

Marion-Wareham Bridge Replacement
M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311

25% Design Submission
Early Environmental Coordination Checklist

Marion & Wareham, MA

Massachusetts Department of Transportation
January 2022

Prepared for:
MassDOT – Highway Division
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Boston, MA 02116

BSC Project No. 89550.03

Prepared by:



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Attachment A

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
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25% DESIGN SUBMISSION CHECKLIST AND RESPONSES



**25% Design Submission Checklist
Early Environmental Coordination for Design Projects**

The Designer shall complete and submit this form electronically with backup information and explanations of how each item has been addressed or documented. Completion of this checklist and its requirements is necessary for the project to obtain approval from Environmental Services to proceed with a 25% Design Public Hearing.

Note: In an attempt to reduce paper consumption, Environmental Services requests that only one (1) paper copy of the 25% Design is submitted for Environmental review. All Early Environmental Coordination documentation should be submitted only in an electronic format (.pdf, .doc, .xls, etc) wherever possible. Documentation should be submitted to the MassDOT project manager for routing to Environmental Services.

<i>PUBLIC COORDINATION</i>		Instructions	Addressed?
1	Coordinate with local boards, commissions & officials to identify specific issues or concerns regarding the project purpose and need and general scope of work. Attach all written correspondence.	Click Here	✓
2	If the proponent has presented the project in a public meeting setting, provide information regarding the meeting including the name of the public board/commission, the date and location, public comments and any formal meeting minutes.		✓
3	Send a letter to the Local Historical Commission (LHC) with a project description and location map, seeking comments. Provide a hardcopy (with a scope of work and locus) to the State Historic Preservation Officer (SHPO) and an electronic copy to MassDOT Highway Division Environmental Services Cultural Resources Unit (CRU). The Designer will no longer be responsible for sending notification letters to any of the three federally recognized tribes in Massachusetts. MassDOT CRU staff will assume responsibility for submitting early notification letters and accompanying materials to the three federally recognized tribes in Massachusetts for all projects.	Click Here	✓
4	Submit a Navigability Survey to the Municipal Harbor Master where work will occur on bridges over U.S. Coast Guard (USCG) regulated navigable waterways. Attach the completed survey.	Click Here	✓
5	Where work will occur within or adjacent to a Wild and Scenic River, submit a letter to the National Park Service with a project description and location map to initiate early coordination. Attach all written correspondence.	Click Here	N/A
<i>REGULATORY FRAMEWORK AND REQUIRED DELIVERABLES</i>			
6	Complete and submit an editable (MS Word format .doc or other), electronic Categorical Exclusion (CE) checklist for review and processing by Environmental Services. The draft CE should include a thorough project description and responses to checklist questions.	Click Here	✓
7	Evaluate the project in light of MEPA Review Thresholds. Provide documentation that the project does/does not exceed thresholds. If thresholds are exceeded, an editable (MS Word format .doc or other) draft ENF should be prepared and submitted once the 25% Design Public Hearing has been completed. This does not apply to projects which are exempt from MEPA review under the Bridge Exemption.	Click Here	✓
8	Electronically complete and submit the 25% Design portion of the Water Quality Data Form to determine the impairment status of waterbodies receiving highway runoff.	Click Here	✓
9	If the project will impact wetland resource areas (BVW, Bank, LUW, etc), determine if the project is subject to permitting under Sections 401 and 404 of the Clean Water Act and the Massachusetts Wetlands Protection Act. Provide explanations for each determination of applicability. Ensure that permitting timelines are included in the project schedule.		✓
<i>PROJECT CONTEXT/SETTING AND FIELD RECONNAISSANCE</i>			
10	Identify the dominant land uses within the project area, its general context characteristics, and ownership. Identify any publicly-owned open space (Section 4(f) or Article 97 protected property - parks, recreational areas, conservation land and wildlife refuges) within the project area and describe its designated and current use. This information should be included within the project description attached to the CE Checklist.	Click Here	✓
11	Determine if the project occurs within or adjacent to sensitive environmental resources: Outstanding Resource Waters, stormwater "critical areas", Areas of Critical Environmental Concern (ACECs), NHESP designated endangered species habitat and certified/potential vernal pools, impaired waterbodies, regulated wetland resources, FEMA delineated floodways, Wild & Scenic Rivers, ACOE Special Aquatic Sites (salt marsh, tidal flats, vegetated shallows, etc), Essential Fish Habitat and/or high quality streams.	Click Here	✓
12	Identify known cultural and historical resources in the project area. These include properties or structures listed on the National/State Register(s) of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.	Click Here	✓
13	Identify all existing or proposed material within the project limits which may require handling as hazardous waste or be subject to other environmental handling regulations upon disposal. These materials include suspected treated timber, asbestos, lead-based paint, mercury switches, PCB-containing materials, etc.	Click Here	✓
14	List locations of known oil and hazardous materials releases in proximity to the project limits. For projects involving excavation work, provide all available relevant soil, sediment, and groundwater sampling results along with maps indicating sample locations.	Click Here	✓
15	Provide a copy of all activity use limitation (AUL) deed restrictions including the map depicting an outline of the AUL area for all AULs located on property within or adjacent to the project limits.		✓
16	Conduct field reconnaissance to verify existing conditions. See Instructions for list of conditions to verify.	Click Here	✓
17	Provide photographic documentation of field conditions and features. See Instructions for list of conditions and features to photograph.	Click Here	✓
<i>PLAN REQUIREMENTS</i>			
18	Show property lines, plus footprints, ownership, and street addresses of all buildings and parcels adjacent to the project.		✓
19	If the project requires Right-of-Way acquisition (takings, rights-of-entries, temporary/permanent easements, DCR permit, etc.), submit Preliminary Right-of-Way Plans.	Click Here	✓
20	Show all bridges and culverts and label with MassDOT Highway Division BDEPT # (if structure has one). Label the waterway, RR line, street or other feature intersected by the bridge/culvert.		✓
21	Show and label the existing and proposed edge of roadway and limits of grading.		✓
22	Show and label all existing and proposed guardrail.		✓
23	Show and label all walls and fences.		✓
24	Show and label all public shade trees 14" or more at breast height in the project area.	Click Here	✓
25	Show and label all roadway monuments, historical markers, highway bounds, etc., and show future locations if any are proposed to be removed and/or relocated.		✓
26	Show and label all publicly owned parks, recreational areas, and wildlife refuges.	Click Here	✓
27	Show and label any proposed landscape improvements.		✓
28	Show the location of all existing and proposed drainage structures and discharge points.		✓
29	Show all wetland boundaries within 100-ft of the project limits, including Bordering and Isolated Vegetated Wetlands, Bank, Land Under Water, Bordering Land Subject to Flooding and Ordinary High Water (i.e., 1-yr flood).		✓
30	For projects requiring a Section 401 Water Quality Certificate (WQC), complete the 401 WQC Plan Requirements Checklist and update plans to meet its requirements.	Click Here	Within 75% Plans
31	Show and label all 100-ft wetland buffer zones and Riverfront Areas.		----
32	Show the location of potential wetland replacement areas.	Click Here	Within 75% Plans
33	Provide details of any proposed ornamental elements, such as street lighting.		✓

EARLY ENVIRONMENTAL COORDINATION CHECKLIST EXPANDED RESPONSES

PUBLIC COORDINATION

1. Letters regarding the proposed project (with scope of work and locus) requesting review and comment have been sent to the following administrative departments within the Towns of Marion and Wareham: Board of Selectmen, Town Administrators, Conservation Commission, Board of Health, Highway / Parks / Public Works Department, Planning Board, Marine / Natural Resources Department, Historical Commission, Police Department and Fire Department. A copy of this correspondence has been provided within Attachment F.
2. The project has not been presented in a public meeting setting. The project will be presented to the public as part of a Design Public Hearing which is anticipated to occur in April 2022.
3. A letter that provided the project scope and locus (Attachment C) requesting review and comment has been provided to the Towns of Marion and Wareham Historical Commissions. A hard copy of this letter has been provided to the State Historic Preservation Officer (Massachusetts Historical Commission). An electronic copy of this letter (with scope of work and locus) has been provided to the MassDOT Highway Division Environmental Services Cultural Resources Unit and Project Manager as part of this submission. A copy of this letter has been provided in Attachment F.
4. The project occurs on two bridges that are navigable to smaller vessels. MassDOT Environmental believes that larger watercraft involved with commercial operations cannot pass under the bridge. As a Federal aid project, it is currently assumed that the project is eligible for STURRA Approval. MassDOT has reached out to the Municipal Harbor Master, and while Marion identified that the crossing is not used for commercial uses, Wareham identified that it is. As a STURRA eligible bridge, the project will likely not require a U.S. Coast Guard Section 9 Bridge Permit as a regulated navigable waterway.

REGULATORY FRAMEWORK AND REQUIRED DELIVERABLES

5. The project will not occur within a designated Wild and Scenic River as determined by the U.S. Fish and Wildlife Service. Therefore, a letter has not been submitted to the National Park Service as part of this Early Environmental Design Coordination Checklist submittal. No further action is required on this matter.
6. A Categorical Exclusion Checklist has been prepared as part of this submission. As such, an editable, electronic version of the CE checklist has been provided to MassDOT per Checklist requirements as part of this Early Environmental Design Coordination submission.

7. The table below evaluates the project against each MEPA threshold:

Category	Threshold	Applicability
<i>(1) Land</i>	(1) Direct alteration of 25+ acres of land	N/A
	(2) Creation of 5+ acres of impervious area	N/A
	(3) Conversion of land held for Article 97 purposes	N/A
	(4) Conversion of agricultural land to non-agricultural use	N/A
	(5) Release of an interest in land held for conservation, preservation, or agricultural or watershed preservation purposes	N/A
	(6-7) Urban redevelopment projects and urban renewal	N/A
<i>(2) State-listed Species under M.G.L. c. 131A</i>	(1) Alteration of designated significant habitat	The project occurs adjacent to designated habitat. While minimal impacts may be required, temporary impacts will be returned to pre-construction conditions. Importantly, since MassDOT is exempt from State permitting for bridge replacement projects, an ENF need-not be submitted for this project.
	(2) Disturbance of 2+ acres of designated priority habitat	N/A
<i>(3) Wetlands, Waterways, and Tidelands</i>	(1) Alteration of: (a) Coastal dune, barrier beach, coastal bank; (b) 500+ linear feet of bank; (c) 1,000+ sf of salt marsh or outstanding resource waters; (d) 5,000+ sf of BVW or IVW; (e) New fill or structure in velocity zone or regulatory floodway; (f) 0.5+ acres of any other wetland	At this stage, the combined impacts to coastal bank, salt marsh, and “other” wetlands (RFA, Land under ocean MLW seaward, and Land Subject to Coastal Storm Flowage (LSCSF) exceed the threshold. However, a majority of these impacts occur within the existing roadway layout and represent a redevelopment of RFA not a significant alteration. The work will not impede the functions of the River. Importantly, since MassDOT is exempt from State permitting for bridge replacement projects, an ENF need-not be submitted for this project.
	(2) Construction of new road or utility line to a barrier beach	N/A
	(3) Dredging 10,000+ cy of material	N/A
	(4) Disposal of 10,000+ cy of dredged material	N/A
	(5) Non-water dependent use of waterways or tidelands	N/A
	(6) Structures on flowed tidelands or waterways	N/A
<i>(4) Water</i>	<i>Not applicable to MassDOT projects.</i>	

<i>(5) Wastewater</i>	<i>Not applicable to MassDOT projects.</i>	
<i>(6) Transportation</i>	(1a) Construction of a new roadway 0.25+ miles in length (1b) Widening an existing roadway by 4+ feet for 0.5+ miles	The Project proposes adding two 4-foot shoulders, and two 10-foot shared-use paths which would widen the existing roadway. Existing roadway width is 44 feet; proposed roadway width is 72 feet. Importantly, since MassDOT is exempt from State permitting for bridge replacement projects, an ENF need-not be submitted for this project.
	(2) Construction, widening, or maintenance of a roadway or ROW that will: (a) alter the terrain 10+ feet from the roadway for 0.5+ miles (b) cut 5+ living shade trees of 14" dbh (c) eliminate 300+ feet of stone wall	The project does not propose to cut living shade trees nor eliminating stone walls. The Project will exceed the threshold for alteration of the terrain 10+ feet from the roadway for 0.5+ miles as the Project proposes adding two 4-foot shoulders, two 10-foot shared-use paths and retaining walls for the new bridge structure. Importantly, since MassDOT is exempt from State permitting for bridge replacement projects, an ENF need-not be submitted for this project.
	(3-9) Airport construction and modifications	N/A
	(10-12) Rail construction and modifications	N/A
	(13-14) New ADT generation	The project will not result in new ADT.
	(15) Construction of 300+ new parking spaces	N/A
<i>(7) Energy</i>	<i>Not applicable to MassDOT projects.</i>	
<i>(8) Air</i>	<i>Not applicable to MassDOT projects.</i>	
<i>(9) Solid and Hazardous Waste</i>	<i>Not applicable to MassDOT projects.</i>	
<i>(10) Historical and Archaeological Resources</i>	Unless MHC determines No Adverse Effect: (1-2) Demolition or destruction of any state-listed historical site	The project does not involve demolition or destruction of any state-listed historical sites.
<i>(11) Areas of Critical Environmental Concern</i>	Any project within a designated ACEC	The project is not located within an ACEC.
<i>(12) Regulations</i>	<i>Not applicable to MassDOT projects.</i>	

Improvements in the project include but are not limited to the bridge replacements of M-05-001=W-06-013, W-06-016, Wareham Street (US-6) over the Weweantic River between the towns of Marion and Wareham, roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches. While the

proposed project exceeds MEPA thresholds as described in the table above MassDOT is exempt from State permitting for bridge replacement projects, and an ENF need-not be submitted for this project.

8. The 25% Design portion of the Water Quality Data Form has been completed and included as part of this submittal (See Attachment D). According to the Water Quality Data Form, the 2012 DEP Integrated List of Impaired Waterways, MassGIS Impaired Waterways GIS layers¹, and the EPA² indicates that, at the site of the proposed bridge replacement, the Weweantic River (fecal coliform and total Nitrogen) and the Sippican River (fecal coliform) are both impaired waterbodies. BMPs will be evaluated as this design process progresses and BMPs will be identified on the 75% design submission water quality data form as appropriate.
9. Wetland resources within proximity of the proposed project area were delineated as part of the project planning process. Additionally, pertinent spatial data from MassGIS were evaluated to further identify the presence of jurisdictional resources within proximity of the project area. At this stage in the project design, the proposed project is expected to result in direct impacts to Bank, Land Under Ocean (MLW seaward) and the 200-foot Riverfront Area (RFA) to the Weweantic River, salt marsh and bordering vegetated wetlands (BVW), the 100-foot Buffer Zone to salt marsh and BVW and Land Subject to Coastal Storm Flowage (LSCSF). The project will require a submittal to the US Army Corps of Engineers (USACE) Massachusetts General Permits for the placement of dredge and fill materials within Waters of the United States. Impacts will require a PCN submittal for impacts to wetlands and waterbodies. Given that this project is a MassDOT bridge replacement project, permitting under State regulations is not required; therefore, the project does not require an Order of Conditions (OoC), nor an ENF Certificate. However, since an (OoC) is not applicable, the project requires a 401 Water Quality Certification (WQC). Project site plans depict jurisdictional resource areas, wetlands, waterways, and buffers zones in accordance with filing requirements.

PROJECT CONTEXT/SETTING AND FIELD RECONNAISSANCE

10. Dominant land uses immediately surrounding the project area consist of Transportation Uses, Estuarine Wetlands, Open Water, Bare Land, and Developed Open Space. Areas of publicly and privately-owned land including single-family residential developments are situated within proximity of the project area, but these areas will not be adversely affected from the proposed project activities. Some public beaches (Marion) and conservation lands (Wareham) occur in the project vicinity but will not be directly affected by the proposed project.
11. The following Table provides an overview of pertinent ecological permitting constraints and their applicability to the proposed project:

Outstanding Resource Waters (ORW)	Not Applicable
Stormwater “critical areas”	Not Applicable
Areas of Critical Environmental Concern (ACEC)	Not Applicable
NHESP Endangered Species Habitat (NHESP)	Applicable, both Priority (PH882) and Estimated Habitat are adjacent to the Project
NHESP Certified or Potential Vernal Pools (NHESP)	Not Applicable

¹ <http://maps.massgis.state.ma.us/images/dep/omv/il2012viewer.htm>

² https://ofmpub.epa.gov/tmdl_waters10/attains_state.control?p_state=MA&p_cycle=2012

Impaired Waterways or Waterbodies	Applicable – Both the Weweantic and the Sippican Rivers are denoted on <i>MassDEP's 2012 Integrated List of Waters</i>
Regulated Wetland Resources	Applicable – Impacts to Land under ocean MLW seaward, Land Subject to Coastal Storm Flowage (LSCSF) salt marsh, Bordering Vegetated Wetlands (BVW), and the 100-foot Buffer Zone, and Bank and the 200-foot Riverfront Area (RFA) to the Weweantic River
FEMA Designated Floodways	Not Applicable
Wild & Scenic Rivers	Not Applicable
ACOE Special Aquatic Sites	<i>De minimis</i> and temporary impacts to the River / adjacent salt marsh
Essential Fish Habitat and/or High-Quality Streams	Habitat Area of Particular Concern and New England EFH Species Habitat

12. A review of the Massachusetts Cultural Resource Information System (MACRIS³) identified that the bridges proposed for replacement are inventoried properties. Both are deemed ineligible for inclusion in the National Register of Historic Places (NRHP) due to having been a common and rebuilt (i.e. altered) bridge structure. It is not anticipated that any historical properties will be adversely impacted as part of the proposed project activities. See Attachment E.

MassDOT Cultural Resources Unit (CRU) will review the proposed project under the Massachusetts Programmatic Agreement for Section 106 of the National Historic Preservation Act. Solicitation for comment has also been sent to the Massachusetts Historical Commission, MassDOT CRU, and the Marion and Wareham Historical Commissions as part of this Early Environmental Design Coordination Submission.

13. It is not anticipated that the project will require the handling of hazardous waste or be subject to other environmental handling regulations upon disposal.
14. According to a search completed on the MassDEP Waste Site & Reportable Releases/Spills Look Up website⁴, the closest waste site and reportable releases more than 0.5 miles from the project site. According to the MassDEP Brownfield Sites list,⁵ there are none in Marion nor Wareham. According to the EPA Superfund National Priorities List (NPL)⁶, there are no sites currently on, proposed for, or deleted from the NPL within or adjacent to the project area. Soil sampling results are included in Attachment H.

