

NRCS Soil Survey Maps and Soil Group Descriptions



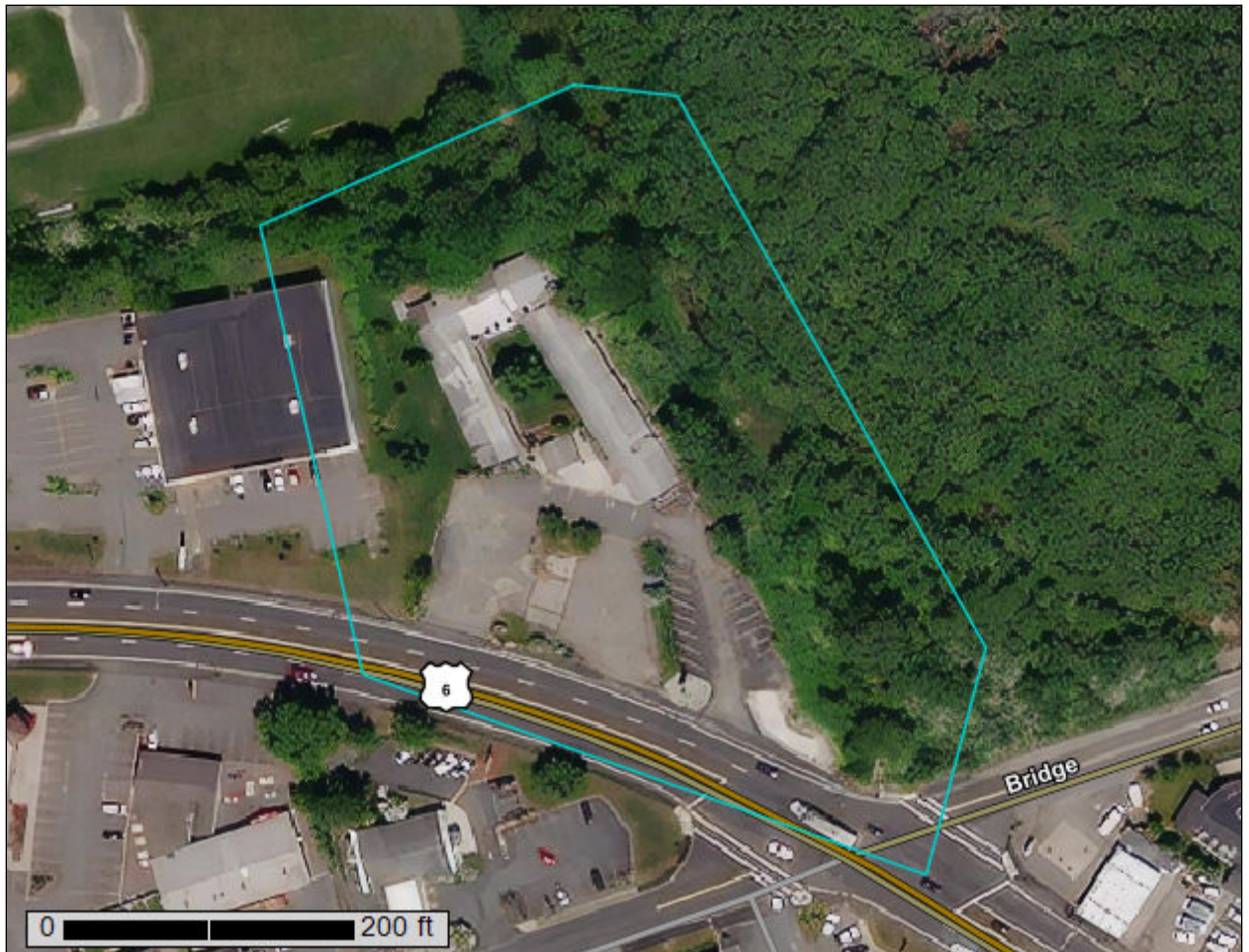
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Bristol County, Massachusetts, Southern Part



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Bristol County, Massachusetts, Southern Part.....	13
602—Urban land.....	13
651—Udorthents, smoothed.....	13
References	15

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

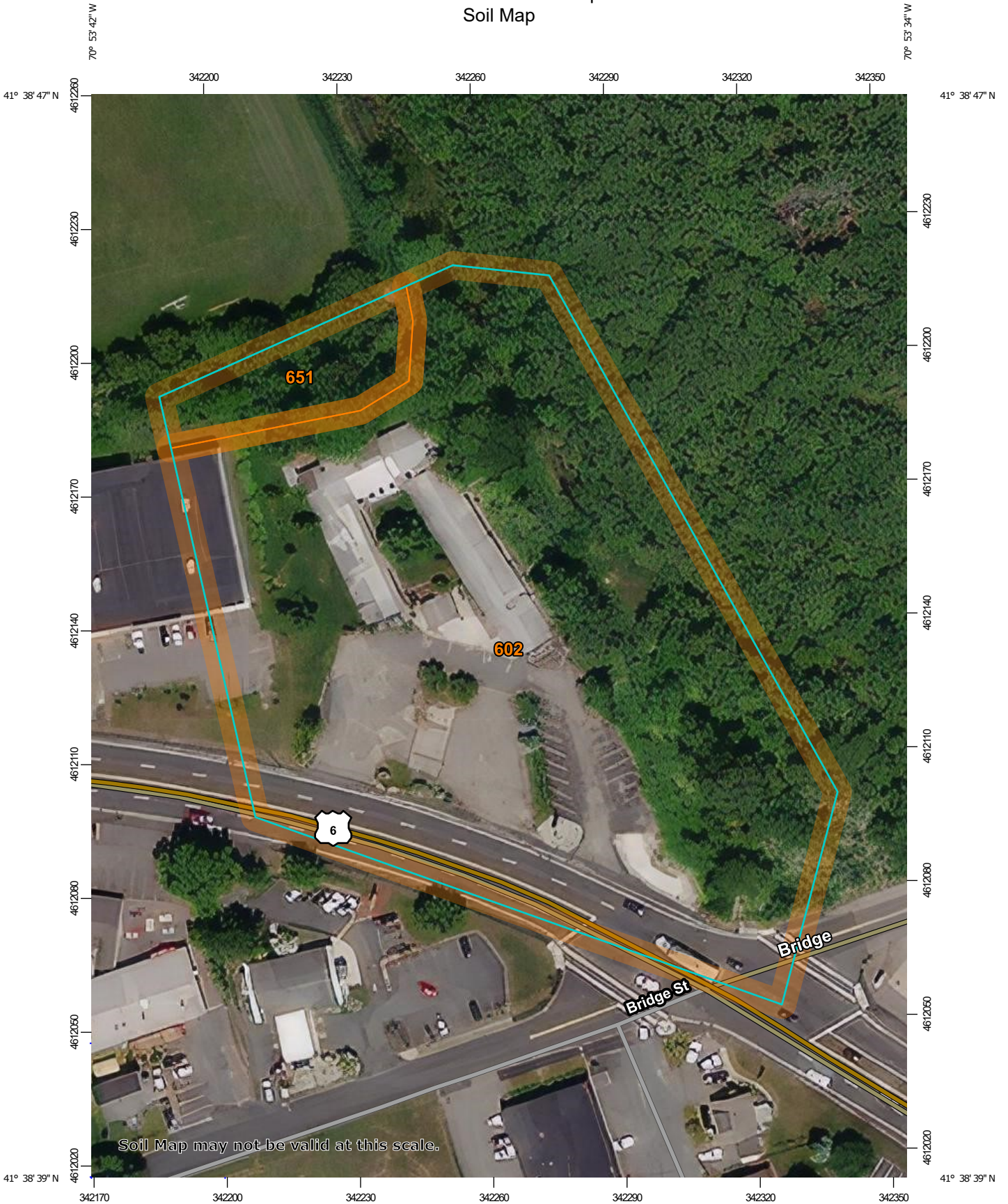
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

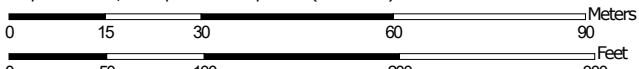
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:1,180 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bristol County, Massachusetts, Southern Part
 Survey Area Data: Version 15, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jul 3, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land	3.6	93.4%
651	Udorthents, smoothed	0.3	6.6%
Totals for Area of Interest		3.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bristol County, Massachusetts, Southern Part

602—Urban land

Map Unit Setting

National map unit symbol: v5ry

Frost-free period: 120 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Udorthents

Percent of map unit: 15 percent

Hydric soil rating: Unranked

651—Udorthents, smoothed

Map Unit Setting

National map unit symbol: v5rw

Elevation: 0 to 3,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed, and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Smoothed

Setting

Parent material: Made land over loose sandy and gravelly glaciofluvial deposits and/or firm coarse-loamy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 6 inches: variable

H2 - 6 to 60 inches: variable

Properties and qualities

Slope: 0 to 15 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Hydric soil rating: Unranked

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX E

Soil Borings – Phase II limited Subsurface Investigation

Phase II Limited Subsurface Investigation

Former Gas Station and Motel
128 Huttleston Avenue
Fairhaven, Massachusetts

GSE Project Number TVTL-2021-0001:2

October 5, 2021

1997

Prepared For:

Michael Sullivan
Team Ventures Two, LLC
506 Plain Street
Marshfield, MA 02050

Green Seal Environmental LLC

114 State Road, Building B, Sagamore Beach, MA 02562 | Tel: (508) 888-6034 | Fax: (508) 888-1506 | www.gseenv.com

TABLE OF CONTENTS

1.0	INTRODUCTION & BACKGROUND	1
2.0	SUBSURFACE ASSESSMENT SUMMARY	2
2.1	<i>Geophysical Investigation</i>	2
2.2	<i>Soil Boring Advancement and Soil Sampling</i>	2
2.3	<i>Installation of Temporary Groundwater Monitoring Wells and Groundwater Sampling</i>	3
2.4	<i>Soil Gas Probe Installation and Sampling</i>	3
2.5	<i>Soil Analytical Results Summary</i>	4
2.6	<i>Groundwater Analytical Results Summary</i>	4
2.7	<i>Soil Gas Analytical Results Summary</i>	4
3.0	CONCLUSIONS AND RECOMMENDATIONS	5

Figures

Figure 1	Site Location Map
Figure 2	Site Plan

Tables

Table 1	Soil Analytical Data Summary
Table 2	Groundwater Analytical Data Summary
Table 3	Soil Gas Analytical Data Summary

Appendices

Appendix A	Soil Boring Logs
Appendix B	Laboratory Analytical Reports

Summary Report – Phase II Limited Subsurface Investigation
Former Gas Station and Motel
128 Huttleston Avenue, Fairhaven, MA

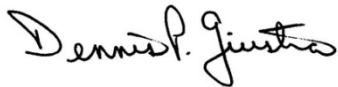
CERTIFICATION

The following personnel have prepared and/or reviewed this report for accuracy and content:



Date: October 5, 2021

Liz Phelps
Environmental Professional



Date: October 5, 2021

Dennis Giustra, LSP
Environmental Professional

1.0 INTRODUCTION & BACKGROUND

Green Seal Environmental, LLC (GSE) has prepared this report to summarize the results of a Phase II Limited Subsurface Investigation (LSI) conducted at 128 Huttleston Avenue in Fairhaven, Massachusetts (the “site”). The LSI was conducted to further assess a recognized environmental condition (REC) and data gap identified during a transactional environmental assessment conducted by GSE in September of 2021, and as documented in a *Phase I Environmental Site Assessment Report* dated September 24, 2021 (Phase I Report). The site history and description are provided in the Phase I Report and are not included herein. The site location is depicted on **Figure 1 – Site Locus Map**.

As described in the Phase I Report, the northern portion of the site was previously occupied by the Huttleston Motel, which has been demolished with only the concrete pad remaining. The southern portion of the site was historically used as a gas station with a convenience store building that has been demolished and former gasoline underground storage tanks (USTs) and dispensers that have been removed. A release of gasoline was identified during the removal of the three former USTs in 1994, which was assigned Massachusetts Department of Environmental Protection (MassDEP) release tracking number (RTN) 4-0010877. The release was remediated and closed with a Class A-2 Response Action Outcome (RAO) in 1997; however, subsequent questions were raised about soil vapor conditions at the site by other consultants and the MassDEP.

GSE conducted a LSI at the site in September of 2021 to address the following REC and data gap identified during our Phase I ESA:

1. RTN 4-0010877: A subsequent review of the 1997 RAO and risk assessment for RTN 4-0010877 conducted by EnviroSense, Inc. (ESI) concluded that soil vapor conditions should be evaluated in accordance with Massachusetts Contingency Plan (MCP) Risk Characterization procedures. MassDEP reviewed the ESI report and issued a letter in 1998 stating that at the time of the RAO filing, the regulations did not require cleanup to a standard applicable to a potential future use of the subject property, and that future use of the property may require the implementation of an Activity and Use Limitation (AUL), or at least further evaluation by a Licensed Site Professional (LSP) to address the potential of risk posed by any future development. GSE considered the potential environmental risk identified by ESI and MassDEP to be a REC.
1. Fairhaven Municipal Landfill: The Fairhaven Municipal Landfill, located approximately 500 feet to the north/northeast of the subject property, was closed in 1999 with environmental monitoring required. Although no releases are on file for the site in MassDEP’s online database, previous environmental reports reviewed for the subject property regarding RTN 4-0010877 indicate there were elevated concentrations of volatile organic compounds (VOCs) and lead found in monitoring wells west and south of the landfill circa 1990. GSE requested landfill monitoring reports from the Fairhaven Board of Health in an effort to review more current groundwater data for the landfill; however, no information had been provided as of the date of GSE’s Phase I report. GSE considered the lack of current groundwater data for VOCs and lead to be a significant data gap.

GSE’s LSI included the advancement of soil borings, collection of soil samples for logging and field screening, installation of temporary groundwater monitoring wells, laboratory analysis of select soil and groundwater samples, installation of soil gas probes for field screening, and confirmatory laboratory

analysis of one soil gas sample adjacent to the former UST excavation.

2.0 SUBSURFACE ASSESSMENT SUMMARY

2.1 *Geophysical Investigation*

On September 3, 2021, CorBuilt LLC of Waterford, Connecticut (Corbuilt) conducted a geophysical survey at the site under the direction of GSE to clear proposed drilling locations and identify underground utilities in the vicinity of these locations. The survey was conducted using a variety of techniques including ground penetrating radar, Fisher TW6 electromagnetic metal detection, a Geonics EM61-MK2 Time – Domain Electromagnetic Detector unit, radio frequency line locating (RF), and magnetics. The locations of underground utilities were marked, and the soil boring locations were pre-cleared.

An anomaly was detected adjacent to the former gasoline dispenser pad during the survey. A line was detected from the anomaly to what appeared to be a former well located in the vicinity of the former UST excavation, indicating it may have been associated with the former soil vapor extraction system used to remediate the release associated with RTN 4-0010877; however, Corbuilt could not conclusively determine what the anomaly was. A soil boring (SB6) was cleared downgradient from and adjacent to the anomaly for assessment purposes, as described below.

2.2 *Soil Boring Advancement and Soil Sampling*

On September 23, 2021, 10 soil borings (SB1 through SB9 and SG2), were advanced via direct-push methodology at the locations depicted on **Figure 2 – Site Plan**. The soil borings were advanced throughout the site as described below:

- SB1 and SB2: In the northern portion of the site in the vicinity of the former motel and downgradient from the Fairhaven Municipal Landfill.
- SB3 and SB4: In the area of the former UST excavation in the southwestern portion of the site.
- SB5: Within the former dispenser pad.
- SB6: Adjacent to the anomaly detected during the GPR survey.
- SB7, SB8 and SB9: In the southeastern portion of the site.
- SG2: Adjacent to soil gas point SG2, for purposes of soil sample collection.