³ <http://mhc-macris.net/>

⁴ <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>

⁵ <https://www.mass.gov/service-details/find-brownfields-sites>

⁶ <https://www.epa.gov/superfund/superfund-national-priorities-list-npl>



Waste Site & Reportable Releases in the Project Area

15. According to the MassDEP online site search,⁷ there are no properties with an Activity Use Limitation (AUL) deed restriction within proximity of the project area (MassGIS MassDEP Oil and/or Hazardous Material Sites with Activity and Use Limitations (AUL) data layer⁸/OLIVER).
16. Field reconnaissance has occurred within proximity of the project area and has identified the locations of the following as applicable: wetlands, existing drainage outfalls, stormwater BMPs, and potentially historic structures. All existing conditions have been identified on the 25% Highway Plans.
17. Representative photo documentation is provided in Attachment C of the general project setting and other features of environmental interest. Additional photographs of specific project elements may be furnished upon request.
18. Property Lines, Footprints, Ownership, and Road Addresses of buildings and parcels situated adjacent to the project area have been provided on the 25% Highway Plans.
19. Preliminary Right-of-Way Plans have been prepared as part of this submission. Permanent easements will be required for the proposed work slope amendments and retaining walls. A Parcel Summary Sheet is in Attachment I.
20. Bridges and Culverts have been labeled with MassDOT Highway Division BDEPT# (if applicable). Waterways, Railroad Lines, Roads, or other features that intersect the bridge or culverts have also been identified on the 25% Highway Plans.
21. The proposed edge of roadway and limits of grading have been depicted and labeled on the 25% Highway Plans.
22. Existing and Proposed guardrail has been depicted and labeled on the 25% Highway Plans.
23. Walls and Fences if applicable have been depicted and labeled on the 25% Highway Plans.

⁷ <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>

⁸ http://maps.massgis.state.ma.us/map_ol/oliver.php

24. There are no Public Shade Trees that will be impacted as part of the project.
25. Existing roadway monuments, historical markers, highway bounds, etc., have been depicted and labeled on 25% Highway Plans if applicable. New or relocated roadway monuments, historical markers, highway bounds, etc. have also been depicted and labeled on 25% Highway Plans if applicable.
26. Publicly owned parks, recreational areas, and wildlife refuges have been depicted and labeled on 25% Highway Plans.
27. Landscaping improvements are not proposed.
28. Proposed drainage structures and discharge points have been depicted and labeled on 25% Highway Plans.
29. The limits of jurisdictional wetland resource areas and/or Waters of the U.S. as they pertain to the Wetlands Protection Act and Section 401 and 404 of the Clean Water Act are depicted on the 25% Highway Plans.
30. Project plans will be updated to meet the permitting requirements of Section 401 jurisdictions. The 401 WQC Plan Requirements Checklist will be completed at 75% when the application is provided to MassDEP.
31. The limits of 100-foot Buffer Zone and 200-foot Riverfront Area have not been depicted on the 25% Highway Plans because this project is exempt from local and State regulations.
32. Potential wetland replication areas will be depicted on the 75% Highway Plans. Limited areas for wetland replication currently exist within the state highway layout and may require property acquisition or alternative methods to replication.
33. There are no proposed ornamental elements associated with this project.

Attachment B

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
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CATEGORICAL EXCLUSION CHECKLIST

Categorical Exclusion (CE) Determination Project Narrative

Project Information

Project Name: MARION- WAREHAM- BRIDGE REPLACEMENT, M-05-001=W-06-013 & W-06-016, WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

Route or Road Name:
WAREHAM STREET (US 6)

MassDOT Project Number: 605311

City/Town: Marion & Wareham

Project Cost/Programming: \$35,016,711.80

MassDOT District: District 5

Project Manager or Preparer: James Dalton

Project Description

The Massachusetts Department of Transportation (MassDOT) is proposing the structural replacement of the two bridges, M-05-001=W-06-013 & W-06-016, that carry US-6, Wareham Street/Road and Marion Road, over the Weweantic River between the towns of Marion and Wareham. The existing structure was built in 1929 and then widened in 1956. The structure is structurally deficient, functionally obsolete, and critical. During the two stages of construction, one travel lane in each direction shall be maintained. Improvements in the project include but are not limited to roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches.

A. Purpose and Need

The purpose of the project is to improve vehicle, bicycle and pedestrian infrastructure on Route 6 by replacing the structurally deficient, functionally obsolete bridge structures. This project is planned to be funded through the 2023 Transportation Improvement Program for the Southeastern Massachusetts Metropolitan Planning Organization.

B. Alternatives

Additional alternatives considered for the project include the following:

Categorical Exclusion Determination Project Narrative and Checklist

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1. No Build

The no-build option would require that US-6 eventually be closed due to a structurally deficient bridge crossing. As a result, this option was considered undesirable and subsequently dismissed.

There were multiple viable alternatives evaluated for the project along the US 6 corridor within the project limits. The replacement bridge, approach and causeway cross section alternatives consisted of the following: provide sidewalks on both sides of the corridor with increased shoulders for bicycle lanes, provide a shared use path on one side of the corridor with wide shoulder on the opposite side for a dedicated bicycle lane, provide a sidewalk on one side of the corridor with a shared use path on the opposite side, and provide two shared use paths with shoulders along the corridor.

2. Alternative 1

The first alternative was originally discussed during the scoping study for the project and progressed through the preliminary design phase. This alternative maintained two 5.5' sidewalks for pedestrians on each side of the corridor with 5-foot shoulders to accommodate bicycles. This alternative had a minimal impact to the wetland and salt marsh, however, this alternative later identified that it did not meet the needs of the bicycle and pedestrian infrastructure for a safe environment.

3. Alternative 2

The second alternative provided both pedestrian and bicycle access throughout the project while minimizing impacts, however, this alternative did not provide for future improvements along the corridor and was not evaluated any further.

4. Alternative 3

The third alternative evaluated provided a 10-foot shared use path on one side of the corridor and a 5.5' foot sidewalk on the opposite side with 4-foot shoulders. The shared use path would provide access for bicycles and pedestrians while the sidewalk would provide pedestrian access only. While this alternative minimized the impacts to the wetlands and salt marsh, cyclists would need to cross US 6 to utilize the shared use path.

5. Alternative 4 (Proposed Alternative)

The proposed alternative will be comprised of four 11-foot travel lanes, and two 10-foot shared-use paths with 4-foot shoulders. While this alternative results in the most impacts, this allows for safe passage for pedestrian and bicyclists while providing infrastructure to accommodate future corridor improvements.

Categorical Exclusion Determination Project Narrative and Checklist

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C. Existing Conditions, Environmental Impacts, and Mitigation Measures

1. Wetlands and Waterways

Wetlands and Waterways were delineated within proximity of the project area and can be seen in the attached 25% Design Plans. The project will result in temporary and permanent impacts to wetland resource areas jurisdictional under Sections 401 and 404 of the Clean Water Act (CWA). Given that this project is a MassDOT bridge replacement project, permitting under State regulations is not required; therefore, the project does not require an Order of Conditions (OoC), nor an ENF Certificate. However, since an (OoC) is not applicable, the project requires a 401 Water Quality Certification (WQC).

The proposed project will require a submittal to the US Army Corps of Engineers Massachusetts General Permits for the placement of dredge and fill materials within Waters of the United States. The project is subject to General Permit Category 10 (Linear Transportation Project Including Stream Crossings). It cannot meet the time of year restrictions, (it is also unknown at this time if the project will meet the Massachusetts Stream Crossings Standards) and will surpass impact thresholds for Self-Verification (SV) under the General Permit. Therefore, it is likely not eligible for an SV. The proposed project will require a Clean Water Act Section 404 and Section 10 permit through the U.S. Army Corps of Engineers under Pre-Construction Notification (PCN) submittal.

The project occurs on two bridges that are navigable to smaller vessels. MassDOT Environmental believes that larger watercraft involved with commercial operations cannot pass under the bridge. As a Federal aid project, it is currently assumed that the project is eligible for STURRA Approval. MassDOT has reached out to the Municipal Harbor Master, and while Marion identified that the crossing is not used for commercial uses, Wareham identified that it is. As a STURRA-eligible bridge, the project will likely not require a U.S. Coast Guard Section 9 Bridge Permit as a regulated navigable waterway.

2. Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service's Information for Planning and Conservation (IPaC) online mapping tool, three federally listed species exist within the project limits: the northern long-eared bat [NLEB] (*Myotis septentrionalis*). An NLEB Streamlined 4(d) Consultation Form will be sent to the U.S. Fish and Wildlife Service (USFWS) to obtain a programmatic biological opinion under Section 7 of the Endangered Species Act.

Additionally, the Roseate Tern (*Sterna dougallii dougallii*) and Plymouth Redbelly Turtle (*Pseudemys rubriventris bangsiis*) are identified on IPaC as endangered species in the project area.

Additionally, per the NHESP Online Reviewer, the project occurs just north of PH345, state-listed estimated and priority habitats. The project does not occur near any certified or potential vernal pools (CVP / PVP) or Areas of Critical Environmental Concern (ACEC). Coordination with MA NHESP will be required.

Categorical Exclusion Determination Project Narrative and Checklist

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3. Section 4(f) Properties

No Section 4(f) properties occur within the project vicinity; however, a public boat launch occurs approximately 0.75 miles upstream of the bridge crossings and there are Town-owned public lands (beach, conservation).

4. Historic Properties

A review of the Massachusetts Cultural Resource Information System (MACRIS) identified that the bridges proposed for replacement are inventoried properties. Both are deemed ineligible for inclusion in the National Register of Historic Places (NRHP) due to having been a common and rebuilt (i.e. altered) bridge structure. It is not anticipated that any historical properties will be adversely impacted as part of the proposed project activities. See Attachment E.

MassDOT Cultural Resources Unit (CRU) will review the proposed project under the Massachusetts Programmatic Agreement for Section 106 of the National Historic Preservation Act. Solicitation for comment has also been sent to the Massachusetts Historical Commission, MassDOT CRU, and the Marion and Wareham Historical Commissions as part of this Early Environmental Design Coordination Submission.

5. Noise

The project is not a Type I action requiring a noise assessment. It does not involve the construction of a highway on a new location; alteration of an existing highway where there is either a substantial horizontal alteration or a substantial vertical alteration; the addition of a through traffic lanes(s); the addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; the addition or relation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane; or, the addition of a new or substantial alteration of a weigh station, rest stop, ride share lot or toll plaza.

6. Right-of-Way Requirements

Preliminary Right-of-Way Plans have been prepared as part of this submission. Permanent easements will be required for the proposed work slope amendments and retaining walls. A Parcel Summary Sheet is in Attachment I.

7. Other Environmental Impacts

According to the MassGIS Environmental Justice (EJ) Population Data Layer (2020), north of Route 6 in Marion is identified as a minority population area. However, this proposed project will not have a disproportionately adverse impact on EJ populations as it is a transportation enhancement project and will improve conditions for all populations within the project area.

The project occurs within the Massachusetts designated coastal zone and involves federal permits / action; therefore, a Consistency Review from the Massachusetts Coastal Zone Management Office is required during and federal review processes.

Categorical Exclusion Determination Project Narrative and Checklist

MassDOT Project No. 605311

No other environmental impacts are anticipated due to this project as proposed.

D. Public Outreach

Coordination has taken place between MassDOT and the Marion and Wareham Historical Commissions, as well as the Municipal Boards and Officials. Design Public Hearing will be scheduled upon issuance of a notice to proceed from MassDOT.

E. Permitting and Regulatory Review

Permit Review (Agency)	Status / Comments
Section 401/404 Clean Water Act (DEP / USACE) Army Corps of Engineers Permit under Section 10 of the Rivers and Harbors Act	Given that this project is a MassDOT bridge replacement project, permitting under State regulations is not required; therefore, the project does not require an Order of Conditions (OoC), nor an ENF Certificate. However, since an (OoC) is not applicable, the project requires a 401 Water Quality Certification (WQC). The proposed project will require a submittal to the US Army Corps of Engineers Massachusetts General Permits for the placement of dredge and fill materials within Waters of the United States. The proposed project will require a Clean Water Act Section 404 and Section 10 permit through the U.S. Army Corps of Engineers under Pre-Construction Notification (PCN) submittal.
4(d) Consultation (USFWS)	Not yet submitted. The project was surveyed with acoustic monitoring in Summer 2021. This survey did not detect any northern long-eared bats (NLEB). A PBO submittal will be made by MassDOT Environmental, which is expected to receive a bot likely to adversely affect (NLAA) determination. This will clear the project, should the bat be up-listed, through Summer 2026. Review of additional federally-listed species within the project area will also be required.
NHESP Coordination (NHESP)	PH345, state-listed estimated and priority habitats occur just south of the project area. Coordination with NHESP will be required.
Section 106 Clearance (State Historic Preservation Officer)	Request for solicitation letter submitted as part of this Early Environmental Design Coordination.

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Categorical Exclusion (CE) Determination Checklist

Starting with Section 1, answer the questions by checking Yes or No.

After each of the following sections, there will be instructions that direct the preparer to continue to the next appropriate section of the checklist. The source(s) of the information used should be listed at the bottom of the response to each question and supporting documentation should be attached to the checklist. The preparer should refer to MassDOT's *Categorical Exclusion Project Narrative and Checklist Detailed Instructions* for further information and guidance on completing this checklist.

SECTION 1-CATEGORICAL EXCLUSIONS

YES NO

1. Is the project on the list of CEs? YES NO

If "Yes," the preparer should check the CE that is being considered and then complete Section 2 below. If "No," the preparer should complete Section 2 below.

List of Categorical Exclusions

Categorical Exclusions in 23 CFR 771.117(c) (The "C" List)

1. Activities that do not involve or lead directly to construction, such as planning and research activities; grants for training; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed; and Federal-Aid system revisions that establish classes of highways on the Federal Aid highway system. A feasibility study would be an example of this CE.
2. Approval of utility installations along or across a transportation facility.
3. Construction of bicycle and pedestrian lanes, paths, and facilities. Examples include walkways, sidewalks, shared-use paths and facilities, and small passenger shelters provided no new disturbance will occur.
4. Activities included in MassDOT's highway safety plan under 23 USC 402.
5. Transfer of Federal lands pursuant to 23 U.S.C. 107(d) and/or 23 U.S.C. 317 when the land transfer is in support of an action that is not otherwise subject to FHWA review under NEPA.
6. Installation of noise barriers or alterations to existing publicly-owned buildings to provide noise reduction. Examples include maintenance and/or replacement of existing noise wall panels and/or posts.
7. Landscaping. Examples include herbicidal spraying; mowing or brush removal/trimming projects; and beautification or facility improvement projects (e.g., landscaping, curb and gutter replacement, installation of park benches, or decorative lighting).
8. Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur. Examples include the installation or maintenance of signs, pavement markings/raised pavement

Categorical Exclusion Determination Project Narrative and Checklist

MassDOT Project No. 605311

markers/sensors, traffic calming activities, new or replacement right-of-way fencing, and general pavement marking or "line painting" projects.

9. The following actions for transportation facilities damaged by an incident resulting in an emergency declared by the Governor of Massachusetts and concurred by the Secretary of the United States Department of Transportation (the Secretary), or a disaster or emergency declared by the President pursuant to the Robert T. Stafford Act (42 U.S.C. 5121):
- (a) [Emergency repairs](#) under the FHWA Emergency Relief Program (23 U.S.C. 125); and
 - (b) The repair, reconstruction, restoration, retrofitting, or replacement of any road, highway, bridge, tunnel, or [transit facility](#), including ancillary transportation facilities (such as pedestrian/bicycle paths and bike lanes), that is in operation or under construction when damaged and the action:
 - (i) Occurs within the existing right-of-way and in a manner that substantially conforms to the preexisting design, function, and location as the original (which may include upgrades to meet existing codes and standards as well as upgrades warranted to address conditions that have changed since the original construction); and
 - (ii) Is commenced within a two-year period beginning on the date of the declaration.
10. Acquisition of scenic easements. Examples include conservation easements and mitigation easements.
11. Determination of payback under 23 USC 156 for property previously acquired with Federal Aid participation.
12. Improvements to existing rest areas and truck weigh stations. Examples include resurfacing of existing parking areas, truck stop electrification, and construction/installation of alternative energy facilities at existing facilities.
13. Ridesharing activities. Examples include transportation corridor fringe parking facilities and park and-ride lots.
14. Bus and rail car rehabilitation.
15. Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons.
16. Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand.
17. The purchase of vehicles whose use can be accommodated by existing facilities or by new facilities which themselves are categorically excluded. An example would be the purchase or conversion of vehicles to alternative fuel uses.
18. Track and rail bed maintenance and improvements when carried out within the existing right-of-way.
19. Purchase and installation of operating or maintenance equipment to be located within the [transit facility](#) and with no significant impacts off the site.

Categorical Exclusion Determination Project Narrative and Checklist

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20. [Not Applicable]
21. Deployment of [intelligent transportation systems](#).
22. [Projects](#), as defined in 23 U.S.C. 101, that would take place entirely within the [existing operational right-of-way](#). Examples include:
- Tower lighting.
 - Guardrail installation and replacement (including median cable barriers) where roadway ditches and backslopes will not be relocated.
 - Improvements to existing MassDOT maintenance facilities.
 - Construction of new MassDOT maintenance facilities within an existing operational right-of-way.
 - Work on pedestrian and vehicle transfer structures and associated utilities, buildings, and terminals.

(For CE C-22, see Categorical Exclusion Determination Project Narrative and Checklist Detailed Instructions).

23. Federally-funded projects:
- (a) That receive less than \$5 million of Federal funds (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor); or
 - (b) With a total estimated cost of not more than \$30 million (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor) and Federal funds comprising less than 15 percent of the total estimated project cost.

(For CE C-23, see Categorical Exclusion Determination Project Narrative and Checklist Detailed Instructions).

24. Localized geotechnical and other investigation to provide information for preliminary design and for environmental analyses and permitting purposes, such as drilling test bores for soil sampling; archaeological investigations for archaeology resources assessment or similar survey; and wetland surveys. (This CE only applies to stand alone projects, not for environmental surveys being conducted as part of a project with an environmental document).
25. Environmental restoration and pollution abatement actions to minimize or mitigate the impacts of any existing transportation facility carried out to address water pollution or environmental degradation. These actions include retrofitting and construction of stormwater treatment systems to meet Federal and State requirements under Sections 401 and 402 of the Federal Water Pollution Control Act (33 USC 1341; 1342).
26. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding [auxiliary lanes](#) or parking lanes. Examples include:
- Construction of highway safety and truck escape ramps.
 - Construction of bicycle lanes and pedestrian walkways, sidewalks, shared-use paths, or facilities and trailhead parking that do not otherwise qualify for a CE C-1 designation.
 - Beautification or facility improvement projects (e.g., landscaping, curb and gutter

Categorical Exclusion Determination Project Narrative and Checklist

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- installation and replacement, ADA ramps/curb ramps, installation of park benches, or decorative lighting).
- Implementation of Complete Street elements to improve safety and/or pedestrian, bicycle, transit, vehicular, or freight mobility.
27. Highway safety or traffic operations improvement projects, including the installation of ramp metering control devices and lighting. Examples include lane reduction changes, provided that traffic analyses are completed.
28. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
29. Purchase, construction, replacement, or rehabilitation of ferry vessels (including improvements to ferry vessel safety, navigation, and security systems) that would not require a change in the function of the ferry terminals and can be accommodated by existing facilities or by new facilities which themselves are within a CE.
30. Rehabilitation or reconstruction of existing ferry facilities that occupy substantially the same geographic footprint, do not result in a change in their functional use, and do not result in a substantial increase in the existing facility's capacity. Example actions include work on pedestrian and vehicle transfer structures and associated utilities, buildings, and terminals.

Categorical Exclusions in 23 CFR 771.117(d) (The "D" List)

1. to 3. [Reserved]
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.
8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and is located on or near a street with adequate capacity to handle anticipated and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of [bus transfer facilities](#) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

Categorical Exclusion Determination Project Narrative and Checklist

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12. Acquisition of a particular parcel or a limited number of parcels for [hardship](#) or [protective](#) purposes where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed. An example is right-of-way acquisition only for a bikeway/pedestrian facility (no construction).

SECTION 2-CE AND UNUSUAL CIRCUMSTANCES QUESTIONS	YES	NO
2. Does the project induce significant impacts to planned growth or land use for the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Does the project require the relocation of significant numbers of people?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Does the project have a significant impact on any natural, cultural, recreational, historic, or other resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project involve significant air, noise, or water quality impacts?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Does the project have a significant impact on travel patterns?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Does the project involve substantial controversy on environmental grounds?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Does the project have a significant impact on Section 4(f) properties or on historic properties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Is the project inconsistent with any Federal or state requirement or administrative determination relating to the environmental aspects of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the answer for any of the questions within Section 2 is "Yes," then the project does not qualify as a CE and an EA or EIS is required. If the answer for all the questions within Section 2 is "No," the preparer should complete Section 3 below.

SECTION 3-SEGMENTATION QUESTIONS	YES	NO
10. Is the action a linear project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If the answer is "Yes," the preparer should complete Questions 11 through 13. If the answer is "No," the preparer should not respond to Questions 11 through 13 and advance to Section 4 below.

11. Does the project have independent utility?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Does the project connect logical termini?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Does the project allow further consideration of alternatives for other reasonably foreseeable transportation improvements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If any of the answers for Questions 11, 12, and 13 is "No," then the project does not qualify as a CE and consultation between MassDOT and FHWA is required. If the answers for Questions 11, 12, and 13 are "Yes," the preparer should complete Section 4 below.

Categorical Exclusion Determination Project Narrative and Checklist

MassDOT Project No. 605311

SECTION 4-PROGRAMMATIC CE CONDITION QUESTIONS	YES	NO
14. Does the project involve the permanent acquisition of more than minor amounts of right-of-way or involve non-residential or residential displacements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Does the project have a substantial environmental impact from the intended future use of land involved in the sale, transfer, or lease of state-owned property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Does the project have a finding of adverse effect on historic properties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Does the project have a disproportionately high and adverse impact on minority or low income populations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. Is the project a Type I project requiring a noise analysis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19. Does the project require the use of Section 4(f) properties necessitating the preparation of an Individual Section 4(f) Evaluation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20. Does the project require the use of Section 6(f) properties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21. Does the project require an Army Corps of Engineers Section 10 permit or Individual Section 404 permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
22. Does the project require a U.S. Coast Guard bridge permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
23. Does the project adversely affect Federally-listed threatened or endangered species or critical habitat?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
24. Does the project involve a floodplain encroachment other than for functionally dependent uses or actions that facilitate open space use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
25. Does the project involve construction in, across, or adjacent to a river component designated or proposed for inclusion in the National System of Wild and Scenic Rivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
26. Does the project convert prime or unique agricultural land to nonagricultural uses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
27. Does the project affect a known Superfund site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
28. Does the action involve any changes in access control?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
29. Does the project involve the construction of temporary access or closure of existing road, bridge, or ramps?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Categorical Exclusion Determination Project Narrative and Checklist

MassDOT Project No. 605311

If the answers to Question 14 through 29 are "No" then the project qualifies as a Programmatic CE. If any of the answers to Questions 14 through 28 are "Yes" then the project cannot be classified as a Programmatic CE and an Individual CE approval from FHWA is required. If the answer to Question 29 is "Yes", the preparer should complete Question 30 below.

	YES	NO
30. Does the project meet the following conditions for construction of temporary access or closure of existing road, bridge, or ramps?	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Provisions have been made for access by local traffic and are posted; There will be no adverse effects on through-traffic dependent business; The temporary access or closure of existing road, bridge, or ramps will not interfere with a local special event or festival; The temporary access or closure of existing road, bridge, or ramps will not substantially change the environmental consequences of the project; or There is no substantial controversy associated with the temporary access or closure of existing road, bridge, or ramps. 		

If the answer to Question 30 is "Yes," then the project qualifies as a Programmatic CE. The checklist and all supporting information should be submitted to the MassDOT Project Manager.

If the answer to Question 30 is "No", then the project cannot be classified as a Programmatic CE and an Individual CE approval from FHWA is required. The preparer should attach to this checklist all supporting information to clearly establish that there is little or no potential for significant impact. The Individual CE and supporting information will be submitted to the FHWA Massachusetts Division for approval.

I concur with this categorical exclusion determination:

Director of Environmental Services (or designee)	Date

For Individual CEs, the FHWA Division Administrator's signature is also required.

Division Administrator (or designee)	Date

FHWA Comments/Conditions:

Categorical Exclusion Determination Project Narrative and Checklist

MassDOT Project No. 605311

Massachusetts Department of Transportation Categorical Exclusion Reevaluation

MassDOT is conducting a reevaluation of this CE because one or more of the following circumstances has occurred:

- There are substantial changes in the proposed action that are relevant to environmental concerns or;
- There are significant new circumstances or information relevant to environmental concerns and that have a bearing on the proposed action or its impacts or;
- The project has not commenced (*i.e.*, has not started construction) within three years from the project's CE determination and MassDOT has not re-examined the environmental studies during that time.

A. Date Categorical Exclusion Approved: [Click here to enter text.](#)

B. Are the proposed improvements substantially different than those approved for the Categorical Exclusion?

Yes No Explanation: [Click here to enter text.](#)

C. Have there been changes in the project surroundings?

Yes No Explanation: [Click here to enter text.](#)

D. Are the environmental impacts from the proposed improvements substantially different?

Yes No Explanation: [Click here to enter text.](#)

The above information verifies that the current proposed action, when compared to that for which a CE was approved, will not result in substantially different environmental impacts. The CE classification for the proposed action is, therefore, still valid.

Director of Environmental Services
(or designee)

Date

For Individual CEs, the FHWA Division Administrator's signature is also required.

Division Administrator
(or designee)

Date

Attachment C

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

SITE FIGURES
PHOTOGRAPHS



Scale:
1 inch = 2,000 feet
0 1,000 2,000
Feet
(Page Size 8.5 x 11)

MARION / WAREHAM BRIDGE REPLACEMENT PROJECT
USGS Site Location Map
Marion & Wareham, MA



Source: Copyright ©
2013 National
Geographic Society, Inc.





Photo #1: View southwest in Wareham of Route 6 towards W-06-016. Marion is on the far side..



Photo #2: View northeast in Marion of Route 6 towards M-05-001=W-06-013 and the Town line of Marion-Wareham.



Photo #3: View south from Wareham salt marsh on northwest side of crossing (upstream) to the project area and Bridge # W-06-016.



Photo #4: View northeast from Wareham salt marsh adjacent to Rt 6, on northeast side of crossing at Bridge # W-06-016.



Photo #5: View north / northeast from Marion salt marsh on southeast side of crossing (downstream) to the project area and Bridge # M-05-001=W-06-013.



Photo #6: View southwest from Marion salt marsh adjacent to Rt 6, on southwest side of crossing at Bridge # M-05-001=W-06-013.

Attachment D

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

25% DESIGN WATER QUALITY DATA FORM

Project Information

The following questions should be filled out at the 25% design stage.

WARNING: Do not attempt to cut and paste cells. Form will malfunction.

1. Have you downloaded the most recent version of the Water Quality Data Form?

Yes

For questions 2-5, please use MassDOT's Project Information Look-Up Website to populate the yellow fields.

2. Project Number (From Project Info Website):

605311

3. Project Type (From Project Info Website):

Bridge

4. Project Name (From Project Info Website):

MARION- WAREHAM- BRIDGE REPLACEMENT, M-05-001=W-06-013 & W-06-016, WAREHAM STREET (US 6)
OVER WEWEANTIC RIVER

5. Location of Project (From Project Info Website):

Project Road(s): US-6

Cities and/or Towns: Marion & Wareham

District Number: 5

6. Project Designer:

Design Firm: Parsons(Steven Dylingowski)

Contact Person for Follow-Up: Matt Creighton (BSC Group, Ecological)

Email Address for Follow-Up: mcreighton@bscgroup.com

Phone Number for Follow-Up: 617-896-4591

Extension:

7. Who will have final ownership of the road or bridge this project is addressing?

MassDOT

Receiving Water Body Information

8. Does any runoff from the site enter a separate storm sewer system (MS4) operated by an organization other than MassDOT, such as a municipality?

No

- 9a. Is the project located in a watershed with one or more Draft or Final pollutant Total Maximum Daily Load(s) (TMDL)?

Yes

- 9b. Which Draft and/or Final pollutant TMDL(s) apply to the watershed?

Bacteria/Pathogens

Nitrogen

Stormwater

Phosphorus

10. How many water bodies on MassDEP's Year 2012 Integrated List of Waters receive stormwater runoff from the area impacted by this project (via any combination of piped or over land flow)?

1

Water Body #1

11. Segment ID of the receiving listed water body:

MA95-05

Name of the receiving listed water body:

Weweantic River

Receiving water body status:

Impaired

Receiving water body impairments:

Estuarine Bioassessments, Fecal Coliform, Nitrogen (Total)

Final TMDLs for receiving water body:

Bacterial/Pathogens

12. Notes about conceptual BMPs that are planned to treat stormwater flowing to Water Body #1 (Weweantic River):

The waterbody and associated wetlands and marshes will be protected from construction with the use of cofferdams, siltfence and/or compost filter tubes. Generally the final proposed bridge project will utilize catch basins to protect the River and wetland resource areas.

Recommendations and Requirements for BMPs Based on Status of Water Body #1

Ensure that any BMPs are recorded on the Water Quality Data Form for the 75% design stage. See the section of this form titled **Project Specific BMP Recommendations** for project-wide recommendations and contact information for MassDOT.

Recommendations Based on Receiving Water Body Impairment Status

BMPs must be implemented to ensure that stormwater discharging from this site does not contribute to the water quality impairments of this receiving water body. Water bodies impaired for nitrogen benefit from BMPs with bio-uptake capabilities, such as bioretention basins. Water bodies with most other impairments related to stormwater runoff (such as phosphorus, turbidity, excess algal growth, dissolved oxygen, etc.) benefit from infiltration or bioretention BMPs. Water bodies impaired for chlorides benefit mostly from non-structural BMPs, such as source control, so BMPs proposed for sites adjacent to these types of water bodies should be discussed with MassDOT.

Recommendations Applicable to Receiving Water Bodies with TMDL(s)

BMPs must be implemented to ensure that stormwater discharge is consistent with any applicable Waste Load Allocation (WLA) for the TMDL(s) covering this receiving water body.

Project Specific BMP Recommendations

Reference the MassDEP Storm Water Handbook for more detailed guidance on selecting BMPs.

Recommendations for Projects Located within TMDL Watershed(s)

BMPs must be implemented to ensure that stormwater discharge is consistent with any applicable Waste Load Allocation (WLA) for the TMDL(s) covering this watershed. Nitrogen is most effectively removed using BMPs that utilize bio-uptake. Consider proposing bioretention basins as part of the project.

Recommendations for Projects with a Listed Receiving Water Body

When weighing the need for BMPs versus the feasibility of design and construction, consider the proximity of receiving water bodies on MassDEP's Year 2012 Integrated List of Waters. For example, if stormwater runoff from the project area flows through an expansive wetland or ephemeral stream prior to entering a water body on the list, take into account that many stormwater pollutants will be naturally treated. In such instances, pollutant-specific BMPs are suggested but not required under the Impaired Waters Program. It is more important to retain the integrity of the wetland or ephemeral stream and only implement additional BMPs to the maximum extent practicable in accordance with the Massachusetts Stormwater Standards.

At the other extreme, if stormwater runoff from the site is piped directly into a water body listed on the Year 2012 Integrated List of Waters, no pollutants are removed from stormwater prior to discharge, and it is more likely that stormwater runoff will negatively impact water quality. In this case, pollutant-specific BMPs need to be incorporated into the project. Consider all possibilities to overcome site limitations. This shall be a project by project determination.

Recommendations for Bridge Projects

Consider reconstructing existing outfalls so as to maximize the length of the flow path between the outfall and the receiving water body. This may involve moving the outfall further away from the receiving water body and/or positioning the outfall to discharge runoff at an angle. New outfalls should also incorporate protection against erosive discharge velocities. If land is available, consider incorporating an infiltration-style BMP at the new outfall. Otherwise, investigate the feasibility of re-routing stormwater to an area with more available space, such as within roadway interchanges and ramp systems. Leaching catch basins are also a good option for infiltrating in constrained spaces.

For project areas discharging to a cold water fishery, consider implementing infiltration BMPs to reduce the likelihood that the temperature of the stormwater will negatively impact the fishery habitat.

Consider reducing the amount of existing impervious cover in the project area while remaining in compliance with applicable safety standards.

In some cases, the surface drainage from short-span bridges can be conveyed by gutter flow to beyond the end of the bridge. In these cases, stormwater management measures may be feasible. However, this feasibility will depend in part on the space available at the abutment for installation of treatment measures.

Recommendations for Non-Structural BMPs

Consider implementing as many of the following non-structural BMPs as possible:

- Preserve as much of the pre-development vegetation as possible
- Preserve natural drainage patterns and riparian buffers
- Minimize disturbance to wetland resource areas
- Reduce or eliminate curbing in well-vegetated areas that gently slope downward and away from the road
- Use shallow, grassed roadside swales and parking lot islands with check dams instead of curb and gutter storm drainage systems
- Reduce existing impervious cover or minimize the construction of additional impervious cover

Contact Bryan Cordeiro in the Environmental Section of MassDOT for guidance selecting appropriate BMPs. He can be reached at 857-368-8813 or at Bryan.Cordeiro@state.ma.us

Form Submission

13. Submittal Type:

Original

Name of MassDOT Reviewer:

(For internal use only)

14. Date Submitted to MassDOT:

01/03/2022

(mm/dd/yyyy)

Check box once all entries have been filled out. Form can be submitted once box has been successfully checked.

Attachment E

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

LISTED HISTORICAL RESOURCES

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): **Marion**; Street Name: **Wareham Rd**; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
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Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): **Marion**; Street Name: **Wareham St**; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
MRN.900	Weweantic River Bridge - Western Bridge	Wareham St	Marion	1929
MRN.63	Benson, Consider House	287 Wareham St	Marion	r 1865
MRN.64	Holmes, Peter A. House	288 Wareham St	Marion	r 1865
MRN.65	Hale, Capt. House	294 Wareham St	Marion	r 1865
MRN.66	Cowen, J. C. - Griffith, Josiah S. House	306 Wareham St	Marion	c 1850
MRN.152	Washburn, Isaac and Japhet House Chase,	319 Wareham St	Marion	c 1800
MRN.153	Augustus M. House	325 Wareham St	Marion	r 1890
MRN.154		331 Wareham St	Marion	r 1910
MRN.155	Faunce, Seth House	335 Wareham St	Marion	r 1890
MRN.156	Swift, Moses H. - Delano, George House	336 Wareham St	Marion	r 1865
MRN.139	Allen, John D. House	390 Wareham St	Marion	r 1845

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	MRN.900
Historic Name:	Weweantic River Bridge - Western Bridge
Common Name:	
Address:	Wareham St
City/Town:	Marion
Village/Neighborhood:	
Local No:	
Year Constructed:	1929
Architect(s):	Campanella and Cardi Construction Co; Hosmer, C. I. Inc.
Architectural Style(s):	Stringer; T Beam
Use(s):	Other Transportation
Significance:	Engineering; Transportation
Area(s):	
Designation(s):	
Building Materials(s):	



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Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on: Thursday, March 18, 2021 at 9:28: AM

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	WRH.913
Historic Name:	Weweantic River Bridge - Western Bridge
Common Name:	
Address:	Wareham St
City/Town:	Wareham
Village/Neighborhood:	Briarwood Beach
Local No:	
Year Constructed:	1929
Architect(s):	Campanella and Cardi Construction Co; Hosmer, C. I. Inc.
Architectural Style(s):	Stringer; T Beam
Use(s):	Other Transportation
Significance:	Engineering; Transportation
Area(s):	
Designation(s):	
Building Materials(s):	



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Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on: Monday, September 20, 2021 at 9:53: AM

HISTORIC BRIDGE INVENTORY & EVALUATION

MRN. 900/
WRH. 913

Date: May 16, 1983

Municipality MARION/ WAREHAM S.H. X N.S.H.

Street Name & Route # Wareham St. (Rte. 6)

Over Weweantic River

Street Name & Route # NA

Bridge No. M-5-1/ W-6-13 Bridge Key # 035-724-000-101 Dist. 7

CRITERIA FOR DETERMINATION OF HISTORIC SIGNIFICANCE

I. Builders Contribution

Quantity

Unknown X Several (1-10) Many (10 or more)

Name of Builder: Orig: C.I. Hosmer, Inc.
Widening: Campanella & Cardi Const. Co.

Designer: UNK

Plaque: Yes No. X

II. AGE: Pre 1850 1850-1900 1900-1930 1929

III. TECHNICAL Orig.- Cont. conc. T-Beam
Bridge Type Widening - Cont. steel stringer
Bridge Width 58.8'
Total Length of Bridge 109'
Number of Spans: TWO Span Lengths 48.8' 48.8'
Patented: Yes No Unknown X
Load Carrying Capacity: Adequate X Inadequate
Configuration: Unique Unusual Common X
Types of Materials: Re.Conc. & Steel striners

List Special Features and Modifications:
NONE

ENVIRONMENTAL

Aesthetics: Unusual _____ Good X Common _____
Site Integrity: Retained X Violated _____
History of Bridge and Area: See separate sheet

LOCAL HISTORIC COMMISSION

Date Written: April 28, 1980

Response: _____ No Response: x

ECONOMICS

Owner: Municipal _____ County _____ State X Federal _____
R.R. _____

What is your recommendation?

Maintenance X Replacement _____ Rehabilitation _____
Are materials available for Rehabilitation: Yes X No _____
Is structure scheduled for replacement? Yes _____ No X

PHOTOS - INDICATE SHOTS TAKEN

- | | |
|----------------------------|------------------------|
| 1. Setting | 6. Elevation |
| 2. Builders Plaque | 7. Joint & Connections |
| 3. 3/4 View | 8. Machinery |
| 4. Thru View Looking North | 9. Decorative Features |
| 5. Under View | |

Date & Seal S.E. End Post

COMMENTS & CONCLUSIONS

- In your judgement, does this bridge have historic value? Yes _____ No X
- Please explain your answer to #1

There is no obvious sign of the 1929 bridge.

Prepared by: Richard A. Corsano
Asst. Env. Eng., Dist 7, MDPW
Date of Survey: May 16, 1983

INCLUDE TOPO SHEET SHOWING LOCATION

MDPW RECOMMENDATION - NATIONAL REGISTER ELIGIBILITY

Municipality

Street on

No.

Bridge: Wareham Wareham St. (Rte. 6) W-6-13

= M05001

Historic evaluation

Significant because:

- 1) Unusual or unique type ---
- or rare survivor of common type ---
- 2) Early example of type ---
- 3) Design - Valuable contribution to bridge technology ---
- 4) Retains integrity ---
- 5) Builder known and important ---
- 6) Bridge historically important to area ---

Not significant because:

- 1) Common type ~~---~~
- 2) Post-1931 ~~---~~
- 3) Design - no contribution to bridge technology ~~---~~
- 4) Integrity lost because of: ~~---~~
 - a) alterations ~~---~~
 - b) disintegration ---
- 5) Builder unimportant or not known ---
- 6) No known significance in area ~~---~~

Potentially eligible

Not eligible

Comments:

Built 1929, Rebuilt 1957⁶

HISTORY OF BRIDGE AND AREA
Supplement

The Town of Wareham contains the village of Onset, whose history is more noteworthy than the town as a whole. (See historic bridge report on bridge # W-6-14 for a brief history of Onset.). Wareham's geographical location is of note, however.