The soil borings were advanced to depths of 5 to 15 feet below ground surface (bgs). Refusal was not encountered at any location. During soil boring advancement, soil samples were collected in 5-foot intervals, classified using a modified Burmeister Classification System, and screened for total organic vapors (TOVs) using a 10.6 electron-volt photoionization detector (PID) via the jar headspace screening method. The soil was classified primarily as fine to medium sand with silt, gravel and cobbles. Some peat was identified at depths greater than 5 feet bgs. Fill material was observed in some of the borings from

0-5 feet bgs. Groundwater was encountered at all boring locations with the exception of SG-2, at depths ranging from approximately 5 to 7 feet bgs. TOV readings in the soil samples ranged from below the PID detection limit of 0.0 part per million by volume (ppmv) to 3.2 ppmv. No visual or olfactory evidence of petroleum impacts was identified in any of the borings. The soil classification details and TOV readings are presented on the soil boring logs, included in **Appendix A**.

Although no impacts were evident based on field screening and visual/olfactory evidence, 3 soil samples were collected for confirmatory purposes and submitted to a Massachusetts-certified laboratory for the following analyses:

- Volatile petroleum hydrocarbons (VPH) and target VOCs (SG2/3-5' and SB5/3-5'); and
- Polychlorinated biphenyls (PCBs) (SB6/3-5').

VPH and target VOC fractions analysis was selected for samples SG2/3-5' and SB5/3-5' to confirm the field screening results in connection with potential soil vapor concerns. As a conservative measure, PCB analysis was selected for sample SB6/3-5' to assess potential impacts associated with the anomaly that had been detected during the geophysical survey.

2.3 Installation of Temporary Groundwater Monitoring Wells and Groundwater Sampling

Soil borings SB2, SB4, and SB6 were completed as temporary groundwater monitoring wells TMW-1, TMW-2, and TMW-3, respectively. The wells were installed to assess groundwater conditions for potential contaminants of concern downgradient of the landfill (TMW-1), adjacent to the former UST excavation (TMW-2), and adjacent to the anomaly detected during the GPR survey (TMW-3). Groundwater samples were collected from each monitoring well and submitted to a Massachusetts-certified laboratory for the following analyses:

- VOCs and dissolved lead (TMW-1);
- VPH and target VOCs, extractable petroleum hydrocarbons (EPH) and target polynuclear aromatic hydrocarbons (PAHs), and dissolved lead (TMW-2); and
- VOCs, EPH and target PAHs, and Resource Conservation and Recovery (RCRA) 8 metals (TMW-3).

The above analyses were selected based on potential contaminants of concern related to historical use of the site as a gas station and its downgradient location from the Fairhaven Municipal Landfill, where historical VOC and lead impacts had been identified.

2.4 Soil Gas Probe Installation and Sampling

Two soil gas probes (SG1 and SG2) were installed to a depth of 3 feet bgs adjacent to the former UST excavation and in the approximate center of the site, as depicted on **Figure 2**. Teflon tubing was inserted from the sampling interval to the top of the probe for field screening with the PID. TOV readings of 0.1 ppmv and 0.2 ppmv were obtained at SG-1 and SG-2, respectively. For confirmatory purposes, a soil gas sample was collected from the location adjacent to the former UST location (SB-2) into a laboratory provided summa canister equipped with a regulator set for 45 minutes and submitted for laboratory analysis of air phase petroleum hydrocarbons (APH).

2.5 Soil Analytical Results Summary

A summary of laboratory analytical results for the submitted soil samples is presented on **Table 1**, and the complete laboratory analytical report is included in **Appendix B**.

As shown on **Table 1**, none of the analyzed compounds were detected above their laboratory reporting limits or applicable MCP reportable concentrations for soil classified as S-1 (RCS-1) in any of the analyzed soil samples.

2.6 Groundwater Analytical Results Summary

A summary of laboratory analytical results for the submitted groundwater samples is presented on **Table 2**, and the complete laboratory analytical report is included in **Appendix B**.

As shown on **Table 2**, metals were not detected in any of the analyzed samples above their laboratory reporting limits with the exception of barium in TMW-3. The detected concentration of barium (0.018 milligrams per liter (mg/L)) was below the applicable MCP reportable concentration for groundwater classified as GW-2 (RCGW-2) of 50 mg/L.

No EPH or target PAH compounds were detected in sample TMW-2 at concentrations above their laboratory reporting limits. Naphthalene and C11-C22 aromatic hydrocarbons were detected in sample TMW-3 at concentrations well below their applicable RCGW-2 criteria.

Trans-1,2 dichloroethene was detected in samples TMW-1 and TMW-3 at concentrations well below the applicable RCGW-2 criteria. No other VOCs were detected in either of the analyzed samples at concentrations below their laboratory reporting limits.

No VPH or target VOC compounds were detected in sample TMW-2 at concentrations above their laboratory reporting limits.

2.7 Soil Gas Analytical Results Summary

A summary of laboratory analytical results for the submitted soil gas sample is presented on **Table 3**, and the complete laboratory analytical report is included in **Appendix B**.

Low levels of benzene, toluene, xylenes, C5-C8 aliphatic hydrocarbons, C9-C11 aliphatic hydrocarbons, and C9-C10 aromatic hydrocarbons were detected in the soil gas sample; however, the concentrations were below MassDEP residential and commercial sub-slab soil gas screening values.

3.0 CONCLUSIONS AND RECOMMENDATIONS

GSE evaluated soil, groundwater, and soil gas conditions at the site in order to address the REC and data gap identified in the Phase I Report. Ten soil borings were advanced throughout the site, and soil samples were collected for logging and field screening. No evidence of impacts was identified in any of the soil samples based on PID field screening results and visual/olfactory observations. For confirmatory purposes, soil samples were collected just above the groundwater table at three of the boring locations and submitted for laboratory analysis of potential contaminants of concern. Groundwater samples were collected from temporary monitoring wells installed downgradient of the Fairhaven Municipal Landfill, adjacent to the former UST excavation, and adjacent to the anomaly detected during the GPR survey. For confirmatory purposes a soil gas sample was also collected from the soil gas probe located adjacent to the former UST excavation for APH laboratory analysis.

No impacts to soil were identified as a result of this investigation based on field screening, visual/olfactory observations, and confirmatory laboratory analytical data. Concentrations of barium, naphthalene, and C11-C22 aromatic hydrocarbons were detected in the groundwater sample collected from temporary monitoring well TMW-3 and concentrations of trans 1,2-dichloroethene were detected in the groundwater samples collected from temporary monitoring wells TMW-1 and TMW-3 above their laboratory reporting limits but below applicable MCP RCGW-2 reportable concentrations.

The analytical data for the submitted soil gas sample indicates residual concentrations of some petroleum compounds are present in soil gas; however, the concentrations are below the MassDEP residential and commercial sub-slab soil gas screening values. As such, a potential vapor intrusion concern was not identified.

Based on the results of this Phase II LSI, no further action is recommended for the site at this time.

Summary Report – Phase II Limited Subsurface Investigation
Former Gas Station and Motel
128 Huttleston Avenue, Fairhaven, MA

FIGURES

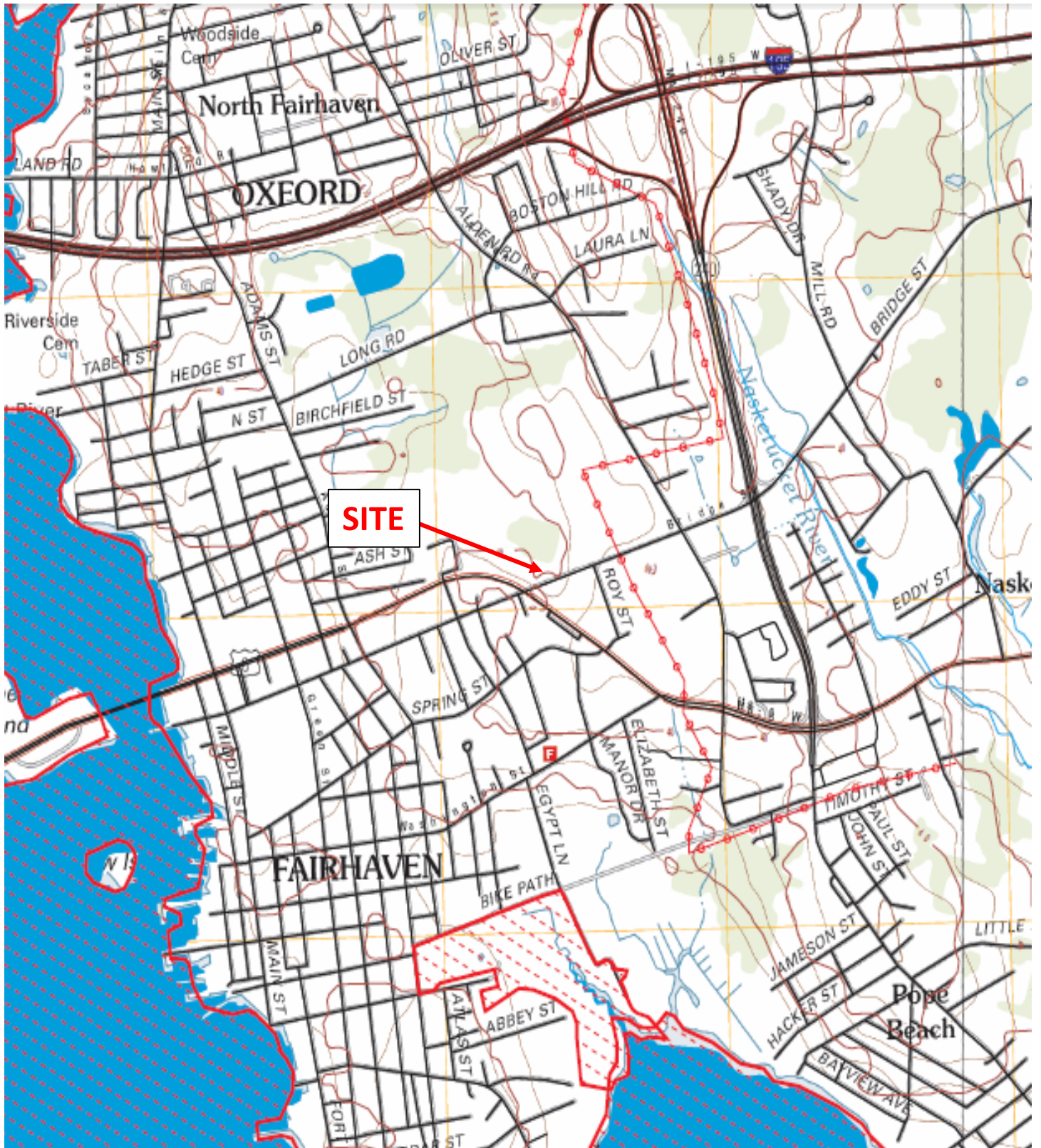


IMAGE SOURCE: USGS MARION, MA (2012)



 <p>Green Seal Environmental, LLC 114 State Road, Building B Sagamore Beach, MA 02562 Tel: (508) 888 – 6034 Fax: (508) 888 – 1506 www.gseenv.com</p>	<p>PROJECT NAME: Phase II Limited Subsurface Investigation</p>	<p>DRAWING TITLE: Figure 1: Site Locus</p>	<p>DATE: September 30, 2021</p>
	<p>LOCATION: 128 Huttleston Avenue Fairhaven, MA</p>	<p>SITE COORDINATES: Latitude: 41° 38' 43.22" Longitude: 70° 53' 38.92"</p>	<p>PROJECT ID: TVTL-2021-0001</p>



IMAGE SOURCE: MASSGIS 2019 AERIAL IMAGERY

 <p>Green Seal Environmental, LLC 114 State Road, Building B Sagamore Beach, MA 02562 Tel: (508) 888 – 6034 Fax: (508) 888 – 1506 www.gseenv.com</p>	<p>PROJECT NAME: Phase II Limited Subsurface Investigation</p>	<p>DRAWING TITLE: Figure 2: Site Plan</p>	<p>DATE: September 30, 2021</p>
	<p>LOCATION: 128 Huttleston Avenue Fairhaven, MA</p>	<p>SITE COORDINATES: Latitude: 41° 38' 43.22" Longitude: 70° 53' 38.92"</p>	<p>PROJECT ID: TVTL-2021-0001</p>

Summary Report – Phase II Limited Subsurface Investigation
Former Gas Station and Motel
128 Huttleston Avenue, Fairhaven, MA

TABLES

TABLE 1
 Summary of Soil Analytical Results
 Former Gas Station and Motel
 128 Huttleston Avenue, Fairhaven, MA

Sample Identification/Depth FBGS	MassDEP Criteria	SG2/3-5'	SB5/3-5'	SB6/3-5'
Laboratory Sample Identification	MCP Reportable	1124034-01	1124034-02	1124034-03
Sample Date	Concentration (RCS-1)	9/23/2021	9/23/2021	9/23/2021
Polychlorinated Biphenyls (PCBs)				
Aroclor-1016	1000	-	-	ND (74)
Aroclor-1221	1000	-	-	ND (74)
Aroclor-1232	1000	-	-	ND (74)
Aroclor-1242	1000	-	-	ND (74)
Aroclor-1248	1000	-	-	ND (74)
Aroclor-1254	1000	-	-	ND (74)
Aroclor-1260	1000	-	-	ND (74)
Aroclor-1262	NS	-	-	ND (74)
Aroclor-1268	NS	-	-	ND (74)
PCBs (Total)	1000	-	-	ND (74)
Volatile Petroleum Hydrocarbons (MADEP-VPH)				
Benzene	2	ND (0.3)	ND (0.3)	-
Ethylbenzene	40	ND (0.3)	ND (0.3)	-
Methyl t-butyl ether (MTBE)	0.1	ND (0.07)	ND (0.06)	-
Naphthalene	4	ND (0.7)	ND (0.6)	-
Toluene	30	ND (0.3)	ND (0.3)	-
Total xylenes	100	ND (0.7)	ND (0.6)	-
C5-C8 Aliphatic Hydrocarbons	100	ND (6.5)	ND (5.7)	-
C9-C12 Aliphatic Hydrocarbons	1000	ND (6.5)	ND (5.7)	-
C9-C10 Aromatic Hydrocarbons	100	ND (6.5)	ND (5.7)	-

Notes:

Values are in mg/kg.

FBGS = Feet Below Ground Surface.

MassDEP = Massachusetts Department of Environmental Protection.

MCP = Massachusetts Contingency Plan.

RCS-1: MCP 2019 RCS-1 Reportable Concentrations Criteria effective December 27, 2019.

NS = No standard established.

- = Not analyzed or reported.

BOLD = Concentration detected above laboratory reporting limit.

ND = Not detected at or above the listed laboratory reporting limit (shown).