Prior to construction of Routes 24 and 25, Main Street, Wareham (Route 28) was one of only two routes to Cape Cod, (Route 3A being the other) making Wareham "The Gateway to Cape Cod", as proclaimed on two miniature stone lighthouses (15' high +) at the town line on Route 28. Also, the town is located in the heart of "Cranberry Country" and is the site of Ocean Spray Cranberry Company's former main plant which now houses the Cranberry Museum.

Wareham encompasses the northern shore of Buzzards Bay at the eastern entrance to the Cape Cod Canal. Settled early in colonial history, its long history as a fishing port is highlighted by its part in New England whaleing history. In the mid to late 1800's it supplied men to the vessels sailing out of Nantucket and New Bedford and was home port to several whaleing vessels of its own.

More detailed information is available through local libraries and I will be happy to provide further information if it should prove helpful.

Richard A. Corsano
Asst. Env. Eng.
District 7, M.D.P.W.

Name of Bridge	Weweantic River Bridge	Station	Station 251+58.75 Wareham 0+00
River	Weweantic River	Actual Capacity	H-20-44
Date of Construction	1929 original 1957 widening	Cost	\$67,462. 64,000.
Contractor	C.I. Hosmer, Inc. - original Campanella & Cardi Const. Co. - widening westerly side	Type of Bridge	2 span R.C. Deck-Tee B 2 span R.C. Deck 2 @ 49'9" clear spans =
Contributions to Cost	1929 50% Federal 50% State 1957 100% State	Span Lengths	2 @ 53'0" C-C B 1 original 1 widening
Street Railway		Plans	
No. of Tracks	Still In Use	Maintenance Responsibility	Mass.
Public Utilities	6" Gas & Tel. duct in west bay of 1929 portion		
Abutment		Abutments:	Stone masonry faced conc Type gravity
Bridge Lights	None	Piers:	1 Type gravity
Maintained By		Spacing	53'0"
Number	Type	Other Information	Rubble concret original and widening 10' R.C. approach sl
Maintenance of Road At Each End of Bridge	Mass. D.P.W.		
Has State Layout Been Made	1957 Alteration		

PRINTED IN U. S. A. BY ART METAL CONSTRUCTION CO., PATENT CO. DIVISION, JAMESTOWN, N. Y. MASS. DEPT. OF PUBLIC WORKS - MAINTENANCE 96-H-0389-14 CT LP

Clearance To: Bed of Stream	20' +	S	"
High Tide	7' +	Fences:	"B" Metal with 3 broke Type face ashlar m
Roadway		Sidewalks:	Type R.C.
Railroad Tracks		Roadway:	Surface P.C.I.
Normal Rise of Tide	El. +2.2	Deck:	Type R.C.
Normal Depth of Water		Floor System:	R.C. Deck/Tee Pms. Type R.C. slab/s
Normal Depth of Water	12' + at pier	Trusses or Girders	4-33 W 130
Stream Navigable to This Bridge	Yes	Total Weight of Steel	Stringers
Other General Information		Other Information	
Deck Area =	110.2 x 44.0 = 4849 S.F.		539 S.Y.
Work Area =	110.2 x 58.5 = 6447 S.F.		716 S.Y.

SKETCHES
MRN. 908/
WRH. 913

MRN. 900/
WRH. 913

Station Wareham 0+00 Bridge Division No. W-6-13
 Station 251+58.75 M-5-1

Actual Capacity H-20-44 Posted Capacity N.P.
 Type of Bridge 2 span R.C. Deck-Tee Em. Arch-original
 2 span R.C. Deck-I Em. -widening
 2 @ 49'9" clear spans - original
 Span Lengths 2 @ 53'0" C-C Bearing
 Plans 1 original
 1 widening
 Maintenance Responsibility Mass. D.P.W.

SUBSTRUCTURE

Stone masonry faced conc.
 Abutments: Type gravity Foundation Timber Piles
 Stone masonry faced conc. Rubble concrete
 Piers: 1 Type gravity Foundation footing
 Spacing 53'0"
 Other Information Rubble concrete gravity wings on timber piles
 original and widening
 10' R.C. approach slab at widening only

MAINTENANCE 96-H-0389-14 CT LP

SUPERSTRUCTURE

"B" Metal with 3 broken range seam
 Fences: Type face ashlar mas. posts Length Each Side 123'0"
 Sidewalks: Type R.C. No. 2 Clear Width 5'7"
 Roadway: Surface B.C.I. Clear Width 44'0"
 Deck: Type R.C. Depth 8" original
 7" widening
 Floor System: Type R.C. Deck/Tee Em. - original
 R.C. slab/steel stringers - widening
 Trusses or Girders 4-33 W 130 - widening Spacing 6'0"
 Total Weight of Steel Stringers - widening Tons 32.0 ±
 Other Information

SKETCHES

MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS

STRUCTURE INVENTORY AND APPRAISAL

BRIDGE NO. W-6-13, M-5-1

BRIDGE MNT. NO. 035-724-00.0 - 101

PAGE 1

IDENTIFICATION		ITEM NO.	CARD CONTROL NUMBER	CARD COL.
1	State Massachusetts			
2	Highway District 7			
3	County Plymouth	4	City/Town Wareham-Marion	
5	Inventory Route IIS 6		Principal <input checked="" type="checkbox"/> Other <input type="checkbox"/>	
6	Features Intersected Meweantic River			
7	Facility Carried by Structure IIS 6			
8	Structure No. 035-724-00.0	1	of 1	
9	Location IIS 6 crossing Wareham-Marion T.L.			
10	Inventory Rte. - Min. Vert. Clearance - Unlimited			
11	Milepoint 41.35			
12	Road Section No. 153			
13	Defense Bridge Letter R			
14	Defense Milepoint 9.78			
15	Defense Section Length 4.3			
16	Latitude 41.43			
17	Longitude 070.478			
18	Physical Vulnerability Concrete Girder			
19	Bypass Detour Length 7			
20	Toll Bridge	On Toll Road <input type="checkbox"/>	On Free Road <input checked="" type="checkbox"/>	
21	Custodian State Highway Dept.			
22	Owner State Highway Dept.			
23	F.A.P. No. 109-A			
CLASSIFICATION				
24	Fed. Aid System	05 03	Transfer of Data	Shutt 6/12/72
25	Administrative	1	Maintenance Inspection	Lozier 3/29/72
26	Functional	04	Condition Analysis	
			Appraisal	
			Cost Estimate	
			General Review	
43	Concrete Continuous Tee Beam			
STRUCTURAL DATA				
27	Year Built 1929	Altered 1957	43	Structure Type - Main
28	Lanes on Str. 4	Under 0	44	Approach N/A
29	ADT on Str. 10, 100	30 Year 1960	45	No. of Spans - Main 2
31	Design Load H-20		46	Approach N/A
32	Appr. Rdwy Width w/Shld 44.0'		47	Total Horiz clear 440
33	Br. Median <input checked="" type="checkbox"/> None <input type="checkbox"/> Open <input type="checkbox"/> Closed		48	Max. Span Length Cir. 48.8 ft.
34	Skew 0°		49	Structure Length 109 ft.
35	Structure Flored <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		50	Sidewalk Rt. 5.6 ft. Lt. 5.6 ft.
36	0000		51	Br. Roadway (curb-curb) 14.0 ft.
37			52	Deck Width (out-out) 58.8 ft.
38	Navigation Control <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		53	Vert. Clearance over Deck unlimited ft.
39	Vertical ft.		54	Under Clearance - Vertical N/A ft.
40	Horizontal ft.		55	Lateral - Right N/A ft.
41	A		56	Left N/A ft.
42	Type Service HP/W		57	Wearing Surface Asphalt

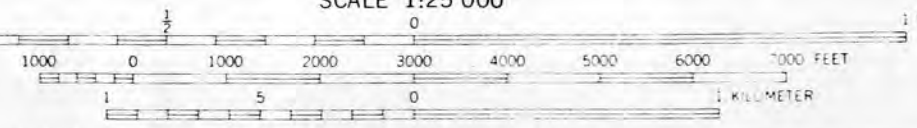


MRN. 900
WRH. 913

WAREHAM
W-6-13
(M-5-1) MARION Rte 6
OVER WEWEANTIC AND
WAREHAM STREET
SHOWN BY ARROW
LOCUS PLAN
WAREHAM QUADRANGLE



SCALE 1:25 000



(M-5-1)
W-6-13)

MACRIS No. MRN. 900/
WRH. 913



FROM NE (7-6-84)



FROM E (7-6-84)



THRU VIEW LOOKING NORTH (4-6-83)



DATE AND SEAL, SE CORNER (4-6-83)

TO: _____

RETURN TO REVIEWER BY _____
(DATE)

FROM: _____

DATE: 8/2/84

TOWN: MARION / WAREHAM

PROPERTY: M-5-1/w-6-13 Wareham St (Rt-6) over We want. River

(NAME AND ADDRESS)

(Western Bridge)

1. Does this property meet the criteria for NR eligibility?

YES

NO

A. Criteria

- a. events
- b. lives
- c. characteristics
- d. information

B. Local _____ State _____ National _____

2. Statement of Significance: OR Why not eligible?

.....

.....

Built in 1929. Rebuilt in 1956

re-concrete with steel stringer

note two span bridge

.....

DOE LETTER WRITTEN

8/2/1984

(DATE)

FILED IN ER FILE _____

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): **Wareham**; Street Name: **Marion Rd**; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
WRH.902	Marion Road Bridge over Weweantic River	Marion Rd	Wareham	1929
WRH.913	Weweantic River Bridge - Western Bridge	Wareham St	Wareham	1929

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	WRH.902
Historic Name:	Marion Road Bridge over Weweantic River
Common Name:	Route 6 Bridge over Weweantic River
Address:	Marion Rd
City/Town:	Wareham
Village/Neighborhood:	Briarwood Beach
Local No:	
Year Constructed:	1929
Architect(s):	Campanella and Cardi Construction Co; Hosmer, C. I. Inc.
Architectural Style(s):	Stringer; T Beam
Use(s):	Other Transportation
Significance:	Engineering; Transportation
Area(s):	
Designation(s):	
Building Materials(s):	



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Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
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This file was accessed on: Thursday, March 18, 2021 at 9:19: AM

HISTORIC BRIDGE INVENTORY & EVALUATION

WRH.902

Date: May 16, 1983

Municipality WAREHAM S.H. N.S.H.

Street Name & Route # Marion Road (Rte. 6)

Over Weweantic River

Street Name & Route # NA

Bridge No. W-6-16 Bridge Key # 035-743-072-101 Dist. 7

CRITERIA FOR DETERMINATION OF HISTORIC SIGNIFICANCE

I. Builders Contribution

Quantity

Unknown Several Many
 (1-10) (10 or more)

Name of Builder: Original: C.I. Hosmer Inc.

Designer: Widening: Campanella & Cardi Construction Co.
UNK

Plaque: Yes No

II. AGE: Pre 1850 1850-1900 1900-1930 1929

III. TECHNICAL

Bridge Type Orig: Cont. conc. T-beam; Widen Cont Steel Stringer

Bridge Width 58.5'

Total Length of Bridge 148'

Number of Spans: Three Span Lengths 44.5' 51.5' 44.5'

Patented: Yes No Unknown

Load Carrying Capacity: Adequate Inadequate

Configuration: Unique Unusual Common

Types of Materials: Steel & Re. conc.

List Special Features and Modifications: NONE

V. ENVIRONMENTAL

Aesthetics: Unusual _____ Good X Common _____
Site Integrity: Retained X Violated _____
History of Bridge and Area: _____

See seperate sheet

1a. LOCAL HISTORIC COMMISSION

Date Written: April 28, 1980

Response: _____
ECONOMICS

No Response: X

Owner: Municipal _____ County _____ State X Federal _____
R.R. _____

What is your recommendation?

Maintenance X Replacement _____ Rehabilitation _____
Are materials available for Rehabilitation: Yes X No _____
Is structure scheduled for replacement? Yes _____ No X

PHOTOS - INDICATE SHOTS TAKEN

- | | |
|----------------------------|---------------------------|
| 1. Setting | 6. Elevation |
| 2. Builders Plaque | 7. Joint & Connections |
| 3. 3/4 View | 8. Machinery |
| 4. Thru View Looking North | 9. Decorative Features |
| 5. Under View | Date & Seal S.E. End Post |

COMMENTS & CONCLUSIONS

- In your judgement, does this bridge have historic value? Yes _____ No X
- Please explain your answer to #1
The 1956 widening obliterated any trace of the original bridge.

Prepared by: Richard A. Corsano
Title: Asst. Env. Eng., Dist 7, MDPW
Date of Survey: May 16, 1983

INCLUDE TOPO SHEET SHOWING LOCATION

HISTORY OF BRIDGE AND AREA Supplement

The Town of Wareham contains the village of Onset whose history is more noteworthy than the town as a whole. (See historic bridge report on bridge # W-6-14 for a brief history of Onset.). Wareham's geographical location is of note, however.

Prior to construction of Routes 24 and 25, Main Street, Wareham (Route 28) was one of only two routes to Cape Cod, (Route 3A being the other) making Wareham "The Gateway to Cape Cod", as proclaimed on two miniature stone lighthouses (15' high \pm) at the town line on Route 28. Also, the town is located in the heart of "Cranberry Country" and is the site of Ocean Spray Cranberry Company's former main plant which now houses the Cranberry Museum.

Wareham encompasses the northern shore of Buzzards Bay at the eastern entrance to the Cape Cod Canal. Settled early in colonial history, its long history as a fishing port is highlighted by its part in New England whaleing history. In the mid to late 1800's it supplied men to the vessels sailing out of Nantucket and New Bedford and was home port to several whaleing vessels of its own.

More detailed information is available through local libraries and I will be happy to provide further information if it should prove helpful.

Richard A. Corsano
Asst. Env. Eng.
District 7, M.D.P.W.

STRUCTURE INVENTORY AND APPRAISAL

BRIDGE NO. W-6-16 BRIDGE MNT. NO. 035-743-07.2 PAGE 1

IDENTIFICATION			ITEM NO.	CARD CONTROL NUMBER	CARD COL.
1	State	Massachusetts			
2	Highway District	7			
3	County	Plymouth	4	City/Town	Wareham
5	Inventory Route	US 6		Principal	<input checked="" type="checkbox"/>
5				Other	<input type="checkbox"/>
6	Features Intersected	Weweantic River			
7	Facility Carried by Structure	US 6			
8	Structure No.	035-743-07.2	1	of	1
9	Location	US 6 crossing Weweantic River			
10	Inventory Rte. - Min. Vert. Clearance -	Unlimited			
11	Milepoint	41.45			
12	Road Section No.	153			
13	Defense Bridge Letter	BP			
14	Defense Milepoint	9.80			
15	Defense Section Length	4.3			
16	Latitude	41443			
17	Longitude	070548			
18	Physical Vulnerability	Concrete Girder			
19	Bypass Detour Length	7			
20	Toll Bridge			On Toll Road	<input type="checkbox"/>
20				On Free Road	<input checked="" type="checkbox"/>
21	Custodian	State Highway Dept.			
22	Owner	State Highway Dept.			
23	F.A.P. No.	180-A			
CLASSIFICATION			BY	DATE	
24	Fed. Aid System	03	Transfer of Data	Shutt	6/13/72
			Maintenance Inspection	Lozier	3/22/72
25	Administrative	1	Condition Analysis		
			Appraisal		
26	Functional	04	Cost Estimate		
			General Review		
43. Concrete Continuous Tee Beam					
STRUCTURAL DATA			CODE		
27	Year Built	1929 Widened 1957	43	Structure Type - Main	
28	Lanes on Str.	4 Under 0	44	Approach	N/A
29	ADT on Str.	10,100 30 Year 1960	45	No. of Spans - Main	3
31	Design Load	H-20	46	Approach	0
32	Appr. Rdwy Width w/Sh'd	44	47	Total Horiz. Clear	44.0
33	Br. Median	<input type="checkbox"/> None <input type="checkbox"/> Open <input type="checkbox"/> Closed	48	Max. Span Length	Clr. 48.0 ft.
34	Skew	0°	49	Structure Length	140 ft.
35	Structure Flared	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	50	Sidewalk Rt	5.6 ft.
			50	Lt	5.6 ft.
36			51	Br. Roadway (curb-curb)	44.0 ft.
37			52	Deck Width (out-out)	58.8 ft.
38	Navigation Control	<input type="checkbox"/> Yes <input type="checkbox"/> No	53	Vert. Clearance over Deck	limited ft.
39	Vertical	ft.	54	Under Clearance - Vertical	N/A ft.
40	Horizontal	ft.	55	Lateral - Right	N/A ft.
41			56	Left	N/A ft.
42	Type Service	HP/W	57	Wearing Surface	Asphalt

Name of Bridge	Weweantic River Bridge	Station	5+42 P-103
Over	Weweantic River	Actual Capacity	H-20-44 widening
Date of Construction	1929 original 1957 widening	Cost	\$87,800.--orig. \$86,000.--widening
Contractor	1929 C.I. Hosmer, Inc. 1957 Campanella & Cardi Const. Co.--widening west'ly side	Type of Bridge	3 span R.C. Deck Tee E 3 span R.C. deck 2 - 43'3" 1 - 45'0" c
Contributions to Cost	1929 50% State 50% Federal 1959 100% State	Span Lengths	2 - 46'6" 1 - 5
Street Railway		Plans	1 original 1 widening
No. of Tracks		Maintenance Responsibility	Mass. D
Public Utilities	6" Gas & Tel. duct in west bay of 1929 portion		
Abutments:		Type	Rubble conc. gravity-o Stone faced co
Bridge Lights	None	Piers:	2 Type original & wi
Maintained By		Spacing	2 - 45'0" 1 - 5
Number		Type	Other Information Conc. gravity
Maintenance of Road At Each End of Bridge	Mass. D.P.W.		10' R.C. approach slab
as State Layout Been Made	1957 alteration		

PRINTED IN U. S. A. BY ART METAL CONSTRUCTION CO., Rutland CO. DIVISION, JAMESTOWN, N. Y. MASS. DEPT. OF PUBLIC WORKS - MAINTENANCE 96-H-0389-14 CT LP

Clearance To:	Bed of Stream	25' ±	
	High Tide	6'9"	"B" metal with 4 broken Fences: Type ashlar mas
	Roadway		Sidewalks: Type R.C.
	Railroad Tracks		Roadway: Surface B.C. - Meut
Normal Rise of Tide	Extremé Rise of Tide		Deck: Type R.C.
Flood Depth of Water		Year	R.C. Deck/Tee Beam-orig Floor System: Type R.C. slab/st
Normal Depth of Water	16' ± @ center span		Trusses or Girders 4-30 W 108-wid
Stream Navigable to This Bridge	Yes - small craft		Total Weight of Steel Stringers -
Other General Information			Other Information
Deck Area	149.7x44.0 = 6587 S.F.	732 S.Y.	
Work Area	149.7x58.5 = 8757 S.F.	973 S.Y.	

SKETCHES

WRH. 902

Unlimited
CLEARANCE

CAPACITY H-20

BRIDGE NO. 035-743-072

P-109
WR17.902

Station 5+42 Bridge Division No. W-6-16

Actual Capacity H-20-44 widening Posted Capacity N.P.
 3 span R.C. Deck Tee Em. Arch original
 Type of Bridge 3 span R.C. deck - Steel I Em.-widening
 2 @ 43'3" 1 @ 48'0" clear spans-original
 Span Lengths 2 @ 46'6" 1 @ 51'6" C-C Bearing in widening
 Plans 1 original
 1 widening
 Maintenance Responsibility Mass. D.P.W.

SUBSTRUCTURE

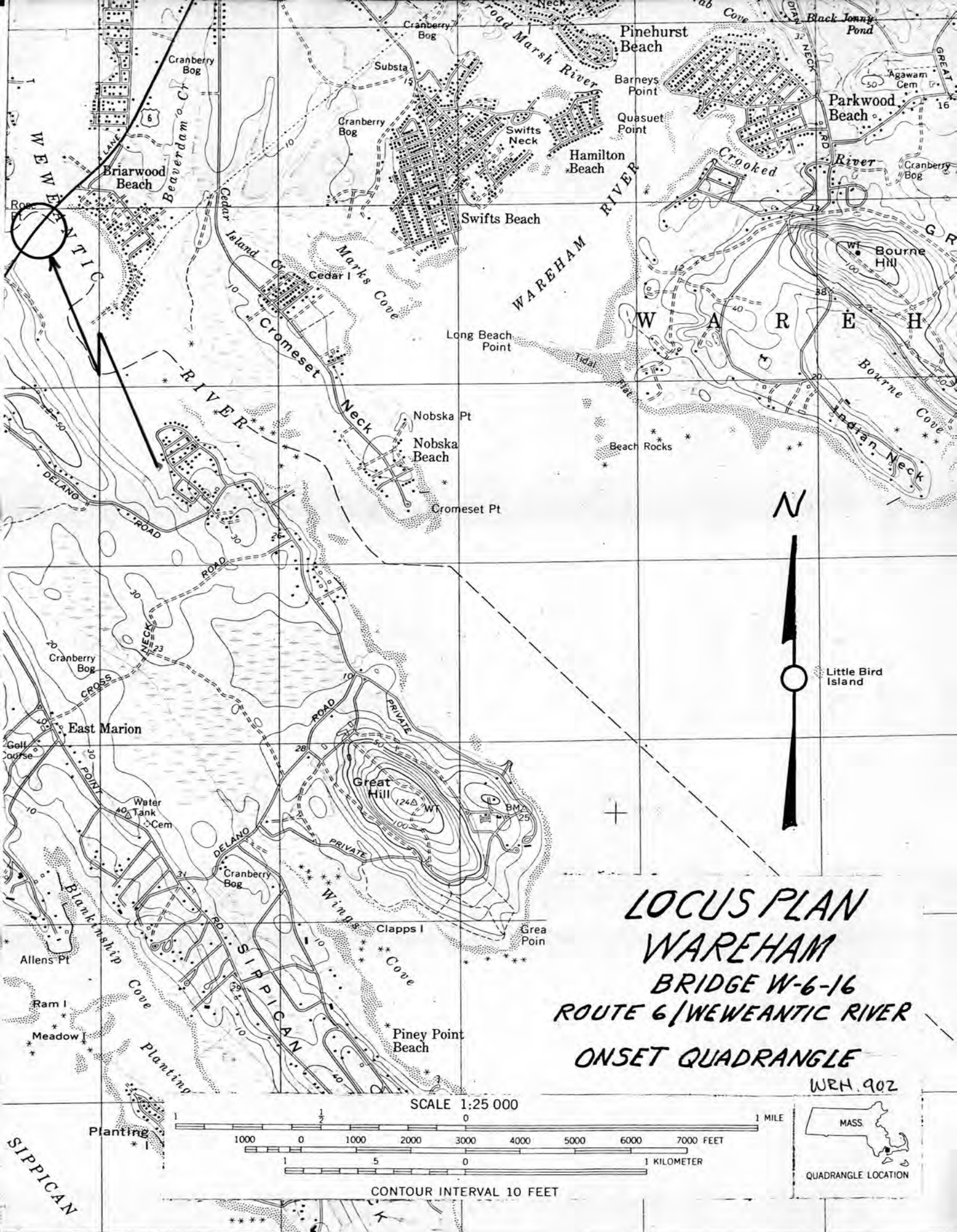
Abutments: Type Rubble conc. gravity-original Foundation Timber Piles - orig. widening
 Stone faced conc.-widening
 Stone masonry faced conc.
 Piers: 2 Type original & widening Foundation Timber Piles
 Spacing 2 @ 45'0" 1 @ 51'6" C-C piers
 Other Information Conc. gravity wings on timber piles orig & widening
 10' R.C. approach slab @ widening only

MAINTENANCE 96-H-0389-14 CT LP

SUPERSTRUCTURE

"B" metal with 4 broken range seam
 Fences: Type face ashlar masonry posts Length Each Side 166'0"
 Sidewalks: Type R.C. No. 2 Clear Width 5'7"
 Roadway: Surface B.C. - Memb. w.P. Clear Width 44'0"
 Deck: Type R.C. Depth 8" orig.
 7" widening
 R.C. Deck/Tee Beam-original
 Floor System: Type R.C. slab/steel stringers-widening
 Trusses or Girders 4-30 W 108-widening Spacing 6'0"
 Total Weight of Steel Stringers - widening Tons 36 ±
 Other Information

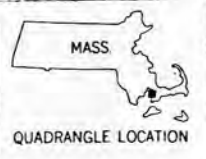
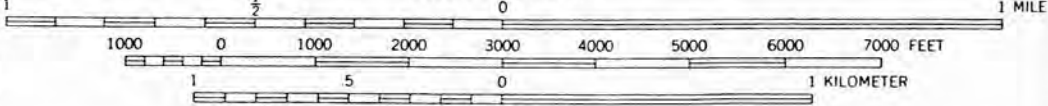
SKETCHES



**LOCUS PLAN
 WAREHAM
 BRIDGE W-6-16
 ROUTE 6/WEWENTIC RIVER
 ONSET QUADRANGLE**

WRH.902

SCALE 1:25 000



CONTOUR INTERVAL 10 FEET



FROM E (7-6-84)



FROM NE (7-6-84)



THRU VIEW LOOKING N (4/6/83)



DATE & SEAL, SE CORNER (4/6/83)

MDPW RECOMMENDATION - NATIONAL REGISTER ELIGIBILITY

Municipality

Street on

No.

Bridge: Wareham Marion Road (Rte. 6) W-6-16

Historic evaluation

Significant because:

- 1) Unusual or unique type _____
or rare survivor of common type _____
- 2) Early example of type _____
- 3) Design - Valuable contribution to bridge technology _____
- 4) Retains integrity _____
- 5) Builder known and important _____
- 6) Bridge historically important to area _____

Not significant because:

- 1) Common type ~~_____~~
- 2) Post-1931 ~~_____~~
- 3) Design - no contribution to bridge technology ~~_____~~
- 4) Integrity lost because of: ~~_____~~
 a) alterations ~~_____~~
 b) disintegration _____
- 5) Builder unimportant or not known _____
- 6) No known significance in area ~~_____~~

Potentially eligible

Not eligible

Comments:

Built 1929; widened 1956

TO: _____

RETURN TO REVIEWER BY _____ (DATE)

FROM: _____

DATE: 4/10/84

TOWN: Wareham

PROPERTY: W-6-16 (MARION Rd [Rt-6] over Weweantic River)
(NAME AND ADDRESS)
(Eastern bridge)

1. Does this property meet the criteria for NR eligibility?

YES

NO

A. Criteria

- a. events
- b. lives
- c. characteristics
- d. information

B. Local _____ State _____ National _____

2. Statement of Significance: OR Why not eligible?

Built in 1929 - Re-built in 1956

Re-concret with steel stringer

note: three-span bridge

DOE LETTER WRITTEN

FILED IN ER FILE _____

8/2/84
(DATE)

Attachment F

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

CORRESPONDENCE

Correspondence Letters Are Prepared, and
Ready To Submit To Local Town Boards And Departments,
as Well As Historical Resource Agencies,
with MassDOT's Approval To Send.



January 3, 2022

Town Administrator McGrail
2 Spring Street
Marion, Massachusetts 02738

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
MassDOT Project File No. 605311
Early Environmental Design Coordination**

803 Summer Street
Boston, MA 02127

Tel: 617-896-4300
800-288-8123

www.bscgroup.com

Dear Mr. Administrator:

The Massachusetts Department of Transportation (MassDOT) is proposing the structural replacement of the two bridges, M-05-001=W-06-013 & W-06-016, that carry US-6, Wareham Street/Road and Marion Road, over the Weweantic River between the towns of Marion and Wareham. The existing structure was built in 1929 and then widened in 1956. The structure is structurally deficient, functionally obsolete, and critical. During the two stages of construction, one travel lane in each direction shall be maintained. Improvements in the project include but are not limited to roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches. It is anticipated that this project will be supported in part with federal funds and will require review as part of the MassDOT Early Environmental Design Coordination process.

MassDOT requests that your Department review the enclosed materials at their earliest convenience and solicits any comments that the Department wishes to make regarding the project purpose, need, and scope. Written comments should be directed to BSC Group, Inc., 803 Summer Street, Boston, MA 02127, Attn: Sara Kreisel or emailed to skreisel@bscgroup.com. Please note that solicitation for comment has also been requested from the Historical Commission and the Police and Fire Departments.

A USGS Locus Map has been enclosed to facilitate your review effort. If you have any questions, please do not hesitate to contact me at (617) 896-4579 or email the address above.

Sincerely,
BSC Group, Inc.

Sara Kreisel, PWS
Ecological Project Manager

Enclosures: USGS Site Location Map
cc:

Marion Public Works Office
Marion Conservation Commission
Marion Board of Health
Marine Resources Commission
Marion Planning Board

Wareham Town Administrator
Wareham Highway/Parks Dept.
Wareham Conservation Commission
Wareham Health Department
Wareham Natural Resources
Wareham Planning/Community Devel.

Engineers
Environmental Scientists
Custom Software Developers
Landscape Architects
Planners
Surveyors

January 3, 2022

Marion Historical Commission
2 Spring Street
Marion, MA 02738

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
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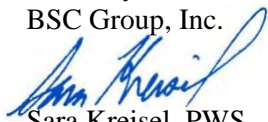
Dear Commissioners:

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Sincerely,
BSC Group, Inc.



Sara Kreisel, PWS
Ecological Project Manager

Enclosures: USGS Site Location Map

cc: Wareham Historical Commission
Massachusetts Historical Commission
MassDOT Highway Division Envi. Services Cultural Resources Unit
MassDOT Project Manager

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors

January 3, 2022

Marion Fire/EMS Department
50 Spring Street, PO Box 1021
Marion, MA 02738

Marion Police Station
550 Mill Street, P.O. Box 636
Marion, MA 02738

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
MassDOT Project File No. 605311
Early Environmental Design Coordination**

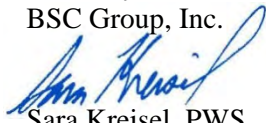
Dear Chief Jackvony and Chief Nighelli:

The Massachusetts Department of Transportation (MassDOT) is proposing the structural replacement of the two bridges, M-05-001=W-06-013 & W-06-016, that carry US-6, Wareham Street/Road and Marion Road, over the Weweantic River between the towns of Marion and Wareham. The existing structure was built in 1929 and then widened in 1956. The structure is structurally deficient, functionally obsolete, and critical. During the two stages of construction, one travel lane in each direction shall be maintained. Improvements in the project include but are not limited to roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches. It is anticipated that this project will be supported in part with federal funds and will require review as part of the MassDOT Early Environmental Design Coordination process.

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Sincerely,
BSC Group, Inc.



Sara Kreisel, PWS
Ecological Project Manager

Enclosures: USGS Site Location Map
cc: Wareham Police and Fire

803 Summer Street
Boston, MA 02127

Tel: 617-896-4300
800-288-8123

www.bscgroup.com

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors



January 3, 2022

Town Administrator Sullivan
54 Marion Road
Wareham, MA 02571

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
MassDOT Project File No. 605311
Early Environmental Design Coordination**

803 Summer Street
Boston, MA 02127

Tel: 617-896-4300
800-288-8123

www.bscgroup.com

Dear Mr. Administrator:

The Massachusetts Department of Transportation (MassDOT) is proposing the structural replacement of the two bridges, M-05-001=W-06-013 & W-06-016, that carry US-6, Wareham Street/Road and Marion Road, over the Weweantic River between the towns of Marion and Wareham. The existing structure was built in 1929 and then widened in 1956. The structure is structurally deficient, functionally obsolete, and critical. During the two stages of construction, one travel lane in each direction shall be maintained. Improvements in the project include but are not limited to roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches. It is anticipated that this project will be supported in part with federal funds and will require review as part of the MassDOT Early Environmental Design Coordination process.

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Sincerely,
BSC Group, Inc.

Sara Kreisel, PWS
Ecological Project Manager

Enclosures: USGS Site Location Map
cc:

- Wareham Highway/Parks Dept.
- Wareham Conservation Commission
- Wareham Health Department
- Wareham Natural Resources
- Wareham Planning/Community Devel.
- Marion Town Administrator
- Marion Public Works Office
- Marion Conservation Commission
- Marion Board of Health
- Marine Resources Commission
- Marion Planning Board

- Engineers
- Environmental Scientists
- Custom Software Developers
- Landscape Architects
- Planners
- Surveyors

January 3, 2022

Wareham Historical Commission
54 Marion Road, Room 24
Wareham, MA 02571

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
MassDOT Project File No. 605311
Early Environmental Design Coordination**

803 Summer Street
Boston, MA 02127

Tel: 617-896-4300
800-288-8123

www.bscgroup.com

Dear Commissioners:

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Sincerely,
BSC Group, Inc.


Sara Kreisel, PWS

Ecological Project Manager

Enclosures: USGS Site Location Map

cc: Marion Historical Commission
Massachusetts Historical Commission
MassDOT Highway Division Envi. Services Cultural Resources Unit
MassDOT Project Manager

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors

January 3, 2022

Wareham Fire Department
315 Main Street
Wareham, MA 02571

Wareham Police Department
2515 Cranberry Hwy
Wareham, MA 02571

**RE: Marion-Wareham Bridge Replacement, M-05-001=W-06-013, W-06-016,
Wareham Street/Marion Road (US-6) over Weweantic River
Marion & Wareham, MA
MassDOT Project File No. 605311
Early Environmental Design Coordination**

803 Summer Street
Boston, MA 02127

Tel: 617-896-4300
800-288-8123

www.bscgroup.com

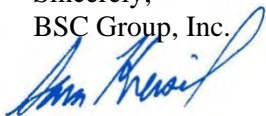
Dear Chief Rowley and Chief Walcek:

The Massachusetts Department of Transportation (MassDOT) is proposing the structural replacement of the two bridges, M-05-001=W-06-013 & W-06-016, that carry US-6, Wareham Street/Road and Marion Road, over the Weweantic River between the towns of Marion and Wareham. The existing structure was built in 1929 and then widened in 1956. The structure is structurally deficient, functionally obsolete, and critical. During the two stages of construction, one travel lane in each direction shall be maintained. Improvements in the project include but are not limited to roadway reconstruction and widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths. Pile supported retaining walls will also be constructed along the causeway connecting the two bridges, and along portions of the approaches. It is anticipated that this project will be supported in part with federal funds and will require review as part of the MassDOT Early Environmental Design Coordination process.

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A USGS Locus Map has been enclosed to facilitate your review effort. If you have any questions, please do not hesitate to contact me at (617) 896-4579 or email the address above.

Sincerely,
BSC Group, Inc.



Sara Kreisel, PWS
Ecological Project Manager

Enclosures: USGS Site Location Map
cc: Marion Police and Fire

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors

Attachment G

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street/Marion Road (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

COAST GUARD COORDINATION

The Commonwealth of Massachusetts

Massachusetts Department of Transportation

NAVIGABILITY SURVEY

For

Marion Harbormaster-Sippican/Weweantic River bridge

Directions: This form must be completed and signed by the local harbormaster where a proposed project involves the reconstruction or replacement of an existing bridge over a US Coast Guard navigable waterway.

1. From your personal observations, please describe the current extent of recreational and/or commercial boating use of this waterbody, particularly upstream of the above bridge.
Very minimal...only have a few moored boats north of the bridge (small 13-15' skiffs/whalers)

2. Are there any moorings, boat ramps, marinas, etc., located up river of the bridge? Please describe.

A few moorings plus a small kayak launch area on River Rd (Sippican River), small marina/ramp and state ramp on the Wareham side

3. Do boats 21 feet in length or greater navigate under the bridge?
Not from the Marion Side

4. Are the banks of the river at the bridge currently or potentially used for launching vessels or for putting in canoes or kayaks? Please explain.

Canoes, kayaks and rowboats only

5. Are there any historical records of vessels using the river for recreational and /or commercial purposes? If so, please explain the extent of the use.

unknown

6. If information is available, please provide the elevations of mean low, mean high and spring high tides where the bridge crosses the river.

Spring High Tide: estimated 3'

Mean Low Tide: estimated 9' clearance under the bridge

Mean High Tide: estimated 4-5'

7. Please provide information as to whether there are any active shellfish resources in the immediate area of the bridge?

Minimal

Signature: Isaac Perry, Marion Harbormaster _____

Date: 4/21/21 _____

The Commonwealth of Massachusetts
Massachusetts Department of Transportation
NAVIGABILITY SURVEY
For
Town of Wareham Weweantic River

Directions: This form must be completed and signed by the local harbormaster where a proposed project involves the reconstruction or replacement of an existing bridge over a US Coast Guard navigable waterway.

1. From your personal observations, please describe the current extent of recreational and/or commercial boating use of this waterbody, particularly upstream of the above bridge.

Vessel traffic within this area is primarily recreational vessel with the occasional commercial small fishing vessel. We have a fairly large collection of seasonally moored vessels North of the bridge in addition to the Wareham Boatyard that has room for up to 50 vessels of varying size at time. The State of Massachusetts Boat Ramp located at the 195 Rest Area has also seen a significant increase in vessels launching.

Wareham Boatyard in addition to being a Marina is also now a Massachusetts approve Shellfish Hatchery for growing out shellfish for aquaculture programs.

2. Are there any moorings, boat ramps, marinas, etc., located up river of the bridge? Please describe.

1. Two kayak and cartop launch sites
2. Commonwealth of Massachusetts Boat Ramp, 195 Rest Area.
3. Wareham Boatyard located at Rose Point, 73 Leonard Street, Wareham, MA 02576
4. 30 private moorings
5. Shellfish Hatchery
6. Private Boat Ramp located at Wareham Boatyard
7. Marine Fuel Sales located at Wareham Boatyard
8. Recreational and Commercial Shellfish grounds North of the bridge
9. Private docks with vessels attached located along the Northern portion of Weweantic and Sippican River

3. Do boats 21 feet in length or greater navigate under the bridge?

Yes

4. Are the banks of the river at the bridge currently or potentially used for launching vessels or for putting in canoes or kayaks? Please explain.

Canoes and kayaks launch from the nearby beaches. There is also a parcel of private property near the Wareham span of the bridges that has gained some interest from

the Division of Marine Fisheries and Mass. Public Access to potentially install a car-top launch site.