TABLE 2
 Summary of Groundwater Analytical Results
 Former Gas Station and Motel
 128 Huttleston Avenue, Fairhaven, MA

Sample Identification	MassDEP Criteria	TMW-1	TMW-2	TMW-3
Laboratory Identification	MCP Reportable	1124036-01	1124036-02	1124036-03
Sample Date	Concentration (RCGW-2)	9/23/2021	9/23/2021	9/23/2021
Dissolved Metals (mg/L)				
Arsenic	0.9	-	-	ND (0.01)
Barium	50	-	-	0.018
Cadmium	0.004	-	-	ND (0.005)
Chromium	0.3	-	-	ND (0.005)
Lead	0.01	ND (0.005)	ND (0.005)	ND (0.005)
Selenium	0.1	-	-	ND (0.01)
Silver	0.007	-	-	ND (0.005)
Mercury	0.02	-	-	ND (0.0002)
Extractable Petroleum Hydrocarbons (ug/L)				
Naphthalene	700	-	ND (1)	11.1
2-Methylnaphthalene	2000	-	ND (1)	ND (1)
Phenanthrene	10000	-	ND (1)	ND (1)
Acenaphthene	6000	-	ND (5)	ND (5)
Acenaphthylene	40	-	ND (1)	ND (1)
Fluorene	40	-	ND (5)	ND (5)
Anthracene	30	-	ND (5)	ND (5)
Fluoranthene	200	-	ND (5)	ND (5)
Pyrene	20	-	ND (5)	ND (5)
Benzo(a)anthracene	1000	-	ND (1)	ND (1)
Chrysene	70	-	ND (2)	ND (2)
Benzo(b)fluoranthene	400	-	ND (1)	ND (1)
Benzo(k)fluoranthene	100	-	ND (1)	ND (1)
Benzo(a)pyrene	500	-	ND (0.2)	ND (0.2)
Indeno(1,2,3-cd)pyrene	100	-	ND (0.5)	ND (0.5)
Dibenz(a,h)anthracene	40	-	ND (0.5)	ND (0.5)
Benzo(g,h,i)perylene	20	-	ND (5)	ND (5)
C9-C18 Aliphatic Hydrocarbons	5000	-	ND (200)	ND (200)
C19-C36 Aliphatic Hydrocarbons	50000	-	ND (200)	ND (200)
C11-C22 Aromatic Hydrocarbons	5000	-	ND (100)	132
Volatile Organic Compounds (ug/L)				
Acetone	50000	ND (5)	-	ND (6)
Benzene	1000	ND (1)	-	ND (1)
Methyl t-butyl ether (MTBE)	5000	ND (1)	-	ND (1)
1,1-Dichloroethane	2000	ND (1)	-	ND (1)
1,2-Dichloroethane	5	ND (1)	-	ND (1)
trans-1,2-Dichloroethene	80	1	-	2
cis-1,2-Dichloroethene	20	ND (1)	-	ND (1)
1,1-Dichloroethene	80	ND (1)	-	ND (1)
1,4-Dioxane	6000	ND (500)	-	ND (500)
Ethylbenzene	5000	ND (1)	-	ND (1)
Naphthalene	700	ND (1)	-	ND (1)
n-Propylbenzene	10000	ND (1)	-	ND (1)
Styrene	100	ND (1)	-	ND (1)
1,1,1,2-Tetrachloroethane	10	ND (1)	-	ND (1)
Tetrachloroethene	50	ND (1)	-	ND (1)
Tetrahydrofuran	50000	ND (5)	-	ND (5)
Toluene	40000	ND (1)	-	ND (1)
1,1,2-Trichloroethane	900	ND (1)	-	ND (1)
1,1,1-Trichloroethane	4000	ND (1)	-	ND (1)
Trichloroethene	5	ND (1)	-	ND (1)
Vinyl Chloride	2	ND (1)	-	ND (1)
Total xylenes	3000	ND (1)	-	ND (1)
1,1,2,2-Tetrachloroethane	9	ND (1)	-	ND (1)
Volatile Petroleum Hydrocarbons (ug/L)				
Benzene	1000	-	ND (5)	-
Ethylbenzene	5000	-	ND (5)	-
Methyl t-butyl ether (MTBE)	5000	-	ND (10)	-
Naphthalene	700	-	ND (10)	-
Toluene	40000	-	ND (5)	-
Total xylenes	3000	-	ND (10)	-
C5-C8 Aliphatic Hydrocarbons	3000	-	ND (100)	-
C9-C12 Aliphatic Hydrocarbons	5000	-	ND (100)	-
C9-C10 Aromatic Hydrocarbons	4000	-	ND (100)	-

Notes:

Metals values are in milligrams per liter (mg/L), all others are in micrograms per liter (ug/L).

Only detected and selected analytes presented; all others were not detected.

MassDEP = Massachusetts Department of Environmental Protection.

MCP = Massachusetts Contingency Plan.

RCGW-2: MCP 2019 RCGW-2 Reportable Concentrations Criteria effective December 27, 2019.

- = Not analyzed or reported.

BOLD = Concentration detected above laboratory reporting limit.

ND = Not detected at or above the listed laboratory reporting limit (shown).

TABLE 3

Summary of Soil Gas Analytical Results
 Former Gas Station and Motel
 128 Huttleston Avenue, Fairhaven, MA

Sample Identification	MassDEP Sub-Slab Soil Gas Screening Values		SG-2
			1124035-01
Laboratory Identification	Residential	Commercial	9/23/2021
Sample Date			
Air-Phase Petroleum Hydrocarbons (MADEP-APH)			
1,3-Butadiene	NS	NS	ND (2)
Methyl t-butyl ether (MTBE)	2,700	190,000	ND (2)
Benzene	160	800	6.1
Toluene	3,800	310,000	5.5
Ethylbenzene	520	62,000	ND (2)
Total xylenes	1,400	6,200	4
Naphthalene	42	190	ND (0.63)
C5-C8 Aliphatic Hydrocarbons	4,100	23,000	380
C9-C12 Aliphatic Hydrocarbons	4,800	16,000	410
C9-C10 Aromatic Hydrocarbons	700	3,100	16

Notes:

Values are in ug/m³.

MassDEP = Massachusetts Department of Environmental Protection.

Sub-Slab Soil Gas Screening Values Obtained from Tables II-A and II-B of MassDEP Vapor Intrusion Guidance, October 2016.

BOLD = Concentration detected above laboratory reporting limit.

NS = No standard established.

ND = Not detected at or above the listed laboratory reporting limit (shown).

Summary Report – Phase II Limited Subsurface Investigation
Former Gas Station and Motel
128 Huttleston Avenue, Fairhaven, MA

APPENDIX A

SOIL BORING LOGS

BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB1
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	23"	3.2	M - M/D	0-2" Crushed stone 2-8" Medium grain sand + 1/4-1/2" angular gravel 8-20" Crushed stone, concrete 20-23" Damp, fine, herbacious, peaty soil
	4					
	5					
	6					
	7					
	8	5-10'	31"	0.1	M - M/D	0-15" Medium grain, silty sand + 1/4" Subrounded gravel 15-31" Wet, medium/fine, silty sand + 1/4" Subrounded gravel
	9					
	10					
	11					
	12					
	13	10-15'	45"	0.1	D	0-23" Saturated, fine, silty sand + 1/4-1/2" Angular gravel 23-45" Medium grain, homogenous sand
	14					
	15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SBZ/TMW-1
 Screen length (feet): 10'
 Water Depth (feet): 5.13' EL(SURF)=30.7
 Date Started: 9/23/2021 EL GW=25.7

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description	Fill Mat.	Well Mat.	Fill Mat.	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
				Ground Surface					
Native Fill				1					
0.0 - 1.5				2					
Filter Sand				3	0-5'	44"	0.1	M	0-8" Loam, grass 8-32" Fill material with ceramic, brick, and stone; medium grain, dark brown sand 32-44" Damp, brown sand with stone and brick
1.5-5.0				4					
PVC Riser				5					
0.0-5.0				6					
0.10-slot PVC screen				7					
5.0 - 15.0				8					
Filter Sand				9					
5.0 - 15.0				10	5-10'	56"	0.0	D	0-23" Saturated, fine, silty sand/clay 23-56" Brown/orange, homogenous, fine silty sand
				11					
				12					
				13	10-15'	60"	0.0	D	0-50" Wet, medium grain, silty sand + 1/4" Subrounded gravel 50-60" Fine, silty, wet sand + 1/8" Subrounded gravel
				14					
				15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered

BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB3
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	41"	0.0	M - D	0-3" Asphalt 3-38" Fine, brown sand + 1/4-1/2" Subrounded, angular gravel 38-41" Mixture of sand + 1/4-1/2" Gravel
	4					
	5					
	6					
	7					
	8	5-10'	16"	0.0	D	0-16" Saturated gravel and sand mixture (primarily gravel)
	9					
	10					
	11					
	12					
	13	10-15'	21"	0.0	D	0-21" Saturated gravel and sand mixture (primarily gravel)
	14					
	15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB4/TMW-2
 Screen length (feet): 10'
 Water Depth (feet): 5.23'
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description	Fill Mat.	Well Mat.	Fill Mat.	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
				Ground Surface					
Native Fill				1					
0.0 - 1.5				2					
Filter Sand				3	0-5'	31"	0.0	M - D	0-2" Asphalt 2-28" Brown/grey sand with stone 28-31" Sand + 1/4-1/2" Angular gravel
1.5-5.0				4					
PVC Riser				5					
0.0-5.0				6					
0.10-slot PVC screen				7					
5.0 - 15.0				8	5-10'	27"	0.0	M/D	0-27" Brown/grey, wet sand + 1/4-1/2" Angular gravel
Filter Sand				9					
5.0 - 15.0				10					
				11					
				12					
				13	10-15'	37"	0.2	M/D	0-33" Brown/grey, wet sand + 1/4-1/2" Angular gravel 33-37" Fine, wet, grey sand
				14					
				15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered

BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB5
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	26"	0.0	M - D	0-4" Asphalt 4-19" Crushed stone 19-26" Fine, silty sand + 1/2" Subrounded gravel
	4					
	5					
	6					
	7					
	8	5-10'	45"	0.0	M - D	0-21" Brown/grey silty sand + 1/4" Subrounded gravel 21-45" Brown, wet sand + 1/4-1/2" Subrounded gravel
	9					
	10					

END OF BORING @ 10 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB6/TMW-3
 Screen length (feet): 10'
 Water Depth (feet): 6.24'
 Date Started: 9/23/2021

Client: Team Ventures Two LLC

Drilling Company: Technical Drilling Services Inc.

Date Finished: 9/23/2021

Project: TVTL-2021-0001

Pre-clearing: GPR Survey

Ground Surface Elevation: NA

Site: 128 Huttleston Avenue

Rig: Truck Mounted Geoprobe

Groundwater Elevation: NA

City: Fairhaven, MA

Method: Direct Push

Top of Inner Casing: NA

Sample: 5' Intervals

Top of Outer Casing: NA

Well Construction Description	Fill Mat.	Well Mat.	Fill Mat.	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
				Ground Surface					
Native Fill				1					
0.0 - 1.5				2					
Filter Sand				3	0-5'	46"	0.0	M - D	0-2" Asphalt 2-33" Medium/fine grain sand with stones 33-46" Dark brown, marshy, silty sand
1.5-5.0				4					
PVC Riser				5					
0.0-5.0				6					
0.10-slot PVC screen				7					
5.0 - 15.0				8	5-10'	46"	0.0	D	0-4" Dark brown, fine, marshy, silty sand 4-27" Dense, damp, fine, silty sand + 1/4-1/2" Angular gravel 27-46" Wet, brown-orange, silty, fine dense sand + 1/4" Subrounded gravel
Filter Sand				9					
5.0 - 15.0				10					
				11					
				12					
				13	10-15'	55"	0.0	D	0-34" Saturated, fine, silty sand 34-55" Damp, medium grain sand
				14					
				15					

END OF BORING @ 15 FEET BGS

Notes:

BGS: Below ground surface
 L: Loose
 M: Medium
 D: Dense
 Mat.: Material
 N/A: Not applicable
 PID: Photoionization detector
 PPM: Parts per million
 Rec: Recovered

BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB7
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	31"	0.0	M/D	0-2" Asphalt 2-17" Fill material containing medium-fine grain sand + Rounded 1/2" gravel + Brick 17-31" Dark-brown, medium-fine, sandy fill material
	4					
	5					
	6					
	7					
	8	5-10'	44"	0.0	D	0-2" Dark brown fill material 2-27" Silty, fine sand + 1/2" Subrounded gravel 27-44" Medium-fine grain sand + 1/2" Subrounded gravel
	9					
	10					
	11					
	12					
	13	10-15'	52"	0.0	D	0-35" Saturated, medium grain sand + 1/2" Subrounded gravel 35-52" Silty sand + Clay
	14					
	15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB8
Screen length (feet): NA
Water Depth (feet): NA
Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	42"	0.0	M/D	0-2" Asphalt 2-35" Fill material containing stone, brick, ceramic, and medium grain, brown sand 35-42" Damp, fine, marshy soil
	4					
	5					
	6					
	7					
	8	5-10'	41"	0.0	D	0-10" Wet, medium-fine grain sand 10-41" Silty sand containing sporadic 1" stone + 1/4" Subrounded gravel
	9					
	10					
	11					
	12					
	13	10-15'	48"	0.0	D	0-18" Saturated, silty clay + Sand 18-32" Saturated, silty, medium grain homogenous sand 32-48" Medium-fine grain sand
	14					
	15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SB9
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	34"	0.0	M/D	0-3" Asphalt 3-23" Medium grain, silty sand + 1/4" Subrounded gravel 23-34" Damp, fine, silty sand
	4					
	5					
	6					
	7					
	8	5-10'	36"	0.0	D	0-2" Fine, silty sand 2-7" Medium grain sand + 1/4" Subrounded gravel 7-36" Wet, fine, silty sand + 1/4-1/2" Subrounded gravel
	9					
	10					
	11					
	12					
	13	10-15'	60"	0.0	M - D	0-26" Saturated, medium-fine grain, silty sand 26-50" Wet, medium-grain sand + Sporadic 1/4" Subrounded gravel 50-60" Fine, silty sand
	14					
	15					

END OF BORING @ 15 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



BORING LOG
Green Seal Environmental, LLC
114 State Road
Sagamore Beach, MA 02562

Boring Number: SG2
 Screen length (feet): NA
 Water Depth (feet): NA
 Date Started: 9/23/2021

Client: Team Ventures Two LLC	Drilling Company: Technical Drilling Services Inc.	Date Finished: 9/23/2021
Project: TVTL-2021-0001	Pre-clearing: GPR Survey	Ground Surface Elevation: NA
Site: 128 Huttleston Avenue	Rig: Truck Mounted Geoprobe	Groundwater Elevation: NA
City: Fairhaven, MA	Method: Direct Push	Top of Inner Casing: NA
	Sample: 5' Intervals	Top of Outer Casing: NA

Well Construction Description (Not Applicable)	Depth (feet BGS)	Sample Depth (feet)	Rec (in)	PID (ppm)	Density	Field Identification
	Ground Surface					
	1					
	2					
	3	0-5'	31"	0.0	M/D	0-4" Asphalt 4-24" Medium-grain, sandy fill 24-31" Gravely, fine sand + High concentration of 1/4-1/2" Subrounded/Angular gravel
	4					
	5					

END OF BORING @ 5 FEET BGS

Notes:	
BGS:	Below ground surface
L:	Loose
M:	Medium
D:	Dense
Mat.:	Material
N/A:	Not applicable
PID:	Photoionization detector
PPM:	Parts per million
Rec:	Recovered



Summary Report – Phase II Limited Subsurface Investigation
Former Gas Station and Motel
128 Huttleston Avenue, Fairhaven, MA

APPENDIX B

LABORATORY ANALYTICAL REPORTS



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1124034
Client Project: 128 Huttleston Ave, Fairhaven, MA

Report Date: 01-October-2021

Prepared for:

Liz Phelps
Green Seal Environmental, Inc.
114 State Road
Sagamore Beach, MA 02562

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 09/24/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1I24034. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1I24034-01	SG2/3-5'	Soil	09/23/2021	09/24/2021
1I24034-02	SB5/3-5'	Soil	09/23/2021	09/24/2021
1I24034-03	SB6/3-5'	Soil	09/23/2021	09/24/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SB5/3-5' (Lab Number: 1I24034-02)