5. Are there any historical records of vessels using the river for recreational and /or commercial purposes? If so, please explain the extent of the use.

This area has historically been utilized by commercial shellfishermen from the Town of Wareham and Marion for harvesting. The area is determined by the Division of Marine Fisheries to be "Conditionally Opened" for the harvesting of Shellfish primarily by boat.

6. If information is available, please provide the elevations of mean low, mean high and spring high tides where the bridge crosses the river.

Spring High Tide: 4.5'-5.5'

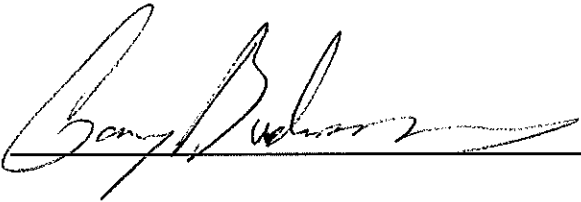
Mean Low Tide: 3.7'-4.5'

Mean High Tide: 3.7' – 4.5'

7. Please provide information as to whether there are any active shellfish resources in the immediate area of the bridge?

Area is opened conditionally and utilized during the fall months for the harvesting both by recreational and commercial shellfishermen each year

Signature: _____



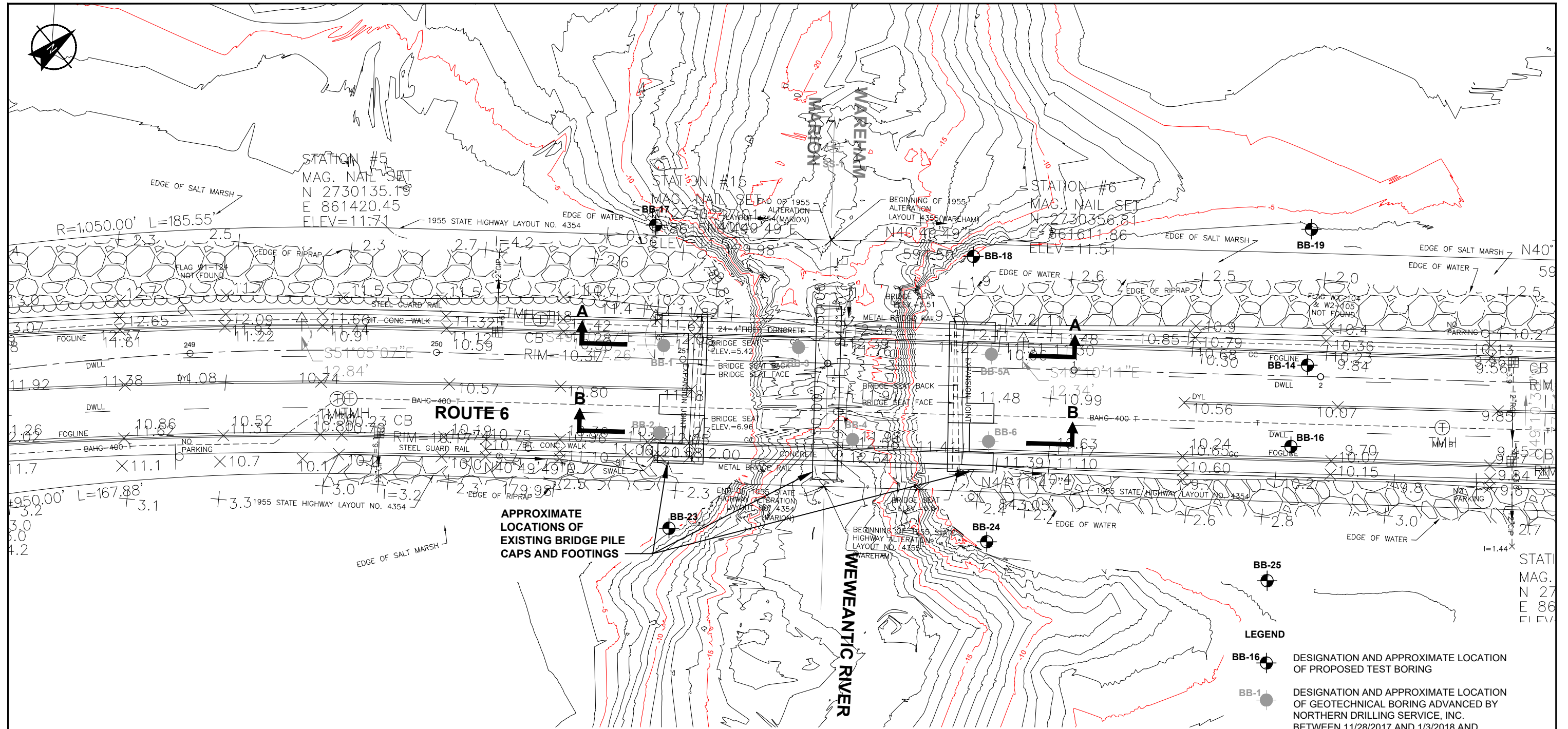
Date: _____

4-22-21

Attachment H

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

BORING LAB RESULTS



APPROXIMATE
 LOCATIONS OF
 EXISTING BRIDGE PILE
 CAPS AND FOOTINGS

SUMMARY OF BORINGS

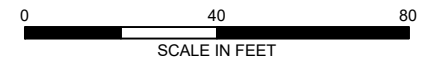
BORING	NORTHING	EASTING	STATION	OFFSET (FT.)	APPROX. SURFACE EL.	SOIL BORING DEPTH (FT)	ROCK CORE LENGTH (FT)	CLOSEST STRUCTURE
BB-14	2730439.1	861693.2	---	--	10	45	0	----
BB-16	2730413.0	861714.6	---	--	10	45	0	----
BB-17	2730270.3	861481.9	---	--	-5	30	0	----
BB-18	2730362.1	861573.3	---	--	-5	35	0	----
BB-19	2730475.3	861651.5	---	--	-5	35	0	----
BB-23	2730196.6	861580.6	---	--	-5	35	0	----
BB-24	2730292.9	861666.4	---	--	-5	35	0	----
BB-25	2730371.0	861750.6	---	--	-5	35	0	----

NOTES

1. BASE PLAN TAKEN FROM A DRAWING TITLED "EXISTING CONDITIONS SURVEY, ROUTE 6A, MARION & WAREHAM, MA", PREPARED BY SURVEYING AND MAPPING CONSULTANTS (SMC), DATED 21 MARCH 2018.
2. SURVEY PROVIDED BY SMC UNDER THIS CONTRACT. ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988). ALL SURVEY POINTS HAVE BEEN DETERMINED WITH RESPECT TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM AS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ALL BORINGS WILL WILL BE SAMPLED AT 5 FT INTERVALS USING A 2-IN SPLIT SPOON SAMPLER AS PART OF STANDARD PENETRATION TEST SAMPLING. EXTRA SAMPLES, INCLUDING UNDISTURBED SAMPLES, WILL BE OBTAINED IN THE VICINITY OF ORGANIC DEPOSITS.

LEGEND

- BB-14 ● DESIGNATION AND APPROXIMATE LOCATION OF PROPOSED TEST BORING
- BB-1 ● DESIGNATION AND APPROXIMATE LOCATION OF GEOTECHNICAL BORING ADVANCED BY NORTHERN DRILLING SERVICE, INC. BETWEEN 11/28/2017 AND 1/3/2018 AND BETWEEN 3/12/2018 AND 3/30/2018.
- SS-1 ● DESIGNATION AND APPROXIMATE LOCATION OF VIBROCORE SEDIMENT SAMPLE TAKEN BY TG&B, INC. ON 6/7/2018.

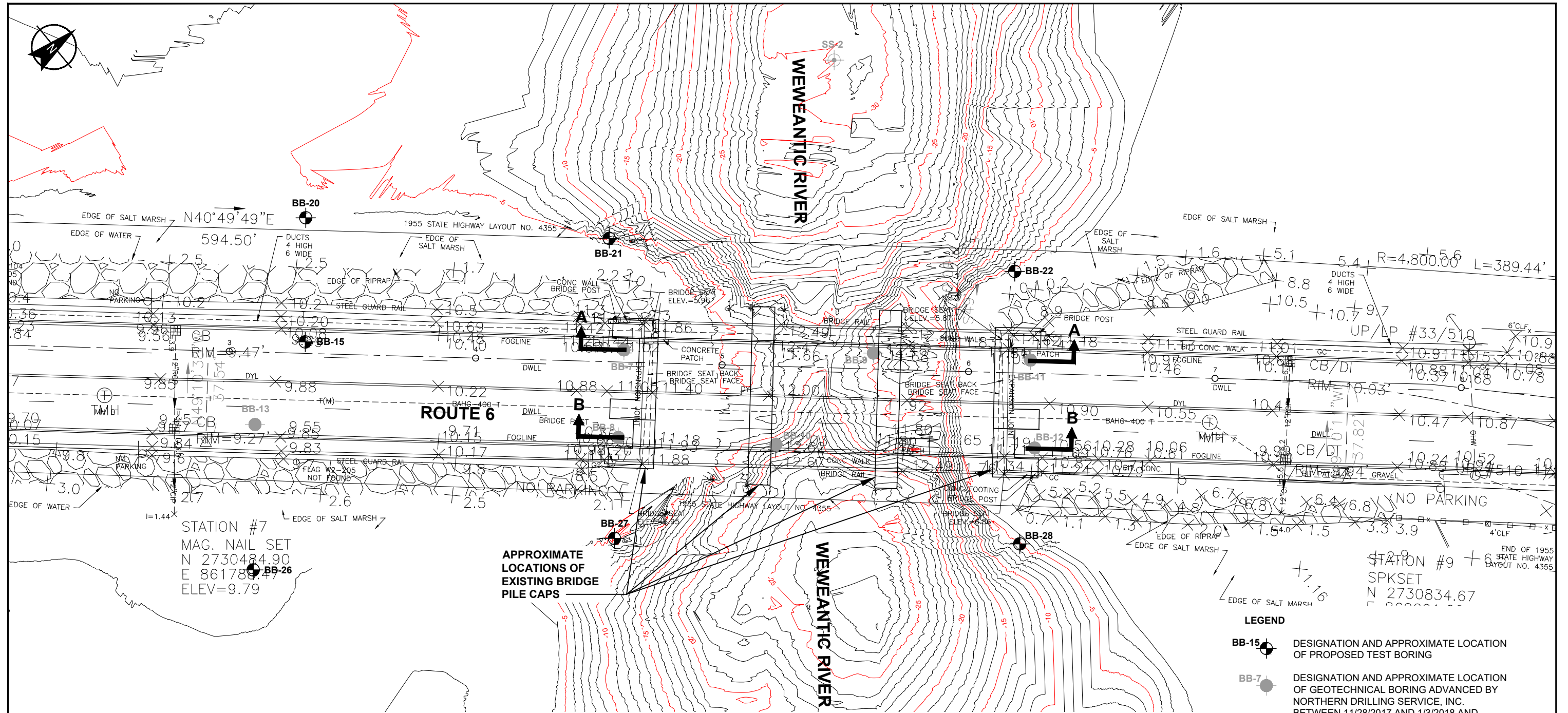


HALEY ALDRICH
 MassDOT BRIDGE NO. M-05-001 = W-06-013
 WAREHAM STREET (US 6) OVER WEVEANTTIC RIVER
 MARION AND WAREHAM, MASSACHUSETTS

**PROPOSED EXPLORATION
 LOCATION PLAN FOR CAUSEWAY**

SCALE: AS SHOWN
 JUNE 2020

FIGURE 2



BORING	NORTHING	EASTING	STATION	OFFSET (FT.)	APPROX. SURFACE EL.	SOIL BORING DEPTH (FT)	ROCK CORE LENGTH (FT)	CLOSEST STRUCTURE
BB-15	2730542.2	861782.2	---	--	10	55	0	----
BB-20	2730574.2	861743.3	---	--	-5	40	0	----
BB-21	2730664.2	861827.7	---	--	-5	45	0	----
BB-22	2730783.1	861942.1	---	--	-5	45	0	----
BB-26	2730467.2	861840.5	---	--	-5	45	0	----
BB-27	2730588.8	861923.3	---	--	-5	45	0	----
BB-28	2730714.7	862029.1	---	--	-5	45	0	----

NOTES

1. BASE PLAN TAKEN FROM A DRAWING TITLED "EXISTING CONDITIONS SURVEY, ROUTE 6A, MARION & WAREHAM, MA", PREPARED BY SURVEYING AND MAPPING CONSULTANTS (SMC), DATED 21 MARCH 2018.
2. SURVEY PROVIDED BY SMC UNDER THIS CONTRACT. ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988). ALL SURVEY POINTS HAVE BEEN DETERMINED WITH RESPECT TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM AS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ALL BORINGS WILL WILL BE SAMPLED AT 5 FT INTERVALS USING A 2-IN SPLIT SPOON SAMPLER AS PART OF STANDARD PENETRATION TEST SAMPLING. EXTRA SAMPLES, INCLUDING UNDISTURBED SAMPLES, WILL BE OBTAINED IN THE VICINITY OF ORGANIC DEPOSITS.

HALEY ALDRICH
 MassDOT BRIDGE NO. W-06-016
 WAREHAM STREET (US 6) OVER WEWEANTIC RIVER
 WAREHAM, MASSACHUSETTS

PROPOSED EXPLORATION LOCATION PLAN FOR CAUSEWAY

SCALE: AS SHOWN
 JUNE 2020

FIGURE 3



ANALYTICAL REPORT

Lab Number:	L1808411
Client:	The BSC Group, Inc. 349 Route 28, Unit D West Yarmouth, MA 02673
ATTN:	Matt Creighton
Phone:	(508) 778-8919
Project Name:	RTE. 6 WEWEANTIC CROSSING
Project Number:	48075.08
Report Date:	03/26/18

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Certifications & Approvals: MA (M-MA030), NH NELAP (2062), NJ NELAP (MA015), CT (PH-0141), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-13-00067), USFWS (Permit #LE2069641).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1808411-01	BB4	SEDIMENT	MARION/WAREHAM, MA	03/12/18 13:45	03/12/18

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18


Case Narrative (continued)

Volatile Organics

The WG1098455-5 Method Blank, associated with L1808411-01, has a concentration above the reporting limit for bromomethane. Since the sample was non-detect to the RL for this target analyte, no further actions were taken. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 03/26/18

ORGANICS

VOLATILES

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

SAMPLE RESULTS

Lab ID: L1808411-01
Client ID: BB4
Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
Date Received: 03/12/18
Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
Analytical Method: 1,8260C
Analytical Date: 03/16/18 21:47
Analyst: MKS
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	5.3	--	1
1,1-Dichloroethane	ND		ug/kg	0.80	--	1
Chloroform	ND		ug/kg	0.80	--	1
Carbon tetrachloride	ND		ug/kg	0.53	--	1
1,2-Dichloropropane	ND		ug/kg	1.9	--	1
Dibromochloromethane	ND		ug/kg	0.53	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.80	--	1
Tetrachloroethene	ND		ug/kg	0.53	--	1
Chlorobenzene	ND		ug/kg	0.53	--	1
Trichlorofluoromethane	ND		ug/kg	2.7	--	1
1,2-Dichloroethane	ND		ug/kg	0.53	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.53	--	1
Bromodichloromethane	ND		ug/kg	0.53	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.53	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.53	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.53	--	1
1,1-Dichloropropene	ND		ug/kg	2.7	--	1
Bromoform	ND		ug/kg	2.1	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.53	--	1
Benzene	ND		ug/kg	0.53	--	1
Toluene	ND		ug/kg	0.80	--	1
Ethylbenzene	ND		ug/kg	0.53	--	1
Chloromethane	ND		ug/kg	2.7	--	1
Bromomethane	ND		ug/kg	1.1	--	1
Vinyl chloride	ND		ug/kg	1.1	--	1
Chloroethane	ND		ug/kg	1.1	--	1
1,1-Dichloroethene	ND		ug/kg	0.53	--	1
trans-1,2-Dichloroethene	ND		ug/kg	0.80	--	1

Project Name: RTE. 6 WEWEANTIC CROSSING**Lab Number:** L1808411**Project Number:** 48075.08**Report Date:** 03/26/18**SAMPLE RESULTS**

Lab ID: L1808411-01

Date Collected: 03/12/18 13:45

Client ID: BB4

Date Received: 03/12/18

Sample Location: MARION/WAREHAM, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-5035 - Westborough Lab						
Trichloroethene	ND		ug/kg	0.53	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.7	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.7	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.7	--	1
Methyl tert butyl ether	ND		ug/kg	1.1	--	1
p/m-Xylene	ND		ug/kg	1.1	--	1
o-Xylene	ND		ug/kg	1.1	--	1
Xylenes, Total	ND		ug/kg	1.1	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.53	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.53	--	1
Dibromomethane	ND		ug/kg	5.3	--	1
1,4-Dichlorobutane	ND		ug/kg	5.3	--	1
1,2,3-Trichloropropane	ND		ug/kg	5.3	--	1
Styrene	ND		ug/kg	1.1	--	1
Dichlorodifluoromethane	ND		ug/kg	5.3	--	1
Acetone	ND		ug/kg	19	--	1
Carbon disulfide	ND		ug/kg	5.3	--	1
2-Butanone	ND		ug/kg	5.3	--	1
Vinyl acetate	ND		ug/kg	5.3	--	1
4-Methyl-2-pentanone	ND		ug/kg	5.3	--	1
2-Hexanone	ND		ug/kg	5.3	--	1
Ethyl methacrylate	ND		ug/kg	5.3	--	1
Acrylonitrile	ND		ug/kg	2.1	--	1
Bromochloromethane	ND		ug/kg	2.7	--	1
Tetrahydrofuran	ND		ug/kg	11	--	1
2,2-Dichloropropane	ND		ug/kg	2.7	--	1
1,2-Dibromoethane	ND		ug/kg	2.1	--	1
1,3-Dichloropropane	ND		ug/kg	2.7	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.53	--	1
Bromobenzene	ND		ug/kg	2.7	--	1
n-Butylbenzene	ND		ug/kg	0.53	--	1
sec-Butylbenzene	ND		ug/kg	0.53	--	1
tert-Butylbenzene	ND		ug/kg	2.7	--	1
o-Chlorotoluene	ND		ug/kg	2.7	--	1
p-Chlorotoluene	ND		ug/kg	2.7	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.7	--	1
Hexachlorobutadiene	ND		ug/kg	2.7	--	1

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

SAMPLE RESULTS

Lab ID: L1808411-01
Client ID: BB4
Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
Date Received: 03/12/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-5035 - Westborough Lab						
Isopropylbenzene	ND		ug/kg	0.53	--	1
p-Isopropyltoluene	ND		ug/kg	0.53	--	1
Naphthalene	ND		ug/kg	2.7	--	1
n-Propylbenzene	ND		ug/kg	0.53	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.7	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.7	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.7	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.7	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	2.7	--	1
Ethyl ether	ND		ug/kg	2.7	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	103		70-130