Analysis

MADEP VPH

Method

MADEP VPH

SB6/3-5' (Lab Number: 1I24034-03)

Analysis

PCBs

Method

EPA 8082A

SG2/3-5' (Lab Number: 1I24034-01)

Analysis

MADEP VPH

Method

MADEP VPH

Method References

Method for the Determination of Volatile Petroleum Hydrocarbons, Rev. 2.1, Massachusetts Department of Environmental Protection, 2018

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

Volatile Petroleum Hydrocarbons
Sample: SG2/3-5' (1I24034-01)

SAMPLE INFORMATION

Matrix	Soil		
Containers	Satisfactory		
Sample Preservation	Aqueous	NA	
	Soil or Sediment	Preserved with methanol and/or in an air-tight container	
		Methanol preserved (covering sample)	
		Received in air-tight container	
Temperature	Received on Ice Received at: 4+/-2 C°		
		ml methanol per gram soil: 1:1 +/- 25%	

VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH-18-2.1	Client ID			SG2/3-5'		
Method for Target Analytes: MADEP VPH-18-2.1	Lab ID			1I24034-01		
VPH Surrogate Standards: PID: 2,5-Dibromotoluene FID: 2,5-Dibromotoluene	Date Collected			09/23/21		
	Date Received			09/24/21		
	% Moisture			11.90		
RANGE/TARGET ANALYTE	Elution Range	Dilution	RL	Units	Result	Analyzed
Unadjusted C5-C8 Aliphatic Hydrocarbons [1]	NA	50X	6.5	mg/kg	<6.5	09/27/21 18:19
Unadjusted C9-C12 Aliphatic Hydrocarbons [1]	NA	50X	6.5	mg/kg	<6.5	09/27/21 18:19
Benzene	C5-C8	50X	0.3	mg/kg	<0.3	09/27/21 18:19
Ethylbenzene	C9-C12	50X	0.3	mg/kg	<0.3	09/27/21 18:19
Methyl t-butyl ether (MTBE)	C5-C8	50X	0.07	mg/kg	<0.07	09/27/21 18:19
Naphthalene	NA	50X	0.7	mg/kg	<0.7	09/27/21 18:19
Toluene	C5-C8	50X	0.3	mg/kg	<0.3	09/27/21 18:19
m&p-Xylene	C9-C12	50X	0.7	mg/kg	<0.7	09/27/21 18:19
o-Xylene	C9-C12	50X	0.7	mg/kg	<0.7	09/27/21 18:19
Total xylenes		50X	0.7	mg/kg	<0.7	09/27/21 18:19
C5-C8 Aliphatic Hydrocarbons [1,2]	NA	50X	6.5	mg/kg	<6.5	09/27/21 18:19
C9-C12 Aliphatic Hydrocarbons [1,3]	NA	50X	6.5	mg/kg	<6.5	09/27/21 18:19
C9-C10 Aromatic Hydrocarbons [1]	NA	50X	6.5	mg/kg	<6.5	09/27/21 18:19
2,5-Dibromotoluene-PID				%	88.7	09/27/21 18:19
2,5-Dibromotoluene-FID				%	102	09/27/21 18:19
Surrogate Acceptance Range				%	70-130	

[1] Hydrocarbon Range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range

[2] C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

[3] C9-C12 Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons

Volatile Petroleum Hydrocarbons
Sample: SB5/3-5' (1I24034-02)

SAMPLE INFORMATION

Matrix	Soil		
Containers	Satisfactory		
Sample Preservation	Aqueous	NA	
	Soil or Sediment	Preserved with methanol and/or in an air-tight container	
		Methanol preserved (covering sample)	
		Received in air-tight container	
Temperature	Received on Ice Received at: 4+/-2 C°		
		ml methanol per gram soil: 1:1 +/- 25%	

VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH-18-2.1	Client ID			SB5/3-5'		
Method for Target Analytes: MADEP VPH-18-2.1	Lab ID			1I24034-02		
VPH Surrogate Standards: PID: 2,5-Dibromotoluene FID: 2,5-Dibromotoluene	Date Collected			09/23/21		
	Date Received			09/24/21		
	% Moisture			5.90		
RANGE/TARGET ANALYTE	Elution Range	Dilution	RL	Units	Result	Analyzed
Unadjusted C5-C8 Aliphatic Hydrocarbons [1]	NA	50X	5.7	mg/kg	<5.7	09/27/21 18:52
Unadjusted C9-C12 Aliphatic Hydrocarbons [1]	NA	50X	5.7	mg/kg	<5.7	09/27/21 18:52
Benzene	C5-C8	50X	0.3	mg/kg	<0.3	09/27/21 18:52
Ethylbenzene	C9-C12	50X	0.3	mg/kg	<0.3	09/27/21 18:52
Methyl t-butyl ether (MTBE)	C5-C8	50X	0.06	mg/kg	<0.06	09/27/21 18:52
Naphthalene	NA	50X	0.6	mg/kg	<0.6	09/27/21 18:52
Toluene	C5-C8	50X	0.3	mg/kg	<0.3	09/27/21 18:52
m&p-Xylene	C9-C12	50X	0.6	mg/kg	<0.6	09/27/21 18:52
o-Xylene	C9-C12	50X	0.6	mg/kg	<0.6	09/27/21 18:52
Total xylenes		50X	0.6	mg/kg	<0.6	09/27/21 18:52
C5-C8 Aliphatic Hydrocarbons [1,2]	NA	50X	5.7	mg/kg	<5.7	09/27/21 18:52
C9-C12 Aliphatic Hydrocarbons [1,3]	NA	50X	5.7	mg/kg	<5.7	09/27/21 18:52
C9-C10 Aromatic Hydrocarbons [1]	NA	50X	5.7	mg/kg	<5.7	09/27/21 18:52
2,5-Dibromotoluene-PID				%	89.4	09/27/21 18:52
2,5-Dibromotoluene-FID				%	94.1	09/27/21 18:52
Surrogate Acceptance Range				%	70-130	

[1] Hydrocarbon Range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range

[2] C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

[3] C9-C12 Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons

Results: Polychlorinated Biphenyls (PCBs)

Sample: SB6/3-5'

Lab Number: 1I24034-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1221	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1232	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1242	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1248	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1254	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1260	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1262	ND		74	ug/kg	09/25/21	09/28/21
Aroclor-1268	ND		74	ug/kg	09/25/21	09/28/21
PCBs (Total)	ND		74	ug/kg	09/25/21	09/28/21
Surrogate(s)	Recovery%		Limits			
<i>2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>	74.6%		36.2-130		09/25/21	09/28/21
<i>Decachlorobiphenyl (DCBP)</i>	72.1%		43.3-130		09/25/21	09/28/21

Quality Control

Volatile Petroleum Hydrocarbons (MADEP-VPH)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1295 - MADEP VPH										
Blank (B1I1295-BLK1)					Prepared & Analyzed: 09/27/21					
Unadjusted C5-C8 Aliphatic Hydrocarbons	ND		5.0	mg/kg						
Unadjusted C9-C12 Aliphatic Hydrocarbons	ND		5.0	mg/kg						
Benzene	ND		0.2	mg/kg						
Ethylbenzene	ND		0.2	mg/kg						
Methyl t-butyl ether (MTBE)	ND		0.05	mg/kg						
Naphthalene	ND		0.5	mg/kg						
Toluene	ND		0.2	mg/kg						
m&p-Xylene	ND		0.5	mg/kg						
o-Xylene	ND		0.5	mg/kg						
Total xylenes	ND		0.5	mg/kg						
C5-C8 Aliphatic Hydrocarbons	ND		5.0	mg/kg						
C9-C12 Aliphatic Hydrocarbons	ND		5.0	mg/kg						
C9-C10 Aromatic Hydrocarbons	ND		5.0	mg/kg						
<hr/>										
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			44.7	ug/l	50.0		89.3	70-130		
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			51.9	ug/l	50.0		104	70-130		
<hr/>										
LCS (B1I1295-BS1)					Prepared & Analyzed: 09/27/21					
Benzene	2.4		0.2	mg/kg	2.50		94.5	70-130		
Ethylbenzene	2.4		0.2	mg/kg	2.50		97.3	70-130		
Methyl t-butyl ether (MTBE)	2.4		0.05	mg/kg	2.50		95.6	70-130		
Naphthalene	2.2		0.5	mg/kg	2.50		87.3	70-130		
Toluene	2.4		0.2	mg/kg	2.50		94.3	70-130		
m&p-Xylene	4.8		0.5	mg/kg	5.00		96.0	70-130		
2-Methylpentane	2.7		250	mg/kg	2.50		106	70-130		
n-Nonane	2.4		250	mg/kg	2.50		97.5	70-130		
o-Xylene	2.3		0.5	mg/kg	2.50		93.2	70-130		
Decane	2.1		250	mg/kg	2.50		84.0	70-130		
n-Butylcyclohexane	2.4		250	mg/kg	2.50		95.1	70-130		
n-Pentane	2.7		250	mg/kg	2.50		107	70-130		
1,2,4-Trimethylbenzene	2.3		0.5	mg/kg	2.50		92.1	70-130		
VPH_LCS_Aliphatic_C5-C8	8.1		0.5	mg/kg	7.50		108	70-130		
VPH_LCS_Aliphatic_C9-C12	4.5		0.5	mg/kg	5.00		89.5	70-130		
VPH_LCS_Aromatic_C9-C10	2.3		0.5	mg/kg	2.50		92.1	70-130		
<hr/>										
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			41.8	ug/l	50.0		83.5	70-130		
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			45.8	ug/l	50.0		91.7	70-130		

Quality Control

(Continued)

Volatile Petroleum Hydrocarbons (MADEP-VPH) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1295 - MADEP VPH (Continued)										
LCS Dup (B1I1295-BSD1)					Prepared & Analyzed: 09/27/21					
Benzene	2.4		0.2	mg/kg	2.50		96.6	70-130	2.26	25
Ethylbenzene	2.5		0.2	mg/kg	2.50		99.4	70-130	2.18	25
Methyl t-butyl ether (MTBE)	2.4		0.05	mg/kg	2.50		97.5	70-130	1.97	25
Naphthalene	2.3		0.5	mg/kg	2.50		90.2	70-130	3.31	25
Toluene	2.5		0.2	mg/kg	2.50		98.3	70-130	4.22	25
m&p-Xylene	4.9		0.5	mg/kg	5.00		97.8	70-130	1.91	25
2-Methylpentane	2.7		250	mg/kg	2.50		108	70-130	1.77	25
o-Xylene	2.4		0.5	mg/kg	2.50		94.9	70-130	1.85	25
n-Nonane	2.7		250	mg/kg	2.50		106	70-130	8.47	25
Decane	2.2		250	mg/kg	2.50		89.2	70-130	6.03	25
n-Butylcyclohexane	2.5		250	mg/kg	2.50		100	70-130	5.44	25
n-Pentane	2.9		250	mg/kg	2.50		114	70-130	6.80	25
1,2,4-Trimethylbenzene	2.3		0.5	mg/kg	2.50		93.7	70-130	1.72	25
VPH_LCS_Aliphatic_C5-C8	8.4		0.5	mg/kg	7.50		113	70-130	4.02	25
VPH_LCS_Aliphatic_C9-C12	4.7		0.5	mg/kg	5.00		94.8	70-130	5.72	25
VPH_LCS_Aromatic_C9-C10	2.3		0.5	mg/kg	2.50		93.7	70-130	1.72	25
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			44.2	ug/l	50.0		88.4	70-130		
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			47.1	ug/l	50.0		94.2	70-130		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111176 - EPA 3546										
Blank (B111176-BLK1)										
					Prepared: 09/25/21 Analyzed: 09/27/21					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>			11.7	ug/kg	13.3		88.0	36.2-130		
<i>Surrogate: Decachlorobiphenyl (DCBP)</i>			11.3	ug/kg	13.3		84.5	43.3-130		
LCS (B111176-BS1)										
					Prepared: 09/25/21 Analyzed: 09/27/21					
Aroclor-1016	131		66	ug/kg	167		78.8	58.2-125		
Aroclor-1260	139		66	ug/kg	167		83.6	65.5-130		
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>			11.5	ug/kg	13.3		86.4	36.2-130		
<i>Surrogate: Decachlorobiphenyl (DCBP)</i>			11.5	ug/kg	13.3		86.0	43.3-130		
LCS Dup (B111176-BSD1)										
					Prepared: 09/25/21 Analyzed: 09/27/21					
Aroclor-1016	141		66	ug/kg	167		84.6	58.2-125	7.10	20
Aroclor-1260	153		66	ug/kg	167		92.0	65.5-130	9.55	20
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>			11.8	ug/kg	13.3		88.6	36.2-130		
<i>Surrogate: Decachlorobiphenyl (DCBP)</i>			12.4	ug/kg	13.3		92.9	43.3-130		
Duplicate (B111176-DUP1)										
			Source: 1124018-01			Prepared: 09/25/21 Analyzed: 09/29/21				
Aroclor-1016	ND		353	ug/kg dry		ND				25
Aroclor-1221	ND		353	ug/kg dry		ND				200
Aroclor-1232	ND		353	ug/kg dry		ND				200
Aroclor-1242	ND		353	ug/kg dry		ND				200
Aroclor-1248	ND		353	ug/kg dry		ND				200
Aroclor-1254	ND		353	ug/kg dry		ND				200
Aroclor-1260	ND		353	ug/kg dry		ND				25
Aroclor-1262	ND		353	ug/kg dry		ND				200
Aroclor-1268	ND		353	ug/kg dry		ND				200
PCBs (Total)	ND		353	ug/kg dry		ND				200
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>			32.1	ug/kg dry	71.3		45.1	36.2-130		
<i>Surrogate: Decachlorobiphenyl (DCBP)</i>			48.4	ug/kg dry	71.3		67.8	43.3-130		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1176 - EPA 3546 (Continued)										
Matrix Spike (B1I1176-MS1)										
			Source: 1124018-01		Prepared: 09/25/21		Analyzed: 09/29/21			
Aroclor-1016	702		348	ug/kg dry	879	ND	79.8	40-140		
Aroclor-1260	638		348	ug/kg dry	879	ND	72.5	40-140		

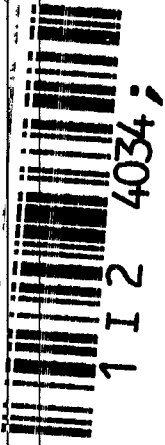
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)</i>			39.7	ug/kg dry	70.4		56.4	36.2-130		
<i>Surrogate: Decachlorobiphenyl (DCBP)</i>			53.5	ug/kg dry	70.4		76.0	43.3-130		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
 59 Greenhill Street
 West Warwick, RI 02893
 1-888-863-8522

CHAIN OF CUSTODY RECORD



PROJ. NO.		PROJECT NAME/LOCATION				PRESERVATIVE		TESTS**	REMARKS
CLIENT		DATE	TIME	SAMPLE I.D.	NO. OF CONTAINERS	FIELD	LAB		
GSE		128 Huttleston Ave, Fairhaven MA							
REPORT TO: Liz Phelps, Steve Selden									
INVOICE TO: GSE									
DATE	TIME	COM P	GRA B	SAMPLE I.D.	NO. OF CONTAINERS	FIELD	LAB	TESTS**	REMARKS
9/23/21	1305	X	X	SB2/3-5'	3	X		meth	
	↓								
	1250	X	X	SB5/3-5'	3	X		meth	
	↓								
	1136	X	X	SB6/3-5'	1	X		non	
<p>Special Instructions: List Specific Detection Limit Requirements:</p>									
<p>Turnaround (Business Days) <u>5</u></p>									