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/16/18 13:36
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-5035 - Westborough Lab for sample(s): 01 Batch: WG1098455-5					
Methylene chloride	ND		ug/kg	10	--
1,1-Dichloroethane	ND		ug/kg	1.5	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	3.5	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.5	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Tetrachloroethene	ND		ug/kg	1.0	--
Chlorobenzene	ND		ug/kg	1.0	--
Trichlorofluoromethane	ND		ug/kg	5.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	1.0	--
Bromodichloromethane	ND		ug/kg	1.0	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--
1,3-Dichloropropene, Total	ND		ug/kg	1.0	--
1,1-Dichloropropene	ND		ug/kg	5.0	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--
Benzene	ND		ug/kg	1.0	--
Toluene	ND		ug/kg	1.5	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	5.0	--
Bromomethane	2.0		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	2.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/16/18 13:36
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-5035 - Westborough Lab for sample(s): 01 Batch: WG1098455-5					
Trichloroethene	ND		ug/kg	1.0	--
1,2-Dichlorobenzene	ND		ug/kg	5.0	--
1,3-Dichlorobenzene	ND		ug/kg	5.0	--
1,4-Dichlorobenzene	ND		ug/kg	5.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	2.0	--
Xylenes, Total	ND		ug/kg	2.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	10	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	10	--
Styrene	ND		ug/kg	2.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	36	--
Carbon disulfide	ND		ug/kg	10	--
2-Butanone	ND		ug/kg	10	--
Vinyl acetate	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrolein	ND		ug/kg	25	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	5.0	--
Tetrahydrofuran	ND		ug/kg	20	--
2,2-Dichloropropane	ND		ug/kg	5.0	--
1,2-Dibromoethane	ND		ug/kg	4.0	--
1,3-Dichloropropane	ND		ug/kg	5.0	--

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/16/18 13:36
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-5035 - Westborough Lab for sample(s): 01 Batch: WG1098455-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--
Bromobenzene	ND		ug/kg	5.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	5.0	--
1,3,5-Trichlorobenzene	ND		ug/kg	4.0	--
o-Chlorotoluene	ND		ug/kg	5.0	--
p-Chlorotoluene	ND		ug/kg	5.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.0	--
Hexachlorobutadiene	ND		ug/kg	5.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	5.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	5.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	5.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	5.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	5.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Ethyl ether	ND		ug/kg	5.0	--
Methyl Acetate	ND		ug/kg	20	--
Ethyl Acetate	ND		ug/kg	20	--
Isopropyl Ether	ND		ug/kg	4.0	--
Cyclohexane	ND		ug/kg	20	--
Tert-Butyl Alcohol	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--
1,4-Dioxane	ND		ug/kg	40	--
Methyl cyclohexane	ND		ug/kg	4.0	--

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/16/18 13:36
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-5035 - Westborough Lab for sample(s): 01 Batch: WG1098455-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	20	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS-5035 - Westborough Lab Associated sample(s): 01 Batch: WG1098455-3 WG1098455-4								
Methylene chloride	113		111		70-130	2		30
1,1-Dichloroethane	114		111		70-130	3		30
Chloroform	118		116		70-130	2		30
Carbon tetrachloride	129		123		70-130	5		30
1,2-Dichloropropane	111		107		70-130	4		30
Dibromochloromethane	98		96		70-130	2		30
1,1,2-Trichloroethane	96		93		70-130	3		30
2-Chloroethylvinyl ether	93		90		70-130	3		30
Tetrachloroethene	95		93		70-130	2		30
Chlorobenzene	96		92		70-130	4		30
Trichlorofluoromethane	129		118		70-139	9		30
1,2-Dichloroethane	117		115		70-130	2		30
1,1,1-Trichloroethane	121		116		70-130	4		30
Bromodichloromethane	116		113		70-130	3		30
trans-1,3-Dichloropropene	93		91		70-130	2		30
cis-1,3-Dichloropropene	110		108		70-130	2		30
1,1-Dichloropropene	114		110		70-130	4		30
Bromoform	88		86		70-130	2		30
1,1,1,2-Tetrachloroethane	90		90		70-130	0		30
Benzene	113		109		70-130	4		30
Toluene	88		85		70-130	3		30
Ethylbenzene	92		88		70-130	4		30
Chloromethane	94		91		52-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-5035 - Westborough Lab Associated sample(s): 01 Batch: WG1098455-3 WG1098455-4								
Bromomethane	177	Q	175	Q	57-147	1		30
Vinyl chloride	145	Q	138	Q	67-130	5		30
Chloroethane	172	Q	172	Q	50-151	0		30
1,1-Dichloroethene	114		110		65-135	4		30
trans-1,2-Dichloroethene	117		112		70-130	4		30
Trichloroethene	117		112		70-130	4		30
1,2-Dichlorobenzene	92		90		70-130	2		30
1,3-Dichlorobenzene	92		90		70-130	2		30
1,4-Dichlorobenzene	91		90		70-130	1		30
Methyl tert butyl ether	108		106		66-130	2		30
p/m-Xylene	95		92		70-130	3		30
o-Xylene	95		92		70-130	3		30
cis-1,2-Dichloroethene	118		114		70-130	3		30
Dibromomethane	124		121		70-130	2		30
1,4-Dichlorobutane	77		77		70-130	0		30
1,2,3-Trichloropropane	90		88		68-130	2		30
Styrene	92		89		70-130	3		30
Dichlorodifluoromethane	96		91		30-146	5		30
Acetone	98		99		54-140	1		30
Carbon disulfide	109		105		59-130	4		30
2-Butanone	105		101		70-130	4		30
Vinyl acetate	97		95		70-130	2		30
4-Methyl-2-pentanone	78		77		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-5035 - Westborough Lab Associated sample(s): 01 Batch: WG1098455-3 WG1098455-4								
2-Hexanone	74		75		70-130	1		30
Ethyl methacrylate	80		79		70-130	1		30
Acrolein	92		92		70-130	0		30
Acrylonitrile	99		104		70-130	5		30
Bromochloromethane	125		122		70-130	2		30
Tetrahydrofuran	92		92		66-130	0		30
2,2-Dichloropropane	115		110		70-130	4		30
1,2-Dibromoethane	100		99		70-130	1		30
1,3-Dichloropropane	93		91		69-130	2		30
1,1,1,2-Tetrachloroethane	98		97		70-130	1		30
Bromobenzene	91		89		70-130	2		30
n-Butylbenzene	89		87		70-130	2		30
sec-Butylbenzene	87		84		70-130	4		30
tert-Butylbenzene	86		83		70-130	4		30
1,3,5-Trichlorobenzene	89		87		70-139	2		30
o-Chlorotoluene	89		87		70-130	2		30
p-Chlorotoluene	88		85		70-130	3		30
1,2-Dibromo-3-chloropropane	77		77		68-130	0		30
Hexachlorobutadiene	80		77		67-130	4		30
Isopropylbenzene	86		84		70-130	2		30
p-Isopropyltoluene	85		83		70-130	2		30
Naphthalene	85		85		70-130	0		30
n-Propylbenzene	88		85		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-5035 - Westborough Lab Associated sample(s): 01 Batch: WG1098455-3 WG1098455-4								
1,2,3-Trichlorobenzene	89		90		70-130	1		30
1,2,4-Trichlorobenzene	89		87		70-130	2		30
1,3,5-Trimethylbenzene	88		85		70-130	3		30
1,2,4-Trimethylbenzene	87		86		70-130	1		30
trans-1,4-Dichloro-2-butene	86		88		70-130	2		30
Ethyl ether	109		111		67-130	2		30
Methyl Acetate	102		102		65-130	0		30
Ethyl Acetate	96		97		70-130	1		30
Isopropyl Ether	100		99		66-130	1		30
Cyclohexane	100		96		70-130	4		30
Tert-Butyl Alcohol	96		95		70-130	1		30
Ethyl-Tert-Butyl-Ether	106		104		70-130	2		30
Tertiary-Amyl Methyl Ether	106		105		70-130	1		30
1,4-Dioxane	104		99		65-136	5		30
Methyl cyclohexane	105		101		70-130	4		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	120		116		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	90		90		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	106		106		70-130

SEMIVOLATILES

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

SAMPLE RESULTS

Lab ID: L1808411-01
Client ID: BB4
Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
Date Received: 03/12/18
Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 03/20/18 19:47
Analyst: GP
Percent Solids: 88%

Extraction Method: EPA 3570
Extraction Date: 03/14/18 17:45
Cleanup Method: EPA 3630
Cleanup Date: 03/19/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	4.22	--	1
Acenaphthylene	4.39		ug/kg	4.22	--	1
Acenaphthene	ND		ug/kg	4.22	--	1
Fluorene	ND		ug/kg	4.22	--	1
Phenanthrene	15.0		ug/kg	4.22	--	1
Anthracene	7.25		ug/kg	4.22	--	1
Fluoranthene	107		ug/kg	4.22	--	1
Pyrene	134		ug/kg	4.22	--	1
Benz(a)anthracene	71.9		ug/kg	4.22	--	1
Chrysene	62.5		ug/kg	4.22	--	1
Benzo(b)fluoranthene	44.9		ug/kg	4.22	--	1
Benzo(k)fluoranthene	48.7		ug/kg	4.22	--	1
Benzo(a)pyrene	59.6		ug/kg	4.22	--	1
Indeno(1,2,3-cd)Pyrene	36.8		ug/kg	4.22	--	1
Dibenz(a,h)anthracene	11.0		ug/kg	4.22	--	1
Benzo(ghi)perylene	31.1		ug/kg	4.22	--	1
Cl2-BZ#8	ND		ug/kg	0.422	--	1
Cl3-BZ#18	ND		ug/kg	0.422	--	1
Cl3-BZ#28	ND		ug/kg	0.422	--	1
Cl4-BZ#44	ND		ug/kg	0.422	--	1
Cl4-BZ#49	ND		ug/kg	0.422	--	1
Cl4-BZ#52	ND		ug/kg	0.422	--	1
Cl4-BZ#66	ND		ug/kg	0.422	--	1
Cl5-BZ#87	ND		ug/kg	0.422	--	1
Cl5-BZ#101	ND		ug/kg	0.422	--	1
Cl5-BZ#105	ND		ug/kg	0.422	--	1
Cl5-BZ#118	ND		ug/kg	0.422	--	1
Cl6-BZ#128	ND		ug/kg	0.422	--	1

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

SAMPLE RESULTS

Lab ID: L1808411-01
Client ID: BB4
Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
Date Received: 03/12/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
CI6-BZ#138	ND		ug/kg	0.422	--	1
CI6-BZ#153	ND		ug/kg	0.422	--	1
CI7-BZ#170	ND		ug/kg	0.422	--	1
CI7-BZ#180	ND		ug/kg	0.422	--	1
CI7-BZ#183	ND		ug/kg	0.422	--	1
CI7-BZ#184	ND		ug/kg	0.422	--	1
CI7-BZ#187	ND		ug/kg	0.422	--	1
CI8-BZ#195	ND		ug/kg	0.422	--	1
CI9-BZ#206	ND		ug/kg	0.422	--	1
CI10-BZ#209	ND		ug/kg	0.422	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	71		30-150
Pyrene-d10	80		30-150
Benzo(b)fluoranthene-d12	84		30-150
DBOB	112		50-125
BZ 198	93		50-125

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 03/20/18 18:06
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 03/14/18 17:45
Cleanup Method: EPA 3630
Cleanup Date: 03/19/18

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1097095-1					
Naphthalene	ND		ug/kg	4.00	--
Acenaphthylene	ND		ug/kg	4.00	--
Acenaphthene	ND		ug/kg	4.00	--
Fluorene	ND		ug/kg	4.00	--
Phenanthrene	ND		ug/kg	4.00	--
Anthracene	ND		ug/kg	4.00	--
Fluoranthene	ND		ug/kg	4.00	--
Pyrene	ND		ug/kg	4.00	--
Benz(a)anthracene	ND		ug/kg	4.00	--
Chrysene	ND		ug/kg	4.00	--
Benzo(b)fluoranthene	ND		ug/kg	4.00	--
Benzo(k)fluoranthene	ND		ug/kg	4.00	--
Benzo(a)pyrene	ND		ug/kg	4.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	--
Dibenz(a,h)anthracene	ND		ug/kg	4.00	--
Benzo(ghi)perylene	ND		ug/kg	4.00	--
Cl2-BZ#8	ND		ug/kg	0.400	--
Cl3-BZ#18	ND		ug/kg	0.400	--
Cl3-BZ#28	ND		ug/kg	0.400	--
Cl4-BZ#44	ND		ug/kg	0.400	--
Cl4-BZ#49	ND		ug/kg	0.400	--
Cl4-BZ#52	ND		ug/kg	0.400	--
Cl4-BZ#66	ND		ug/kg	0.400	--
Cl5-BZ#87	ND		ug/kg	0.400	--
Cl5-BZ#101	ND		ug/kg	0.400	--
Cl5-BZ#105	ND		ug/kg	0.400	--
Cl5-BZ#118	ND		ug/kg	0.400	--
Cl6-BZ#128	ND		ug/kg	0.400	--
Cl6-BZ#138	ND		ug/kg	0.400	--

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 03/20/18 18:06
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 03/14/18 17:45
Cleanup Method: EPA 3630
Cleanup Date: 03/19/18

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1097095-1					
Cl6-BZ#153	ND		ug/kg	0.400	--
Cl7-BZ#170	ND		ug/kg	0.400	--
Cl7-BZ#180	ND		ug/kg	0.400	--
Cl7-BZ#183	ND		ug/kg	0.400	--
Cl7-BZ#184	ND		ug/kg	0.400	--
Cl7-BZ#187	ND		ug/kg	0.400	--
Cl8-BZ#195	ND		ug/kg	0.400	--
Cl9-BZ#206	ND		ug/kg	0.400	--
Cl10-BZ#209	ND		ug/kg	0.400	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	82		30-150
Pyrene-d10	93		30-150
Benzo(b)fluoranthene-d12	97		30-150
DBOB	124		50-125
BZ 198	109		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1097095-2 WG1097095-3								
Naphthalene	62		64		40-140	3		30
Acenaphthylene	72		72		40-140	0		30
Acenaphthene	68		68		40-140	0		30
Fluorene	74		73		40-140	1		30
Phenanthrene	75		73		40-140	3		30
Anthracene	76		74		40-140	3		30
Fluoranthene	82		79		40-140	4		30
Pyrene	74		72		40-140	3		30
Benz(a)anthracene	91		88		40-140	3		30
Chrysene	78		75		40-140	4		30
Benzo(b)fluoranthene	92		81		40-140	13		30
Benzo(k)fluoranthene	72		81		40-140	12		30
Benzo(a)pyrene	83		82		40-140	1		30
Indeno(1,2,3-cd)Pyrene	105		106		40-140	1		30
Dibenz(a,h)anthracene	88		88		40-140	0		30
Benzo(ghi)perylene	89		89		40-140	0		30
Cl2-BZ#8	71		70		40-140	1		50
Cl3-BZ#18	69		67		40-140	3		50
Cl3-BZ#28	73		70		40-140	4		50
Cl4-BZ#44	80		77		40-140	4		50
Cl4-BZ#49	76		73		40-140	4		50
Cl4-BZ#52	74		70		40-140	6		50
Cl4-BZ#66	80		77		40-140	4		50

Lab Control Sample Analysis Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1097095-2 WG1097095-3								
CI5-BZ#87	82		78		40-140	5		50
CI5-BZ#101	80		76		40-140	5		50
CI5-BZ#105	84		80		40-140	5		50
CI5-BZ#118	78		74		40-140	5		50
CI6-BZ#128	85		81		40-140	5		50
CI6-BZ#138	89		85		40-140	5		50
CI6-BZ#153	85		80		40-140	6		50
CI7-BZ#170	95		91		40-140	4		50
CI7-BZ#180	81		77		40-140	5		50
CI7-BZ#183	84		80		40-140	5		50
CI7-BZ#184	86		80		40-140	7		50
CI7-BZ#187	87		83		40-140	5		50
CI8-BZ#195	102		100		40-140	2		50
CI9-BZ#206	101		96		40-140	5		50
CI10-BZ#209	96		91		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	73		72		30-150
Pyrene-d10	86		81		30-150
Benzo(b)fluoranthene-d12	91		87		30-150
DBOB	117		109		50-125
BZ 198	107		94		50-125



PETROLEUM HYDROCARBONS

Project Name: RTE. 6 WEWEANTIC CROSSING**Lab Number:** L1808411**Project Number:** 48075.08**Report Date:** 03/26/18**SAMPLE RESULTS**

Lab ID: L1808411-01
 Client ID: BB4
 Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
 Date Received: 03/12/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 03/21/18 16:45
 Analyst: MEO
 Percent Solids: 88%

Extraction Method: EPA 3546
 Extraction Date: 03/20/18 18:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 03/21/18

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	7.47	--	1
C19-C36 Aliphatics	ND		mg/kg	7.47	--	1
C11-C22 Aromatics	ND		mg/kg	7.47	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.47	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	71		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	78		40-140

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 03/21/18 09:29
Analyst: DG

Extraction Method: EPA 3546
Extraction Date: 03/20/18 18:36
Cleanup Method: EPH-04-1
Cleanup Date: 03/21/18

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1098937-1					
C9-C18 Aliphatics	ND		mg/kg	6.41	--
C19-C36 Aliphatics	ND		mg/kg	6.41	--
C11-C22 Aromatics	ND		mg/kg	6.41	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.41	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	66		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	63		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1098937-2 WG1098937-3								
C9-C18 Aliphatics	66		72		40-140	9		25
C19-C36 Aliphatics	68		73		40-140	7		25
C11-C22 Aromatics	62		88		40-140	35	Q	25
Naphthalene	53		65		40-140	20		25
2-Methylnaphthalene	53		69		40-140	26	Q	25
Acenaphthylene	57		78		40-140	31	Q	25
Acenaphthene	57		79		40-140	32	Q	25
Fluorene	58		81		40-140	33	Q	25
Phenanthrene	60		84		40-140	33	Q	25
Anthracene	61		86		40-140	34	Q	25
Fluoranthene	63		88		40-140	33	Q	25
Pyrene	64		89		40-140	33	Q	25
Benzo(a)anthracene	63		88		40-140	33	Q	25
Chrysene	64		88		40-140	32	Q	25
Benzo(b)fluoranthene	65		91		40-140	33	Q	25
Benzo(k)fluoranthene	64		88		40-140	32	Q	25
Benzo(a)pyrene	63		88		40-140	33	Q	25
Indeno(1,2,3-cd)Pyrene	60		85		40-140	34	Q	25
Dibenzo(a,h)anthracene	62		87		40-140	34	Q	25
Benzo(ghi)perylene	57		79		40-140	32	Q	25
Nonane (C9)	59		64		30-140	8		25
Decane (C10)	64		68		40-140	6		25
Dodecane (C12)	65		70		40-140	7		25

Lab Control Sample Analysis Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1098937-2 WG1098937-3								
Tetradecane (C14)	64		70		40-140	9		25
Hexadecane (C16)	64		70		40-140	9		25
Octadecane (C18)	67		73		40-140	9		25
Nonadecane (C19)	66		72		40-140	9		25
Eicosane (C20)	67		72		40-140	7		25
Docosane (C22)	68		72		40-140	6		25
Tetracosane (C24)	67		72		40-140	7		25
Hexacosane (C26)	67		72		40-140	7		25
Octacosane (C28)	67		72		40-140	7		25
Triacontane (C30)	67		72		40-140	7		25
Hexatriacontane (C36)	67		72		40-140	7		25

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	57		62		40-140
o-Terphenyl	62		86		40-140
2-Fluorobiphenyl	66		85		40-140
2-Bromonaphthalene	64		82		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		