Sampled by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	9/24/21 1200	<i>[Signature]</i>	9/24/1830
Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	9/24/1600	<i>[Signature]</i>	
Relinquished by (Signature)	Date/Time	Received for Laboratory by (Signature)	Date/Time
<i>[Signature]</i>		<i>[Signature]</i>	9-24-21 1600

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Fairhaven, MA

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
1124034

Matrices: Groundwater/Surface Water Soil/Sediment Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A <input type="checkbox"/>	7470/7471 Hg CAM III B <input type="checkbox"/>	MassDEP VPH (GC/PID/FID) CAM IV A <input checked="" type="checkbox"/>	8082 PCB CAM V A <input checked="" type="checkbox"/>	9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/>	6860 Perchlorate CAM VIII B <input type="checkbox"/>
8270 SVOC CAM II B <input type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	MassDEP VPH (GC/MS) CAM IV C <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input type="checkbox"/>	MassDEP APH CAM IX A <input type="checkbox"/>
6010 Metals CAM III A <input type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	MassDEP EPH CAM IV B <input type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: 

Position: Laboratory Director

Printed Name: Richard Warila

Date: 10/1/2021



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1124036
Client Project: 128 Huttleston Ave, Fairhaven, MA

Report Date: 01-October-2021

Prepared for:

Liz Phelps
Green Seal Environmental, Inc.
114 State Road
Sagamore Beach, MA 02562

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 09/24/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1I24036. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1I24036-01	TMW-1	Water	09/23/2021	09/24/2021
1I24036-02	TMW-2	Water	09/23/2021	09/24/2021
1I24036-03	TMW-3	Water	09/23/2021	09/24/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

TMW-1 (Lab Number: 1I24036-01)

Analysis

Dissolved Lead
Volatile Organic Compounds

Method

EPA 6010C
EPA 8260C

TMW-2 (Lab Number: 1I24036-02)

Analysis

Dissolved Lead
MADEP EPH
MADEP VPH

Method

EPA 6010C
MADEP EPH
MADEP VPH

TMW-3 (Lab Number: 1I24036-03)

Analysis

Dissolved Arsenic
Dissolved Barium
Dissolved Cadmium
Dissolved Chromium
Dissolved Lead
Dissolved Mercury
Dissolved Selenium
Dissolved Silver
MADEP EPH
Volatile Organic Compounds

Method

EPA 6010C
EPA 6010C
EPA 6010C
EPA 6010C
EPA 6010C
EPA 7470A
EPA 6010C
EPA 6010C
MADEP EPH
EPA 8260C

Method References

Method for the Determination of Extractable Petroleum Hydrocarbons, Rev. 2.1, Massachusetts Department of Environmental Protection, 2004

Method for the Determination of Volatile Petroleum Hydrocarbons, Rev. 2.1, Massachusetts Department of Environmental Protection, 2018

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

Results: Dissolved Metals

Sample: TMW-1
Lab Number: 1I24036-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	ND		0.005	mg/L	09/27/21	09/28/21

Results: Dissolved Metals

Sample: TMW-2
Lab Number: 1I24036-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	ND		0.005	mg/L	09/27/21	09/28/21

Results: Dissolved Metals**Sample: TMW-3****Lab Number: 1I24036-03 (Water)**

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	ND		0.010	mg/L	09/27/21	09/28/21
Barium	0.018		0.005	mg/L	09/27/21	09/28/21
Cadmium	ND		0.005	mg/L	09/27/21	09/28/21
Chromium	ND		0.005	mg/L	09/27/21	09/28/21
Lead	ND		0.005	mg/L	09/27/21	09/28/21
Mercury	ND		0.0002	mg/L	09/28/21	09/28/21
Selenium	ND		0.010	mg/L	09/27/21	09/28/21
Silver	ND		0.005	mg/L	09/27/21	09/28/21

Results: Volatile Organic Compounds

Sample: TMW-1

Lab Number: 1I24036-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	09/29/21	09/29/21
Benzene	ND		1	ug/l	09/29/21	09/29/21
Bromobenzene	ND		1	ug/l	09/29/21	09/29/21
Bromochloromethane	ND		1	ug/l	09/29/21	09/29/21
Bromodichloromethane	ND		1	ug/l	09/29/21	09/29/21
Bromoform	ND		1	ug/l	09/29/21	09/29/21
Bromomethane	ND		1	ug/l	09/29/21	09/29/21
2-Butanone	ND		5	ug/l	09/29/21	09/29/21
tert-Butyl alcohol	ND		5	ug/l	09/29/21	09/29/21
sec-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
n-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
tert-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
Methyl t-butyl ether (MTBE)	ND		1	ug/l	09/29/21	09/29/21
Carbon Disulfide	ND		1	ug/l	09/29/21	09/29/21
Carbon Tetrachloride	ND		1	ug/l	09/29/21	09/29/21
Chlorobenzene	ND		1	ug/l	09/29/21	09/29/21
Chloroethane	ND		1	ug/l	09/29/21	09/29/21
Chloroform	ND		1	ug/l	09/29/21	09/29/21
Chloromethane	ND		1	ug/l	09/29/21	09/29/21
4-Chlorotoluene	ND		1	ug/l	09/29/21	09/29/21
2-Chlorotoluene	ND		1	ug/l	09/29/21	09/29/21
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	09/29/21	09/29/21
Dibromochloromethane	ND		1	ug/l	09/29/21	09/29/21
1,2-Dibromoethane (EDB)	ND		1	ug/l	09/29/21	09/29/21
Dibromomethane	ND		2	ug/l	09/29/21	09/29/21
1,2-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,4-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloroethane	ND		1	ug/l	09/29/21	09/29/21
1,2-Dichloroethane	ND		1	ug/l	09/29/21	09/29/21
trans-1,2-Dichloroethene	1		1	ug/l	09/29/21	09/29/21
cis-1,2-Dichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,2-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
2,2-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
cis-1,3-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
trans-1,3-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	09/29/21	09/29/21
Diethyl ether	ND		5	ug/l	09/29/21	09/29/21
1,4-Dioxane	ND		500	ug/l	09/29/21	09/29/21
Ethylbenzene	ND		1	ug/l	09/29/21	09/29/21
Hexachlorobutadiene	ND		1	ug/l	09/29/21	09/29/21
2-Hexanone	ND		5	ug/l	09/29/21	09/29/21
Isopropylbenzene	ND		1	ug/l	09/29/21	09/29/21
p-Isopropyltoluene	ND		1	ug/l	09/29/21	09/29/21
Methylene Chloride	ND		1	ug/l	09/29/21	09/29/21
4-Methyl-2-pentanone	ND		5	ug/l	09/29/21	09/29/21

Results: Volatile Organic Compounds (Continued)

Sample: TMW-1 (Continued)

Lab Number: 1I24036-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	09/29/21	09/29/21
n-Propylbenzene	ND		1	ug/l	09/29/21	09/29/21
Styrene	ND		1	ug/l	09/29/21	09/29/21
1,1,1,2-Tetrachloroethane	ND		1	ug/l	09/29/21	09/29/21
Tetrachloroethene	ND		1	ug/l	09/29/21	09/29/21
Tetrahydrofuran	ND		5	ug/l	09/29/21	09/29/21
Toluene	ND		1	ug/l	09/29/21	09/29/21
1,2,4-Trichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,2,3-Trichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,1,2-Trichloroethane	ND		1	ug/l	09/29/21	09/29/21
1,1,1-Trichloroethane	ND		1	ug/l	09/29/21	09/29/21
Trichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,2,3-Trichloropropane	ND		1	ug/l	09/29/21	09/29/21
1,3,5-Trimethylbenzene	ND		1	ug/l	09/29/21	09/29/21
1,2,4-Trimethylbenzene	ND		1	ug/l	09/29/21	09/29/21
Vinyl Chloride	ND		1	ug/l	09/29/21	09/29/21
o-Xylene	ND		1	ug/l	09/29/21	09/29/21
m&p-Xylene	ND		2	ug/l	09/29/21	09/29/21
Total xylenes	ND		1	ug/l	09/29/21	09/29/21
1,1,2,2-Tetrachloroethane	ND		1	ug/l	09/29/21	09/29/21
tert-Amyl methyl ether	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
Ethyl tert-butyl ether	ND		1	ug/l	09/29/21	09/29/21
Diisopropyl ether	ND		1	ug/l	09/29/21	09/29/21
Trichlorofluoromethane	ND		1	ug/l	09/29/21	09/29/21
Dichlorodifluoromethane	ND		1	ug/l	09/29/21	09/29/21
tert-Amyl Alcohol	ND		5	ug/l	09/29/21	09/29/21
<hr/>						
Surrogate(s)	Recovery%		Limits			
<hr/>						
<i>4-Bromofluorobenzene</i>	<i>96.4%</i>		<i>70-130</i>		09/29/21	09/29/21
<i>1,2-Dichloroethane-d4</i>	<i>96.7%</i>		<i>70-130</i>		09/29/21	09/29/21
<i>Toluene-d8</i>	<i>94.5%</i>		<i>70-130</i>		09/29/21	09/29/21

Results: Volatile Organic Compounds

Sample: TMW-3

Lab Number: 1I24036-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		6	ug/l	09/29/21	09/29/21
Benzene	ND		1	ug/l	09/29/21	09/29/21
Bromobenzene	ND		1	ug/l	09/29/21	09/29/21
Bromochloromethane	ND		1	ug/l	09/29/21	09/29/21
Bromodichloromethane	ND		1	ug/l	09/29/21	09/29/21
Bromoform	ND		1	ug/l	09/29/21	09/29/21
Bromomethane	ND		1	ug/l	09/29/21	09/29/21
2-Butanone	ND		5	ug/l	09/29/21	09/29/21
tert-Butyl alcohol	ND		5	ug/l	09/29/21	09/29/21
sec-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
n-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
tert-Butylbenzene	ND		1	ug/l	09/29/21	09/29/21
Methyl t-butyl ether (MTBE)	ND		1	ug/l	09/29/21	09/29/21
Carbon Disulfide	ND		1	ug/l	09/29/21	09/29/21
Carbon Tetrachloride	ND		1	ug/l	09/29/21	09/29/21
Chlorobenzene	ND		1	ug/l	09/29/21	09/29/21
Chloroethane	ND		1	ug/l	09/29/21	09/29/21
Chloroform	ND		1	ug/l	09/29/21	09/29/21
Chloromethane	ND		1	ug/l	09/29/21	09/29/21
4-Chlorotoluene	ND		1	ug/l	09/29/21	09/29/21
2-Chlorotoluene	ND		1	ug/l	09/29/21	09/29/21
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	09/29/21	09/29/21
Dibromochloromethane	ND		1	ug/l	09/29/21	09/29/21
1,2-Dibromoethane (EDB)	ND		1	ug/l	09/29/21	09/29/21
Dibromomethane	ND		2	ug/l	09/29/21	09/29/21
1,2-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,4-Dichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloroethane	ND		1	ug/l	09/29/21	09/29/21
1,2-Dichloroethane	ND		1	ug/l	09/29/21	09/29/21
trans-1,2-Dichloroethene	2		1	ug/l	09/29/21	09/29/21
cis-1,2-Dichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,2-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
2,2-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
cis-1,3-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
trans-1,3-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
1,1-Dichloropropene	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	09/29/21	09/29/21
Diethyl ether	ND		5	ug/l	09/29/21	09/29/21
1,4-Dioxane	ND		500	ug/l	09/29/21	09/29/21
Ethylbenzene	ND		1	ug/l	09/29/21	09/29/21
Hexachlorobutadiene	ND		1	ug/l	09/29/21	09/29/21
2-Hexanone	ND		5	ug/l	09/29/21	09/29/21
Isopropylbenzene	ND		1	ug/l	09/29/21	09/29/21
p-Isopropyltoluene	ND		1	ug/l	09/29/21	09/29/21
Methylene Chloride	ND		1	ug/l	09/29/21	09/29/21
4-Methyl-2-pentanone	ND		5	ug/l	09/29/21	09/29/21

Results: Volatile Organic Compounds (Continued)

Sample: TMW-3 (Continued)

Lab Number: 1I24036-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	09/29/21	09/29/21
n-Propylbenzene	ND		1	ug/l	09/29/21	09/29/21
Styrene	ND		1	ug/l	09/29/21	09/29/21
1,1,1,2-Tetrachloroethane	ND		1	ug/l	09/29/21	09/29/21
Tetrachloroethene	ND		1	ug/l	09/29/21	09/29/21
Tetrahydrofuran	ND		5	ug/l	09/29/21	09/29/21
Toluene	ND		1	ug/l	09/29/21	09/29/21
1,2,4-Trichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,2,3-Trichlorobenzene	ND		1	ug/l	09/29/21	09/29/21
1,1,2-Trichloroethane	ND		1	ug/l	09/29/21	09/29/21
1,1,1-Trichloroethane	ND		1	ug/l	09/29/21	09/29/21
Trichloroethene	ND		1	ug/l	09/29/21	09/29/21
1,2,3-Trichloropropane	ND		1	ug/l	09/29/21	09/29/21
1,3,5-Trimethylbenzene	ND		1	ug/l	09/29/21	09/29/21
1,2,4-Trimethylbenzene	ND		1	ug/l	09/29/21	09/29/21
Vinyl Chloride	ND		1	ug/l	09/29/21	09/29/21
o-Xylene	ND		1	ug/l	09/29/21	09/29/21
m&p-Xylene	ND		2	ug/l	09/29/21	09/29/21
Total xylenes	ND		1	ug/l	09/29/21	09/29/21
1,1,2,2-Tetrachloroethane	ND		1	ug/l	09/29/21	09/29/21
tert-Amyl methyl ether	ND		1	ug/l	09/29/21	09/29/21
1,3-Dichloropropane	ND		1	ug/l	09/29/21	09/29/21
Ethyl tert-butyl ether	ND		1	ug/l	09/29/21	09/29/21
Diisopropyl ether	ND		1	ug/l	09/29/21	09/29/21
Trichlorofluoromethane	ND		1	ug/l	09/29/21	09/29/21
Dichlorodifluoromethane	ND		1	ug/l	09/29/21	09/29/21
tert-Amyl Alcohol	ND		5	ug/l	09/29/21	09/29/21
Surrogate(s)	Recovery%		Limits			
<i>4-Bromofluorobenzene</i>	<i>97.0%</i>		<i>70-130</i>		09/29/21	09/29/21
<i>1,2-Dichloroethane-d4</i>	<i>102%</i>		<i>70-130</i>		09/29/21	09/29/21
<i>Toluene-d8</i>	<i>94.9%</i>		<i>70-130</i>		09/29/21	09/29/21

Volatile Petroleum Hydrocarbons
Sample: TMW-2 (1I24036-02)

SAMPLE INFORMATION

Matrix	Water		
Containers	Satisfactory		
Sample Preservation	Aqueous	pH<2	
	Soil or Sediment	NA	
		Received in air-tight container	
Temperature	Received on Ice Received at: 4+/-2 C°		

VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH-18-2.1	Client ID			TMW-2		
Method for Target Analytes: MADEP VPH-18-2.1	Lab ID			1I24036-02		
VPH Surrogate Standards: PID: 2,5-Dibromotoluene FID: 2,5-Dibromotoluene	Date Collected			09/23/21		
	Date Received			09/24/21		
	% Moisture			NA		
RANGE/TARGET ANALYTE	Elution Range	Dilution	RL	Units	Result	Analyzed
Unadjusted C5-C8 Aliphatic Hydrocarbons [1]	NA	1X	100	ug/l	<100	09/28/21 11:59
Unadjusted C9-C12 Aliphatic Hydrocarbons [1]	NA	1X	100	ug/l	<100	09/28/21 11:59
Benzene	C5-C8	1X	5.0	ug/l	<5.0	09/28/21 11:59
Ethylbenzene	C9-C12	1X	5.0	ug/l	<5.0	09/28/21 11:59
Methyl t-butyl ether (MTBE)	C5-C8	1X	10.0	ug/l	<10.0	09/28/21 11:59
Naphthalene	NA	1X	10.0	ug/l	<10.0	09/28/21 11:59
Toluene	C5-C8	1X	5.0	ug/l	<5.0	09/28/21 11:59
m&p-Xylene	C9-C12	1X	10.0	ug/l	<10.0	09/28/21 11:59
o-Xylene	C9-C12	1X	10.0	ug/l	<10.0	09/28/21 11:59
Total xylenes		1X	10.0	ug/l	<10.0	09/28/21 11:59
C5-C8 Aliphatic Hydrocarbons [1,2]	NA	1X	100	ug/l	<100	09/28/21 11:59
C9-C12 Aliphatic Hydrocarbons [1,3]	NA	1X	100	ug/l	<100	09/28/21 11:59
C9-C10 Aromatic Hydrocarbons [1]	NA	1X	100	ug/l	<100	09/28/21 11:59
2,5-Dibromotoluene-PID				%	76.4	09/28/21 11:59
2,5-Dibromotoluene-FID				%	81.5	09/28/21 11:59
Surrogate Acceptance Range				%	70-130	

[1] Hydrocarbon Range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range

[2] C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

[3] C9-C12 Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons

**Extractable Petroleum Hydrocarbons
Sample: TMW-2 (1I24036-02)**

SAMPLE INFORMATION

Matrix	Water
Containers	Satisfactory
Aqueous Preservatives	pH<2
Temperature	Received on Ice Received at: 4+/-2 C°
Extraction Method	EPA Method 3510C

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 4-1.1	Client ID	TMW-2				
Method for Target Analytes: MADEP EPH 4-1.1	Lab ID	1I24036-02				
EPH Surrogate Standards: Aliphatic: Chlorooctadecane Aromatic: o-Terphenyl	Date Collected	09/23/21				
	Date Received	09/24/21				
	Date Thawed	NA				
	Date Extracted	09/28/21				
EPH Fractionation Surrogates: (1) 2-Fluorobiphenyl (2) 2-Bromonaphthalene	Percent Moisture	NA				
RANGE/TARGET ANALYTE	Dilution	RL	Units	Result	Analyzed	
Unadjusted C11-C22 Aromatic Hydrocarbons [1]	1X	100	ug/l	<100	09/29/21 20:14	
Diesel PAH Analytes	Naphthalene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	2-Methylnaphthalene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Phenanthrene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Acenaphthene	1X	5.0	ug/l	<5.0	09/29/21 20:14
Other Target PAH Analytes	Acenaphthylene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Fluorene	1X	5.0	ug/l	<5.0	09/29/21 20:14
	Anthracene	1X	5.0	ug/l	<5.0	09/29/21 20:14
	Fluoranthene	1X	5.0	ug/l	<5.0	09/29/21 20:14
	Pyrene	1X	5.0	ug/l	<5.0	09/29/21 20:14
	Benzo(a)anthracene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Chrysene	1X	2.0	ug/l	<2.0	09/29/21 20:14
	Benzo(b)fluoranthene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Benzo(k)fluoranthene	1X	1.0	ug/l	<1.0	09/29/21 20:14
	Benzo(a)pyrene	1X	0.2	ug/l	<0.2	09/29/21 20:14
	Indeno(1,2,3-cd)pyrene	1X	0.5	ug/l	<0.5	09/29/21 20:14
	Dibenz(a,h)anthracene	1X	0.5	ug/l	<0.5	09/29/21 20:14
Benzo(g,h,i)perylene	1X	5.0	ug/l	<5.0	09/29/21 20:14	
C9-C18 Aliphatic Hydrocarbons [1]	1X	200	ug/l	<200	09/29/21 21:04	
C19-C36 Aliphatic Hydrocarbons [1]	1X	200	ug/l	<200	09/29/21 21:04	
C11-C22 Aromatic Hydrocarbons [1,2]	1X	100	ug/l	<100	09/29/21 20:14	
Chlorooctadecane (Sample Surrogate)			%	69.5	09/29/21 21:04	
o-Terphenyl (Sample Surrogate)			%	57.7	09/29/21 20:14	
2-Fluorobiphenyl (Fractionation Surrogate)			%	70.3	09/29/21 20:14	
2-Bromonaphthalene (Fractionation Surrogate)			%	59.4	09/29/21 20:14	
Surrogate Acceptance Range [3]			%	40 - 140		

[1] Hydrocarbon range data excludes area counts of any surrogate(s) and/or internal standards eluting in that range.

[2] C11-C22 Aromatic Hydrocarbons excludes the concentration of Target PAH Analytes.

[3] See the case narrative in cases where a dash (-) is entered in the surrogate recovery block.

**Extractable Petroleum Hydrocarbons
Sample: TMW-3 (1I24036-03)**

SAMPLE INFORMATION

Matrix	Water
Containers	Satisfactory
Aqueous Preservatives	pH<2
Temperature	Received on Ice Received at: 4+/-2 C°
Extraction Method	EPA Method 3510C

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 4-1.1		Client ID		TMW-3		
Method for Target Analytes: MADEP EPH 4-1.1		Lab ID		1I24036-03		
EPH Surrogate Standards: Aliphatic: Chlorooctadecane Aromatic: o-Terphenyl		Date Collected		09/23/21		
		Date Received		09/24/21		
		Date Thawed		NA		
		Date Extracted		09/28/21		
EPH Fractionation Surrogates: (1) 2-Fluorobiphenyl (2) 2-Bromonaphthalene		Percent Moisture		NA		
RANGE/TARGET ANALYTE		Dilution	RL	Units	Result	Analyzed
Unadjusted C11-C22 Aromatic Hydrocarbons [1]		1X	100	ug/l	143	09/29/21 20:36
Diesel PAH Analytes	Naphthalene	1X	1.0	ug/l	11.1	09/29/21 20:36
	2-Methylnaphthalene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Phenanthrene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Acenaphthene	1X	5.0	ug/l	<5.0	09/29/21 20:36
Other Target PAH Analytes	Acenaphthylene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Fluorene	1X	5.0	ug/l	<5.0	09/29/21 20:36
	Anthracene	1X	5.0	ug/l	<5.0	09/29/21 20:36
	Fluoranthene	1X	5.0	ug/l	<5.0	09/29/21 20:36
	Pyrene	1X	5.0	ug/l	<5.0	09/29/21 20:36
	Benzo(a)anthracene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Chrysene	1X	2.0	ug/l	<2.0	09/29/21 20:36
	Benzo(b)fluoranthene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Benzo(k)fluoranthene	1X	1.0	ug/l	<1.0	09/29/21 20:36
	Benzo(a)pyrene	1X	0.2	ug/l	<0.2	09/29/21 20:36
	Indeno(1,2,3-cd)pyrene	1X	0.5	ug/l	<0.5	09/29/21 20:36
	Dibenz(a,h)anthracene	1X	0.5	ug/l	<0.5	09/29/21 20:36
Benzo(g,h,i)perylene	1X	5.0	ug/l	<5.0	09/29/21 20:36	
C9-C18 Aliphatic Hydrocarbons [1]		1X	200	ug/l	<200	09/29/21 21:28
C19-C36 Aliphatic Hydrocarbons [1]		1X	200	ug/l	<200	09/29/21 21:28
C11-C22 Aromatic Hydrocarbons [1,2]		1X	100	ug/l	132	09/29/21 20:36
Chlorooctadecane (Sample Surrogate)				%	61.7	09/29/21 21:28
o-Terphenyl (Sample Surrogate)				%	64.6	09/29/21 20:36
2-Fluorobiphenyl (Fractionation Surrogate)				%	74.9	09/29/21 20:36
2-Bromonaphthalene (Fractionation Surrogate)				%	58.5	09/29/21 20:36
Surrogate Acceptance Range [3]				%	40 - 140	

[1] Hydrocarbon range data excludes area counts of any surrogate(s) and/or internal standards eluting in that range.

[2] C11-C22 Aromatic Hydrocarbons excludes the concentration of Target PAH Analytes.

[3] See the case narrative in cases where a dash (-) is entered in the surrogate recovery block.

Quality Control

Dissolved Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1195 - Dissolved Metals										
Blank (B1I1195-BLK1)					Prepared: 09/27/21 Analyzed: 09/28/21					
Selenium	ND		0.010	mg/L						
Silver	ND		0.005	mg/L						
Arsenic	ND		0.010	mg/L						
Barium	ND		0.005	mg/L						
Lead	ND		0.005	mg/L						
Cadmium	ND		0.005	mg/L						
Chromium	ND		0.005	mg/L						
LCS (B1I1195-BS1)					Prepared: 09/27/21 Analyzed: 09/28/21					
Lead	0.955		0.005	mg/L	1.00		95.5	85-115		
Chromium	0.986		0.005	mg/L	1.00		98.6	85-115		
Cadmium	0.992		0.005	mg/L	1.00		99.2	85-115		
Barium	1.00		0.005	mg/L	1.00		100	85-115		
Arsenic	0.199		0.010	mg/L	0.200		99.4	85-115		
Silver	0.389		0.005	mg/L	0.400		97.2	85-115		
Selenium	0.206		0.010	mg/L	0.200		103	85-115		
Batch: B1I1292 - Metals Cold-Vapor Mercury										
Blank (B1I1292-BLK1)					Prepared & Analyzed: 09/28/21					
Mercury	ND		0.0002	mg/L						
LCS (B1I1292-BS1)					Prepared & Analyzed: 09/28/21					
Mercury	0.0010		0.0002	mg/L	0.00100		101	85-115		

Quality Control
(Continued)

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111410 - Purge-Trap					Prepared & Analyzed: 09/29/21					
Blank (B111410-BLK1)										
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111410 - Purge-Trap (Continued)										
Blank (B111410-BLK1)					Prepared & Analyzed: 09/29/21					
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		1	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
tert-Amyl Alcohol	ND		5	ug/l						
<hr/>										
Surrogate: 4-Bromofluorobenzene			47.1	ug/l	50.0		94.3	70-130		
Surrogate: 1,2-Dichloroethane-d4			51.1	ug/l	50.0		102	70-130		
Surrogate: Toluene-d8			45.1	ug/l	50.0		90.2	70-130		
<hr/>										
LCS (B111410-BS1)					Prepared & Analyzed: 09/29/21					
Acetone	50			ug/l	50.0		99.5	60-140		
Benzene	41			ug/l	50.0		81.1	70-130		
Bromobenzene	45			ug/l	50.0		90.5	70-130		
Bromochloromethane	40			ug/l	50.0		80.3	70-130		
Bromodichloromethane	41			ug/l	50.0		82.5	70-130		
Bromoform	47			ug/l	50.0		94.9	70-130		
Bromomethane	40			ug/l	50.0		80.6	70-130		
2-Butanone	40			ug/l	50.0		80.7	60-140		
tert-Butyl alcohol	42			ug/l	50.0		84.3	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	52			ug/l	50.0		105	70-130		
tert-Butylbenzene	49			ug/l	50.0		97.9	70-130		
Methyl t-butyl ether (MTBE)	41			ug/l	50.0		82.4	70-130		
Carbon Disulfide	42			ug/l	50.0		84.5	50-150		
Carbon Tetrachloride	42			ug/l	50.0		83.4	70-130		
Chlorobenzene	45			ug/l	50.0		89.7	70-130		
Chloroethane	41			ug/l	50.0		81.2	70-130		
Chloroform	43			ug/l	50.0		86.2	70-130		
Chloromethane	43			ug/l	50.0		86.2	70-130		
4-Chlorotoluene	47			ug/l	50.0		94.3	70-130		
2-Chlorotoluene	47			ug/l	50.0		94.3	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	49			ug/l	50.0		97.4	70-130		
Dibromochloromethane	41			ug/l	50.0		81.6	70-130		
1,2-Dibromoethane (EDB)	40			ug/l	50.0		81.0	70-130		
Dibromomethane	42			ug/l	50.0		83.5	70-130		
1,2-Dichlorobenzene	47			ug/l	50.0		94.7	70-130		
1,3-Dichlorobenzene	46			ug/l	50.0		91.0	70-130		
1,4-Dichlorobenzene	47			ug/l	50.0		94.1	70-130		
1,1-Dichloroethane	40			ug/l	50.0		80.7	70-130		
1,2-Dichloroethane	40			ug/l	50.0		81.0	70-130		
trans-1,2-Dichloroethene	40			ug/l	50.0		81.0	70-130		
cis-1,2-Dichloroethene	40			ug/l	50.0		80.3	70-130		
1,1-Dichloroethene	41			ug/l	50.0		81.5	70-130		
1,2-Dichloropropane	40			ug/l	50.0		80.7	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111410 - Purge-Trap (Continued)					Prepared & Analyzed: 09/29/21					
LCS (B111410-BS1)										
2,2-Dichloropropane	45			ug/l	50.0		90.5	70-130		
cis-1,3-Dichloropropene	42			ug/l	50.0		84.6	70-130		
trans-1,3-Dichloropropene	43			ug/l	50.0		85.6	70-130		
1,1-Dichloropropene	42			ug/l	50.0		84.7	70-130		
Diethyl ether	42			ug/l	50.0		83.9	70-130		
1,4-Dioxane	209			ug/l	250		83.6	50-150		
Ethylbenzene	48			ug/l	50.0		95.3	70-130		
Hexachlorobutadiene	47			ug/l	50.0		93.4	70-130		
2-Hexanone	42			ug/l	50.0		84.6	70-130		
Isopropylbenzene	50			ug/l	50.0		99.9	70-130		
p-Isopropyltoluene	50			ug/l	50.0		101	70-130		
Methylene Chloride	44			ug/l	50.0		87.2	70-130		
4-Methyl-2-pentanone	41			ug/l	50.0		82.2	70-130		
Naphthalene	56			ug/l	50.0		111	70-130		
n-Propylbenzene	51			ug/l	50.0		102	70-130		
Styrene	47			ug/l	50.0		94.7	70-130		
1,1,1,2-Tetrachloroethane	45			ug/l	50.0		89.7	70-130		
Tetrachloroethene	40			ug/l	50.0		80.2	70-130		
Tetrahydrofuran	41			ug/l	50.0		81.2	50-150		
Toluene	40			ug/l	50.0		80.3	70-130		
1,2,4-Trichlorobenzene	53			ug/l	50.0		105	70-130		
1,2,3-Trichlorobenzene	57			ug/l	50.0		114	70-130		
1,1,2-Trichloroethane	41			ug/l	50.0		81.6	70-130		
1,1,1-Trichloroethane	42			ug/l	50.0		84.4	70-130		
Trichloroethene	40			ug/l	50.0		80.5	70-130		
1,2,3-Trichloropropane	45			ug/l	50.0		89.3	70-130		
1,3,5-Trimethylbenzene	50			ug/l	50.0		99.2	70-130		
1,2,4-Trimethylbenzene	50			ug/l	50.0		99.6	70-130		
Vinyl Chloride	44			ug/l	50.0		87.2	70-130		
o-Xylene	47			ug/l	50.0		93.0	70-130		
m&p-Xylene	94			ug/l	100		93.5	70-130		
1,1,2,2-Tetrachloroethane	45			ug/l	50.0		90.5	70-130		
tert-Amyl methyl ether	43			ug/l	50.0		85.0	70-130		
1,3-Dichloropropane	41			ug/l	50.0		81.3	70-130		
Ethyl tert-butyl ether	43			ug/l	50.0		85.4	70-130		
Trichlorofluoromethane	42			ug/l	50.0		84.0	70-130		
Dichlorodifluoromethane	46			ug/l	50.0		92.2	70-130		
<hr/>										
Surrogate: 4-Bromofluorobenzene			48.9	ug/l	50.0		97.8	70-130		
Surrogate: 1,2-Dichloroethane-d4			48.2	ug/l	50.0		96.4	70-130		
Surrogate: Toluene-d8			47.3	ug/l	50.0		94.5	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111410 - Purge-Trap (Continued)					Prepared & Analyzed: 09/29/21					
LCS Dup (B111410-BSD1)										
Acetone	48			ug/l	50.0		96.7	60-140	2.83	20
Benzene	40			ug/l	50.0		80.3	70-130	1.04	20
Bromobenzene	45			ug/l	50.0		90.1	70-130	0.421	20
Bromochloromethane	41			ug/l	50.0		81.3	70-130	1.29	20
Bromodichloromethane	40			ug/l	50.0		80.4	70-130	2.60	20
Bromoform	48			ug/l	50.0		96.2	70-130	1.34	20
Bromomethane	41			ug/l	50.0		81.4	70-130	1.01	20
2-Butanone	41			ug/l	50.0		82.1	60-140	1.70	20
tert-Butyl alcohol	41			ug/l	50.0		82.5	70-130	2.11	20
sec-Butylbenzene	50			ug/l	50.0		100	70-130	0.757	20
n-Butylbenzene	52			ug/l	50.0		105	70-130	0.248	20
tert-Butylbenzene	49			ug/l	50.0		97.1	70-130	0.800	20
Methyl t-butyl ether (MTBE)	41			ug/l	50.0		83.0	70-130	0.750	20
Carbon Disulfide	42			ug/l	50.0		83.4	50-150	1.31	20
Carbon Tetrachloride	41			ug/l	50.0		82.2	70-130	1.43	20
Chlorobenzene	44			ug/l	50.0		88.9	70-130	0.829	20
Chloroethane	41			ug/l	50.0		81.5	70-130	0.418	20
Chloroform	42			ug/l	50.0		84.1	70-130	2.51	20
Chloromethane	42			ug/l	50.0		83.1	70-130	3.73	20
4-Chlorotoluene	46			ug/l	50.0		92.6	70-130	1.73	20
2-Chlorotoluene	46			ug/l	50.0		92.6	70-130	1.73	20
1,2-Dibromo-3-chloropropane (DBCP)	52			ug/l	50.0		103	70-130	5.94	20
Dibromochloromethane	42			ug/l	50.0		83.9	70-130	2.75	20
1,2-Dibromoethane (EDB)	41			ug/l	50.0		82.7	70-130	2.10	20
Dibromomethane	42			ug/l	50.0		83.9	70-130	0.430	20
1,2-Dichlorobenzene	48			ug/l	50.0		96.6	70-130	2.03	20
1,3-Dichlorobenzene	46			ug/l	50.0		91.3	70-130	0.285	20
1,4-Dichlorobenzene	48			ug/l	50.0		95.2	70-130	1.12	20
1,1-Dichloroethane	41			ug/l	50.0		81.3	70-130	0.839	20
1,2-Dichloroethane	41			ug/l	50.0		81.3	70-130	0.370	20
trans-1,2-Dichloroethene	41			ug/l	50.0		81.7	70-130	0.934	20
cis-1,2-Dichloroethene	41			ug/l	50.0		81.1	70-130	1.04	20
1,1-Dichloroethene	41			ug/l	50.0		82.8	70-130	1.63	20
1,2-Dichloropropane	40			ug/l	50.0		80.9	70-130	0.272	20
2,2-Dichloropropane	43			ug/l	50.0		85.7	70-130	5.43	20
cis-1,3-Dichloropropene	42			ug/l	50.0		84.4	70-130	0.284	20
trans-1,3-Dichloropropene	42			ug/l	50.0		84.6	70-130	1.22	20
1,1-Dichloropropene	41			ug/l	50.0		82.6	70-130	2.53	20
Diethyl ether	43			ug/l	50.0		85.4	70-130	1.84	20
1,4-Dioxane	206			ug/l	250		82.4	50-150	1.53	20
Ethylbenzene	47			ug/l	50.0		94.4	70-130	0.949	20
Hexachlorobutadiene	49			ug/l	50.0		97.5	70-130	4.29	20
2-Hexanone	42			ug/l	50.0		84.1	70-130	0.640	20
Isopropylbenzene	49			ug/l	50.0		97.7	70-130	2.21	20
p-Isopropyltoluene	50			ug/l	50.0		99.5	70-130	1.18	20
Methylene Chloride	41			ug/l	50.0		82.2	70-130	5.86	20
4-Methyl-2-pentanone	42			ug/l	50.0		84.0	70-130	2.24	20
Naphthalene	59			ug/l	50.0		117	70-130	5.44	20
n-Propylbenzene	50			ug/l	50.0		99.7	70-130	1.91	20
Styrene	47			ug/l	50.0		94.2	70-130	0.593	20
1,1,1,2-Tetrachloroethane	45			ug/l	50.0		89.1	70-130	0.694	20
Tetrachloroethene	42			ug/l	50.0		84.3	70-130	4.99	20
Tetrahydrofuran	41			ug/l	50.0		82.4	50-150	1.47	20
Toluene	40			ug/l	50.0		80.0	70-130	0.349	20
1,2,4-Trichlorobenzene	55			ug/l	50.0		110	70-130	4.83	20
1,2,3-Trichlorobenzene	59			ug/l	50.0		119	70-130	4.01	20
1,1,2-Trichloroethane	42			ug/l	50.0		83.5	70-130	2.46	20

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1410 - Purge-Trap (Continued)										
LCS Dup (B1I1410-BSD1)					Prepared & Analyzed: 09/29/21					
1,1,1-Trichloroethane	41			ug/l	50.0		82.4	70-130	2.42	20
Trichloroethene	41			ug/l	50.0		81.1	70-130	0.693	20
1,2,3-Trichloropropane	45			ug/l	50.0		89.2	70-130	0.0896	20
1,3,5-Trimethylbenzene	49			ug/l	50.0		98.5	70-130	0.769	20
1,2,4-Trimethylbenzene	50			ug/l	50.0		99.2	70-130	0.443	20
Vinyl Chloride	42			ug/l	50.0		83.8	70-130	3.98	20
o-Xylene	47			ug/l	50.0		93.5	70-130	0.450	20
m&p-Xylene	94			ug/l	100		94.3	70-130	0.788	20
1,1,2,2-Tetrachloroethane	45			ug/l	50.0		90.0	70-130	0.598	20
tert-Amyl methyl ether	43			ug/l	50.0		86.2	70-130	1.31	20
1,3-Dichloropropane	41			ug/l	50.0		81.2	70-130	0.172	20
Ethyl tert-butyl ether	43			ug/l	50.0		86.7	70-130	1.53	20
Trichlorofluoromethane	40			ug/l	50.0		80.9	70-130	3.76	20
Dichlorodifluoromethane	45			ug/l	50.0		90.6	70-130	1.69	20

Surrogate: 4-Bromofluorobenzene			49.2	ug/l	50.0		98.4	70-130		
Surrogate: 1,2-Dichloroethane-d4			49.2	ug/l	50.0		98.4	70-130		
Surrogate: Toluene-d8			47.3	ug/l	50.0		94.7	70-130		

Quality Control
(Continued)

Volatile Petroleum Hydrocarbons (MADEP-VPH)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B111298 - MADEP VPH										
Blank (B111298-BLK1)					Prepared & Analyzed: 09/28/21					
Unadjusted C5-C8 Aliphatic Hydrocarbons	ND		100	ug/l						
Unadjusted C9-C12 Aliphatic Hydrocarbons	ND		100	ug/l						
Benzene	ND		5.0	ug/l						
Ethylbenzene	ND		5.0	ug/l						
Methyl t-butyl ether (MTBE)	ND		10.0	ug/l						
Naphthalene	ND		10.0	ug/l						
Toluene	ND		5.0	ug/l						
m&p-Xylene	ND		10.0	ug/l						
o-Xylene	ND		10.0	ug/l						
Total xylenes	ND		10.0	ug/l						
C5-C8 Aliphatic Hydrocarbons	ND		100	ug/l						
C9-C12 Aliphatic Hydrocarbons	ND		100	ug/l						
C9-C10 Aromatic Hydrocarbons	ND		100	ug/l						
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			43.3	ug/l	50.0		86.6	70-130		
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			45.2	ug/l	50.0		90.4	70-130		
LCS (B111298-BS1)					Prepared & Analyzed: 09/28/21					
Benzene	49.4		5.0	ug/l	50.0		98.7	70-130		
Ethylbenzene	51.9		5.0	ug/l	50.0		104	70-130		
Methyl t-butyl ether (MTBE)	46.2		10.0	ug/l	50.0		92.3	70-130		
Naphthalene	44.1		10.0	ug/l	50.0		88.1	70-130		
Toluene	49.5		5.0	ug/l	50.0		99.1	70-130		
m&p-Xylene	102		10.0	ug/l	100		102	70-130		
2-Methylpentane	59.2		5.0	ug/l	50.0		118	70-130		
o-Xylene	49.4		10.0	ug/l	50.0		98.9	70-130		
n-Nonane	49.2		5.0	ug/l	50.0		98.3	70-130		
Decane	38.9		5.0	ug/l	50.0		77.8	70-130		
n-Butylcyclohexane	46.8		5.0	ug/l	50.0		93.5	70-130		
n-Pentane	61.6		5.0	ug/l	50.0		123	70-130		
1,2,4-Trimethylbenzene	48.1		10.0	ug/l	50.0		96.1	70-130		
VPH_LCS_Aliphatic_C5-C8	181		5.0	ug/l	150		121	70-130		
VPH_LCS_Aliphatic_C9-C12	85.7		10.0	ug/l	100		85.7	70-130		
VPH_LCS_Aromatic_C9-C10	48.1		10.0	ug/l	50.0		96.1	70-130		
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			41.5	ug/l	50.0		83.0	70-130		
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			43.5	ug/l	50.0		87.1	70-130		

Quality Control

(Continued)

Volatile Petroleum Hydrocarbons (MADEP-VPH) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit
Batch: B1I1298 - MADEP VPH (Continued)									
LCS Dup (B1I1298-BSD1)					Prepared & Analyzed: 09/28/21				
Benzene	50.6		5.0	ug/l	50.0		101	70-130	2.50
Ethylbenzene	53.8		5.0	ug/l	50.0		108	70-130	3.65
Methyl t-butyl ether (MTBE)	47.8		10.0	ug/l	50.0		95.6	70-130	3.49
Naphthalene	46.5		10.0	ug/l	50.0		92.9	70-130	5.30
Toluene	51.8		5.0	ug/l	50.0		104	70-130	4.36
m&p-Xylene	106		10.0	ug/l	100		106	70-130	3.76
2-Methylpentane	60.1		5.0	ug/l	50.0		120	70-130	1.58
n-Nonane	52.1		5.0	ug/l	50.0		104	70-130	5.75
o-Xylene	51.2		10.0	ug/l	50.0		102	70-130	3.48
Decane	40.7		5.0	ug/l	50.0		81.3	70-130	4.37
n-Butylcyclohexane	52.7		5.0	ug/l	50.0		105	70-130	11.9
n-Pentane	62.7		5.0	ug/l	50.0		125	70-130	1.83
1,2,4-Trimethylbenzene	50.1		10.0	ug/l	50.0		100	70-130	4.10
VPH_LCS_Aliphatic_C5-C8	185		5.0	ug/l	150		123	70-130	2.29
VPH_LCS_Aliphatic_C9-C12	93.4		10.0	ug/l	100		93.4	70-130	8.56
VPH_LCS_Aromatic_C9-C10	50.1		10.0	ug/l	50.0		100	70-130	4.10
<hr style="border-top: 1px dashed black;"/>									
<i>Surrogate: 2,5- Dibromotoluene-PID</i>			44.5	ug/l	50.0		88.9	70-130	
<i>Surrogate: 2,5- Dibromotoluene-FID</i>			46.3	ug/l	50.0		92.6	70-130	

Quality Control
(Continued)

Extractable Petroleum Hydrocarbons (MADEP-EPH)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1244 - Sep-Funnel-extraction										
Blank (B1I1244-BLK1)										
					Prepared: 09/28/21 Analyzed: 09/29/21					
Unadjusted C11-C22 Aromatic Hydrocarbons	ND		100	ug/l						
Naphthalene	ND		1.0	ug/l						
2-Methylnaphthalene	ND		1.0	ug/l						
Phenanthrene	ND		1.0	ug/l						
Acenaphthene	ND		5.0	ug/l						
Acenaphthylene	ND		1.0	ug/l						
Fluorene	ND		5.0	ug/l						
Anthracene	ND		5.0	ug/l						
Fluoranthene	ND		5.0	ug/l						
Pyrene	ND		5.0	ug/l						
Benzo(a)anthracene	ND		1.0	ug/l						
Chrysene	ND		2.0	ug/l						
Benzo(b)fluoranthene	ND		1.0	ug/l						
Benzo(k)fluoranthene	ND		1.0	ug/l						
Benzo(a)pyrene	ND		0.2	ug/l						
Indeno(1,2,3-cd)pyrene	ND		0.5	ug/l						
Dibenz(a,h)anthracene	ND		0.5	ug/l						
Benzo(g,h,i)perylene	ND		5.0	ug/l						
C9-C18 Aliphatic Hydrocarbons	ND		200	ug/l						
C19-C36 Aliphatic Hydrocarbons	ND		200	ug/l						
C11-C22 Aromatic Hydrocarbons	ND		100	ug/l						
<i>Surrogate: Chlorooctadecane</i>			<i>83.3</i>	<i>ug/l</i>	<i>125</i>		<i>66.6</i>	<i>40-140</i>		
<i>Surrogate: o-Terphenyl</i>			<i>64.2</i>	<i>ug/l</i>	<i>125</i>		<i>51.4</i>	<i>40-140</i>		
<i>Surrogate: 2-Fluorobiphenyl</i>			<i>35.2</i>	<i>ug/l</i>	<i>50.0</i>		<i>70.4</i>	<i>40-140</i>		
<i>Surrogate: 2-Bromonaphthalene</i>			<i>30.9</i>	<i>ug/l</i>	<i>50.0</i>		<i>61.8</i>	<i>40-140</i>		
LCS (B1I1244-BS1)										
					Prepared: 09/28/21 Analyzed: 09/30/21					
Naphthalene	28.9		1.0	ug/l	40.0		72.2	40-140		
2-Methylnaphthalene	29.6		1.0	ug/l	40.0		74.0	40-140		
Phenanthrene	24.9		1.0	ug/l	40.0		62.2	40-140		
Acenaphthene	33.5		5.0	ug/l	40.0		83.8	40-140		
Acenaphthylene	28.4		1.0	ug/l	40.0		71.1	40-140		
Fluorene	29.5		5.0	ug/l	40.0		73.6	40-140		
Anthracene	37.1		5.0	ug/l	40.0		92.6	40-140		
Fluoranthene	33.3		5.0	ug/l	40.0		83.2	40-140		
Pyrene	33.4		5.0	ug/l	40.0		83.4	40-140		
Benzo(a)anthracene	26.6		1.0	ug/l	40.0		66.4	40-140		
Chrysene	38.5		2.0	ug/l	40.0		96.3	40-140		
Benzo(b)fluoranthene	26.7		1.0	ug/l	40.0		66.8	40-140		
Benzo(k)fluoranthene	36.4		1.0	ug/l	40.0		91.1	40-140		
Benzo(a)pyrene	32.0		0.2	ug/l	40.0		80.0	40-140		
Indeno(1,2,3-cd)pyrene	25.0		0.5	ug/l	40.0		62.5	40-140		
Dibenz(a,h)anthracene	36.8		0.5	ug/l	40.0		92.1	40-140		
Benzo(g,h,i)perylene	34.9		5.0	ug/l	40.0		87.2	40-140		
Nonane	12.2		5.0	ug/l	40.0		30.5	30-140		
Decane	16.1		5.0	ug/l	40.0		40.2	40-140		
Dodecane	18.6		5.0	ug/l	40.0		46.6	40-140		
Tetradecane	19.0		5.0	ug/l	40.0		47.4	40-140		
Hexadecane	22.1		5.0	ug/l	40.0		55.2	40-140		
Octadecane	25.0		5.0	ug/l	40.0		62.5	40-140		
Nonadecane	26.0		5.0	ug/l	40.0		65.0	40-140		
Eicosane	26.2		5.0	ug/l	40.0		65.6	40-140		
Docosane	26.9		5.0	ug/l	40.0		67.3	40-140		
Tetracosane	27.0		5.0	ug/l	40.0		67.5	40-140		
Hexacosane	26.8		5.0	ug/l	40.0		67.1	40-140		
Octacosane	26.2		5.0	ug/l	40.0		65.6	40-140		
Triacontane	25.1		5.0	ug/l	40.0		62.7	40-140		

Quality Control

(Continued)

Extractable Petroleum Hydrocarbons (MADEP-EPH) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1244 - Sep-Funnel-extraction (Continued)										
LCS (B1I1244-BS1)										
					Prepared: 09/28/21		Analyzed: 09/29/21			
Hexatriacontane	20.8		5.0	ug/l	40.0		51.9	40-140		
EPH_LCS_Aliphatic_C19-C36	205		0.0	ug/l	320		64.1	40-140		
EPH_LCS_Aliphatic_C9-C18	113		0.0	ug/l	240		47.1	40-140		
EPH_LCS_Aromatic_C11-C22	535		0.0	ug/l	680		78.7	40-140		
<hr style="border-top: 1px dashed black;"/>										
<i>Surrogate: Chlorooctadecane</i>			77.0	ug/l	125		61.6	40-140		
<i>Surrogate: o-Terphenyl</i>			106	ug/l	125		84.7	40-140		
<i>Surrogate: 2-Fluorobiphenyl</i>			51.4	ug/l	50.0		103	40-140		
<i>Surrogate: 2-Bromonaphthalene</i>			28.7	ug/l	50.0		57.4	40-140		
<hr style="border-top: 1px dashed black;"/>										
LCS Dup (B1I1244-BSD1)										
					Prepared: 09/28/21		Analyzed: 09/30/21			
Naphthalene	25.8		1.0	ug/l	40.0		64.6	40-140	11.1	25
2-Methylnaphthalene	27.1		1.0	ug/l	40.0		67.7	40-140	8.93	25
Phenanthrene	22.2		1.0	ug/l	40.0		55.4	40-140	11.6	25
Acenaphthene	29.6		5.0	ug/l	40.0		74.0	40-140	12.4	25
Acenaphthylene	25.8		1.0	ug/l	40.0		64.4	40-140	9.81	25
Fluorene	27.1		5.0	ug/l	40.0		67.8	40-140	8.20	25
Anthracene	33.2		5.0	ug/l	40.0		83.0	40-140	11.0	25
Fluoranthene	29.4		5.0	ug/l	40.0		73.6	40-140	12.2	25
Pyrene	29.1		5.0	ug/l	40.0		72.7	40-140	13.7	25
Benzo(a)anthracene	22.5		1.0	ug/l	40.0		56.3	40-140	16.4	25
Chrysene	33.6		2.0	ug/l	40.0		84.1	40-140	13.5	25
Benzo(b)fluoranthene	23.6		1.0	ug/l	40.0		58.9	40-140	12.6	25
Benzo(k)fluoranthene	31.9		1.0	ug/l	40.0		79.8	40-140	13.3	25
Benzo(a)pyrene	27.9		0.2	ug/l	40.0		69.7	40-140	13.8	25
Indeno(1,2,3-cd)pyrene	26.7		0.5	ug/l	40.0		66.8	40-140	6.57	25
Dibenz(a,h)anthracene	33.2		0.5	ug/l	40.0		83.0	40-140	10.4	25
Benzo(g,h,i)perylene	31.2		5.0	ug/l	40.0		78.1	40-140	11.0	25
Nonane	12.5		5.0	ug/l	40.0		31.2	30-140	2.11	25
Decane	16.5		5.0	ug/l	40.0		41.2	40-140	2.27	25
Dodecane	18.1		5.0	ug/l	40.0		45.2	40-140	3.05	25
Tetradecane	19.1		5.0	ug/l	40.0		47.8	40-140	0.735	25
Hexadecane	24.6		5.0	ug/l	40.0		61.5	40-140	10.9	25
Octadecane	29.0		5.0	ug/l	40.0		72.6	40-140	14.9	25
Nonadecane	30.4		5.0	ug/l	40.0		76.1	40-140	15.7	25
Eicosane	30.8		5.0	ug/l	40.0		77.0	40-140	16.0	25
Docosane	31.3		5.0	ug/l	40.0		78.3	40-140	15.0	25
Tetracosane	31.3		5.0	ug/l	40.0		78.3	40-140	14.8	25
Hexacosane	31.3		5.0	ug/l	40.0		78.2	40-140	15.3	25
Octacosane	30.4		5.0	ug/l	40.0		76.0	40-140	14.8	25
Triacontane	29.2		5.0	ug/l	40.0		72.9	40-140	15.0	25
Hexatriacontane	25.4		5.0	ug/l	40.0		63.4	40-140	20.0	25
EPH_LCS_Aliphatic_C19-C36	240		0.0	ug/l	320		75.0	40-140	15.7	25
EPH_LCS_Aliphatic_C9-C18	120		0.0	ug/l	240		49.9	40-140	5.83	25
EPH_LCS_Aromatic_C11-C22	480		0.0	ug/l	680		70.6	40-140	10.9	25
<hr style="border-top: 1px dashed black;"/>										
<i>Surrogate: Chlorooctadecane</i>			88.4	ug/l	125		70.7	40-140		
<i>Surrogate: o-Terphenyl</i>			91.2	ug/l	125		72.9	40-140		
<i>Surrogate: 2-Fluorobiphenyl</i>			41.4	ug/l	50.0		82.8	40-140		
<i>Surrogate: 2-Bromonaphthalene</i>			20.1	ug/l	50.0		40.3	40-140		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Fairhaven, MA

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
1124036

Matrices: Groundwater/Surface Water Soil/Sediment Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A <input checked="" type="checkbox"/>	7470/7471 Hg CAM III B <input checked="" type="checkbox"/>	MassDEP VPH (GC/PID/FID) CAM IV A <input checked="" type="checkbox"/>	8082 PCB CAM V A <input type="checkbox"/>	9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/>	6860 Perchlorate CAM VIII B <input type="checkbox"/>
8270 SVOC CAM II B <input type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	MassDEP VPH (GC/MS) CAM IV C <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input type="checkbox"/>	MassDEP APH CAM IX A <input type="checkbox"/>
6010 Metals CAM III A <input checked="" type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	MassDEP EPH CAM IV B <input checked="" type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: 

Position: Laboratory Director

Printed Name: Richard Warila

Date: 10/1/2021



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1124035
Client Project: 128 Huttleston Ave, Fairhaven, MA

Report Date: 01-October-2021

Prepared for:

Liz Phelps
Green Seal Environmental, Inc.
114 State Road
Sagamore Beach, MA 02562

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 09/24/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1I24035. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1I24035-01	SG-2	Air	09/23/2021	09/24/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SG-2 (Lab Number: 1I24035-01)

<u>Analysis</u>	<u>Method</u>
Air-phase Petroleum Hydrocarbons	MADEP APH

Method References

Method for the Determination of Air-Phase Petroleum Hydrocarbons, Rev. 1, Massachusetts Department of Environmental Protection, 2009

Case Narrative

CASE NARRATIVE:

Sample Receipt:

The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

APH:

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control samples were within method specified quality control criteria.

Sample Canister Summary:

Sample ID: SG-2
Canister ID 0100
Flow Controller ID #2/ 45 Minutes
Flow Controller RPD <20% Yes
Collection Time 45 Minutes
Initial Laboratory Vacuum <-28"Hg
Initial Field Vacuum -29"Hg
Final Field Vacuum 0"Hg
Final Laboratory Vacuum -1.2"Hg

SAMPLE INFORMATION

Sample Type	Grab <input checked="" type="checkbox"/> Time-Integrated: 2 hour 4 hour 8 hour 24 hour <input checked="" type="checkbox"/> Other: 45 Min.
Sample Container	Canister(s) size: <input checked="" type="checkbox"/> 6L Other
Sampling Flow Controller	Mechanical <input checked="" type="checkbox"/> Fixed-Orifice Electronic Other
Sampling Flow Meter	RPD of pre & post-sampling calibration check(s): <input checked="" type="checkbox"/> ≤ 20% >20%


APH ANALYTICAL RESULTS

Internal Standards: Pentafluorobenzene 1,4 Difluorobenzene Chlorobenzene-d5 MS Tuning Standard: Bromofluorobenzene	Client ID	SG-2		
	Lab ID	1124035-01		
	Date Collected	09/23/21		
	Date Received	09/24/21		
	Date Analyzed	09/29/21		
	Pre-sample vacuum (field)	-29 in. Hg		
	Post-sample vacuum (field)	0 in. Hg		
	Lab Receipt vacuum	-1.2 in. Hg		
Dilution Factor	1			
Target APH Analytes & Hydrocarbon Ranges	Reporting Limit		Sample Results	
	ug/m ³	ppb v/v	ug/m ³	ppb v/v
1,3-Butadiene	2.0	0.9	ND	ND
Methyl t-butyl ether (MTBE)	2.0	0.6	ND	ND
Benzene	2.0	0.6	6.1	1.9
Toluene	2.0	0.5	5.5	1.4
Ethylbenzene	2.0	0.5	ND	ND
m&p-Xylene	2.0	0.5	4.0	0.9
o-Xylene	2.0	0.5	ND	ND
Total xylenes	2.0	0.5	4.0	0.9
Naphthalene	0.63	0.1	ND	ND
C5-C8 Aliphatic Hydrocarbons ^{1,2}	12.0	NA	380	NA
C9-C12 Aliphatic Hydrocarbons ^{1,3}	12.0	NA	410	NA
C9-C10 Aromatic Hydrocarbons	10.0	NA	16	NA
1: Hydrocarbon range data from total ion chromatogram excluding any internal/tuning standards eluting in that range 2: C5-C8 aliphatic hydrocarbons exclude the concentration of Target APH Analytes eluting in that range 3: C9-C12 aliphatic hydrocarbons exclude concentration of Target APH Analytes eluting in that range AND concentration of C9-C10 aromatic hydrocarbons Abbreviations: ND=Not Detected, NA=Not applicable, NP=Not Provided				

CERTIFICATION

Were all QA/QC procedures REQUIRED by the APH Method followed? Yes No - Details Attached
 Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No - Details Attached
 Were any significant modifications made to the APH method, as specified in Sect 11.1.2 No Yes - Details Attached

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Signature: 

Position: Laboratory Director

Printed Name: Richard Warila

Date: 10/01/21

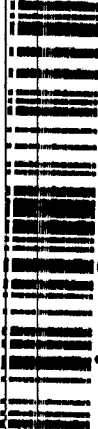
Quality Control

Air-Phase Petroleum Hydrocarbons (MADEP-APH)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1I1326 - MADEP-APH-Preparation										
Blank (B1I1326-BLK1)					Prepared & Analyzed: 09/29/21					
1,3-Butadiene	ND		0.9	ppb (v/v)						
Methyl t-butyl ether (MTBE)	ND		0.6	ppb (v/v)						
Benzene	ND		0.6	ppb (v/v)						
Toluene	ND		0.5	ppb (v/v)						
Ethylbenzene	ND		0.5	ppb (v/v)						
m&p-Xylene	ND		0.5	ppb (v/v)						
o-Xylene	ND		0.5	ppb (v/v)						
Total xylenes	ND		0.5	ppb (v/v)						
Naphthalene	ND		0.1	ppb (v/v)						
C5-C8 Aliphatic Hydrocarbons	ND		12.0	ppb (v/v)						
C9-C12 Aliphatic Hydrocarbons	ND		12.0	ppb (v/v)						
C9-C10 Aromatic Hydrocarbons	ND		10.0	ppb (v/v)						
LCS (B1I1326-BS1)					Prepared & Analyzed: 09/29/21					
1,3-Butadiene	13.7			ppb (v/v)	13.2		104	70-130		
Methyl t-butyl ether (MTBE)	15.1			ppb (v/v)	13.2		114	70-130		
Benzene	12.5			ppb (v/v)	13.2		94.8	70-130		
Toluene	11.8			ppb (v/v)	13.2		89.8	70-130		
Ethylbenzene	12.4			ppb (v/v)	13.2		94.2	70-130		
m&p-Xylene	28.0			ppb (v/v)	26.4		106	70-130		
o-Xylene	13.5			ppb (v/v)	13.2		102	70-130		
Naphthalene	14.3			ppb (v/v)	13.2		108	50-150		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.



1 I 2 4035 A

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

PROJ. NO.	CLIENT	PROJECT NAME/LOCATION	NO. OF CONTAINERS	PRESERVATIVE	TESTS**	REMARKS
9/23/1058	GISE	128 Huttleston Ave, Fairhaven MA	1	-	X	Tank/Reg: 0100/#2 Start Time: 1013 End Time: 1058 Start Pressure: -29" Hg End Pressure: 0" Hg

Sampled by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	9/24/12 1200	<i>[Signature]</i>	9/24 1230
Relinquished by (Signature)	9/24 1600	Relinquished by (Signature)	
Relinquished by (Signature)		Relinquished by (Signature)	9-24-11 11:00

Laboratory Remarks: _____
Temp. received: _____
Cooled

Special Instructions:
List Specific Detection Limit Requirements.

Turnaround (Business Days) 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

ZKS

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Fairhaven, MA

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
1124035

 Matrices: Groundwater/Surface Water Soil/Sediment Drinking Water Air Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A <input type="checkbox"/>	7470/7471 Hg CAM III B <input type="checkbox"/>	MassDEP VPH (GC/PID/FID) CAM IV A <input type="checkbox"/>	8082 PCB CAM V A <input type="checkbox"/>	9014 Total Cyanide/PAC CAM VI A <input type="checkbox"/>	6860 Perchlorate CAM VIII B <input type="checkbox"/>
8270 SVOC CAM II B <input type="checkbox"/>	7010 Metals CAM III C <input type="checkbox"/>	MassDEP VPH (GC/MS) CAM IV C <input type="checkbox"/>	8081 Pesticides CAM V B <input type="checkbox"/>	7196 Hex Cr CAM VI B <input type="checkbox"/>	MassDEP APH CAM IX A <input checked="" type="checkbox"/>
6010 Metals CAM III A <input type="checkbox"/>	6020 Metals CAM III D <input type="checkbox"/>	MassDEP EPH CAM IV B <input type="checkbox"/>	8151 Herbicides CAM V C <input type="checkbox"/>	8330 Explosives CAM VIII A <input type="checkbox"/>	TO-15 VOC CAM IX B <input type="checkbox"/>

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

¹All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

 Signature: 

 Position: Laboratory Director

 Printed Name: Richard Warila

 Date: 10/1/2021