METALS

Project Name: RTE. 6 WEWEANTIC CROSSING**Lab Number:** L1808411**Project Number:** 48075.08**Report Date:** 03/26/18**SAMPLE RESULTS**

Lab ID: L1808411-01

Date Collected: 03/12/18 13:45

Client ID: BB4

Date Received: 03/12/18

Sample Location: MARION/WAREHAM, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	1.28		mg/kg	0.111	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Cadmium, Total	ND		mg/kg	0.044	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Chromium, Total	3.36		mg/kg	0.443	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Copper, Total	2.43		mg/kg	0.443	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Lead, Total	14.1		mg/kg	0.133	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Mercury, Total	ND		mg/kg	0.015	--	5	03/16/18 14:33	03/23/18 13:47	EPA 7474	1,7474	BV
Nickel, Total	1.70		mg/kg	0.222	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM
Zinc, Total	8.88		mg/kg	2.22	--	2	03/16/18 14:50	03/22/18 16:15	EPA 3050B	1,6020A	AM



Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1097286-1									
Arsenic, Total	ND	mg/kg	0.100	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Cadmium, Total	ND	mg/kg	0.040	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Chromium, Total	ND	mg/kg	0.400	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Copper, Total	ND	mg/kg	0.400	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Lead, Total	ND	mg/kg	0.120	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Nickel, Total	ND	mg/kg	0.200	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM
Zinc, Total	ND	mg/kg	2.00	--	2	03/16/18 14:50	03/22/18 15:00	1,6020A	AM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1097287-1									
Mercury, Total	ND	mg/kg	0.013	--	5	03/16/18 14:33	03/23/18 13:42	1,7474	BV

Prep Information

Digestion Method: EPA 7474



Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Project Number: 48075.08

Lab Number: L1808411

Report Date: 03/26/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1097286-2 SRM Lot Number: D098-540								
Arsenic, Total	112		-		83-117	-		20
Cadmium, Total	114		-		82-117	-		20
Chromium, Total	110		-		83-119	-		20
Copper, Total	109		-		84-116	-		20
Lead, Total	113		-		82-117	-		20
Nickel, Total	110		-		82-117	-		20
Zinc, Total	110		-		81-119	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1097287-2 SRM Lot Number: D098-540								
Mercury, Total	69		-		50-149	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1097286-3 QC Sample: L1808411-01 Client ID: BB4												
Arsenic, Total	1.28	10.6	12.6	107	-	-	-	-	75-125	-	-	20
Cadmium, Total	ND	4.49	4.98	111	-	-	-	-	75-125	-	-	20
Chromium, Total	3.36	17.6	23.4	114	-	-	-	-	75-125	-	-	20
Copper, Total	2.43	22	26.4	109	-	-	-	-	75-125	-	-	20
Lead, Total	14.1	44.9	59.5	101	-	-	-	-	75-125	-	-	20
Nickel, Total	1.70	44	48.4	106	-	-	-	-	75-125	-	-	20
Zinc, Total	8.88	44	57.2	110	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1097287-3 QC Sample: L1808411-01 Client ID: BB4												
Mercury, Total	ND	0.699	0.712	102	-	-	-	-	80-120	-	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Project Number: 48075.08

Lab Number: L1808411

Report Date: 03/26/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1097286-4 QC Sample: L1808411-01 Client ID: BB4						
Arsenic, Total	1.28	1.20	mg/kg	6		20
Cadmium, Total	ND	ND	mg/kg	NC		20
Chromium, Total	3.36	2.76	mg/kg	20		20
Copper, Total	2.43	2.20	mg/kg	10		20
Lead, Total	14.1	12.3	mg/kg	14		20
Nickel, Total	1.70	1.86	mg/kg	9		20
Zinc, Total	8.88	7.59	mg/kg	16		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1097287-4 QC Sample: L1808411-01 Client ID: BB4						
Mercury, Total	ND	ND	mg/kg	NC		20

INORGANICS & MISCELLANEOUS

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

SAMPLE RESULTS

Lab ID: L1808411-01
Client ID: BB4
Sample Location: MARION/WAREHAM, MA

Date Collected: 03/12/18 13:45
Date Received: 03/12/18
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.107		%	0.010	--	1	-	03/19/18 12:28	1,9060A	SP
Total Organic Carbon (Rep2)	0.083		%	0.010	--	1	-	03/19/18 12:28	1,9060A	SP
Grain Size Analysis - Mansfield Lab										
% Total Gravel	36.4		%	0.100	NA	1	-	03/19/18 15:35	12,D6913/D7928	SP
% Coarse Sand	15.6		%	0.100	NA	1	-	03/19/18 15:35	12,D6913/D7928	SP
% Medium Sand	18.4		%	0.100	NA	1	-	03/19/18 15:35	12,D6913/D7928	SP
% Fine Sand	21.1		%	0.100	NA	1	-	03/19/18 15:35	12,D6913/D7928	SP
% Total Fines	8.50		%	0.100	NA	1	-	03/19/18 15:35	12,D6913/D7928	SP
General Chemistry - Mansfield Lab										
Solids, Total	88.3		%	0.100	--	1	-	03/15/18 12:10	121,2540G	LD



Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01 Batch: WG1098472-1									
Total Organic Carbon (Rep1)	ND	%	0.010	--	1	-	03/19/18 12:18	1,9060A	SP
Total Organic Carbon (Rep2)	ND	%	0.010	--	1	-	03/19/18 12:18	1,9060A	SP

Lab Control Sample Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 Batch: WG1098472-2								
Total Organic Carbon (Rep1)	84		-		75-125	-		25
Total Organic Carbon (Rep2)	92		-		75-125	-		25

Matrix Spike Analysis
Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Lab Number: L1808411

Project Number: 48075.08

Report Date: 03/26/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1098472-4 QC Sample: L1808411-01 Client ID: BB4												
Total Organic Carbon (Rep1)	0.107	1.09	1.17	98	-	-	-	-	75-125	-	-	25
Total Organic Carbon (Rep2)	0.083	0.782	0.898	104	-	-	-	-	75-125	-	-	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: RTE. 6 WEWEANTIC CROSSING

Project Number: 48075.08

Lab Number: L1808411

Report Date: 03/26/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1097377-1 QC Sample: L1808217-02 Client ID: DUP Sample						
Solids, Total	76.1	78.0	%	2		10
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1098472-3 QC Sample: L1808411-01 Client ID: BB4						
Total Organic Carbon (Rep1)	0.107	0.095	%	12		25
Total Organic Carbon (Rep2)	0.083	0.091	%	9		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1098497-1 QC Sample: L1808411-01 Client ID: BB4						
% Total Gravel	36.4	35.5	%	3		20
% Coarse Sand	15.6	18.1	%	15		20
% Medium Sand	18.4	18.9	%	3		20
% Fine Sand	21.1	19.6	%	7		20
% Total Fines	8.50	7.90	%	7		20

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Serial_No:03261812:54
Lab Number: L1808411
Report Date: 03/26/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1808411-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		8260HLW(14)
L1808411-01B	Vial water preserved	A	NA		3.2	Y	Absent	12-MAR-18 23:31	8260HLW(14)
L1808411-01C	Vial water preserved	A	NA		3.2	Y	Absent	12-MAR-18 23:31	8260HLW(14)
L1808411-01E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		EPH-10(14)
L1808411-01F	Plastic 8oz unpreserved for Grain Size	A	NA		3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND()
L1808411-01G1	Glass 500ml/16oz unpreserved	A	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TS(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-TOC-9060-2REPS(28),A2-CU-6020T(180),A2-PAH/PCBCONG(14)

*Values in parentheses indicate holding time in days



Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report



Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: RTE. 6 WEWEANTIC CROSSING
Project Number: 48075.08

Lab Number: L1808411
Report Date: 03/26/18

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

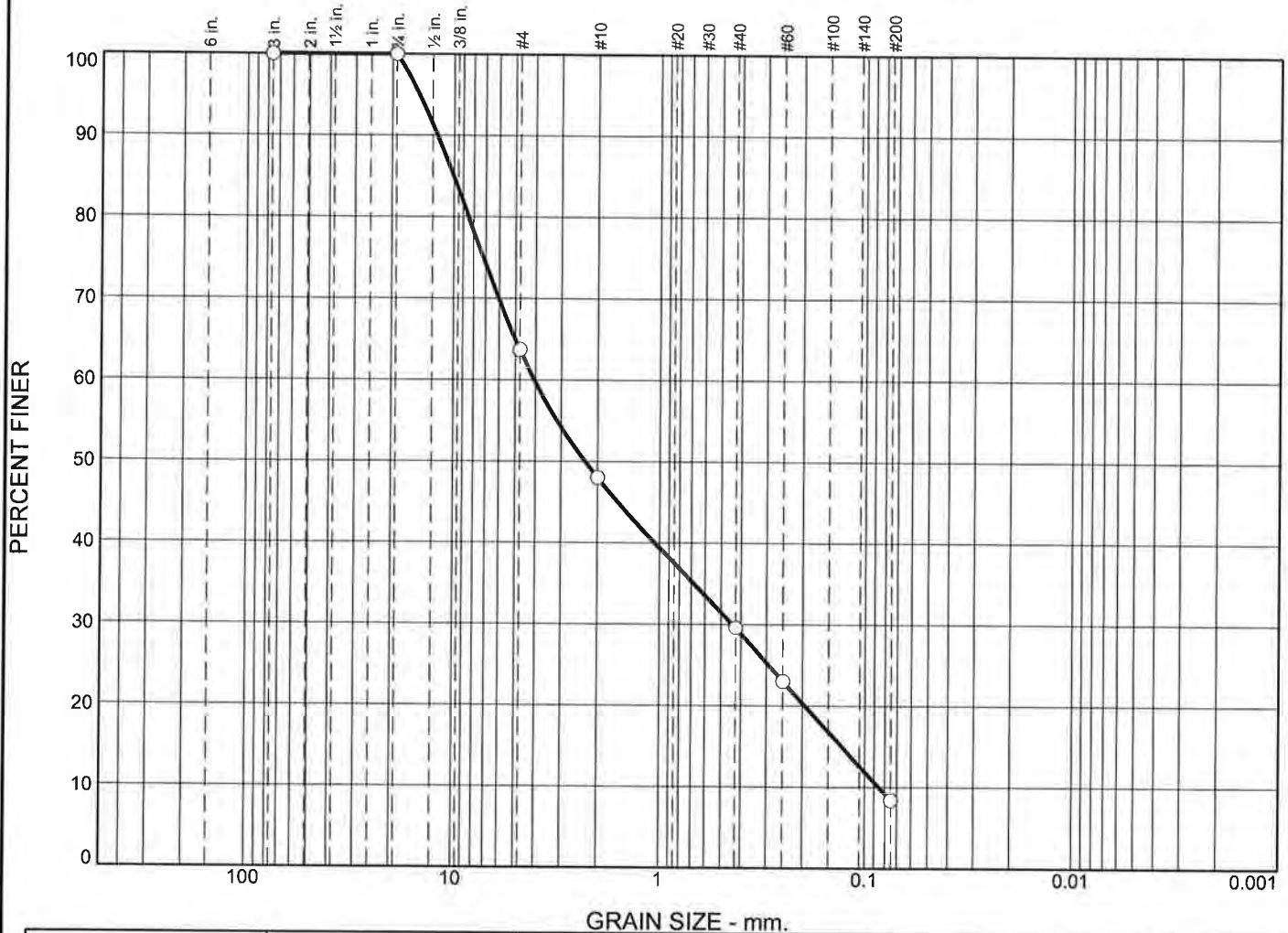
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



ASTM D6913/D7928
GRAIN SIZE ANALYSIS

Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="radio"/>	0.0	0.0	36.4	15.6	18.4	21.1	8.5	

<input checked="" type="checkbox"/>	Colloids	LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>				10.0483	4.0563	2.2996	0.4406	0.1292	0.0852	0.56	47.60

Material Description							USCS	AASHTO
<input type="radio"/>								

Project No. <input type="radio"/>	Client: <input type="radio"/>	Remarks: <input type="radio"/>
Project: <input type="radio"/>		
Source of Sample: BB4 <input type="radio"/>	Sample Number: L1808411-01 <input type="radio"/>	
Date: <input type="radio"/>		
Alpha Analytical Mansfield, MA		Figure <input type="radio"/>

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2018

Location: BB4

Sample Number: L1808411-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 87.04
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
87.04	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	31.65	0.00	63.6
		#10	13.59	0.00	48.0
		#40	16.06	0.00	29.6
		#60	5.67	0.00	23.1
		#200	12.70	0.00	8.5

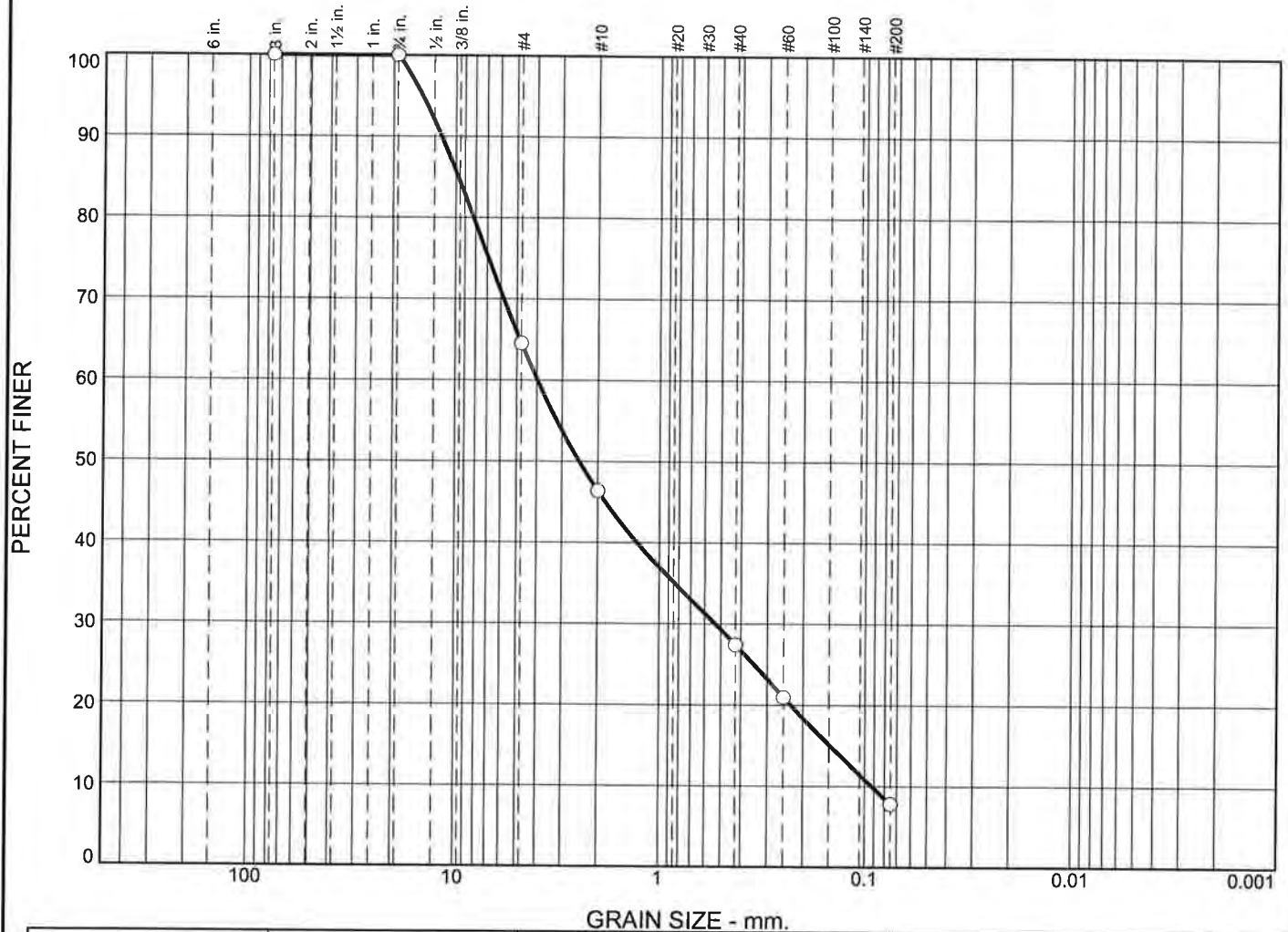
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	36.4	36.4	15.6	18.4	21.1	55.1			8.5

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0852	0.1292	0.1950	0.4406	1.0554	2.2996	4.0563	8.4774	10.0483	12.0226	14.7023

Fineness Modulus	C _u	C _c
3.86	47.60	0.56

Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines				
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
<input type="radio"/>	0.0	0.0	35.5	18.1	18.9	19.6	7.9				
<input checked="" type="checkbox"/>	Colloids	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>				9.7393	3.9678	2.4663	0.5316	0.1477	0.0922	0.77	43.02

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No. Project: <input type="radio"/> Source of Sample: BB4 Date: <input type="radio"/>	Client: Sample Number: WG1098497-1 Alpha Analytical Mansfield, MA	Remarks:
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Figure

GRAIN SIZE DISTRIBUTION TEST DATA

3/19/2018

Location: BB4

Sample Number: WG1098497-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 81.51
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
81.51	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	28.92	0.00	64.5
		#10	14.78	0.00	46.4
		#40	15.43	0.00	27.5
		#60	5.26	0.00	21.0
		#200	10.72	0.00	7.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	35.5	35.5	18.1	18.9	19.6	56.6			7.9

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0922	0.1477	0.2298	0.5316	1.2812	2.4663	3.9678	8.1766	9.7393	11.7311	14.4777

Fineness Modulus	C _u	C _c
3.93	43.02	0.77

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E,**

SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2057922
Client:	The BSC Group, Inc. 349 Route 28, Unit D West Yarmouth, MA 02673
ATTN:	Matt Creighton
Phone:	(508) 778-8919
Project Name:	WEWEANTIC RIVER BRIDGE
Project Number:	Not Specified
Report Date:	01/20/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2057922-01	BB18	SEDIMENT	WEWEANTIC RIVER BRIDGE	12/29/20 10:00	12/29/20
L2057922-02	ABOVE BRIDGE	WATER	WEWEANTIC RIVER BRIDGE	12/29/20 10:15	12/29/20
L2057922-03	BELOW BRIDGE	WATER	WEWEANTIC RIVER BRIDGE	12/29/20 10:16	12/29/20

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Case Narrative (continued)

Sample Receipt

L2057922-02 and -03: The samples were received above the appropriate pH for the Total Phosphorus - SM 4500, Total Kjeldahl Nitrogen - SM 4500, NO₃/NO₂ combined analysis - SM 4500, Total Nitrogen - SM 4500-N Calculation analysis. The laboratory added additional H₂SO₄ to a pH <2.

Phosphorus, Total

L2057922-02 and -03: The samples have an elevated detection limit due to limited sample volume available for analysis.

Nitrogen, Total Kjeldahl

L2057922-02: The sample has elevated detection limits due to limited sample volume available for analysis.
 L2057922-03: The sample has an elevated detection limit due to the dilution required by the sample matrix.

Coliform, Fecal (MPN)


L2057922-02 and -03 was analyzed with the method required holding time exceeded.

Grain Size Analysis

The WG1454080-1 Laboratory Duplicate RPD for total gravel (98%), % coarse sand (25%), % medium sand (22%), % fine sand (24%), and total fines (23%), performed on L2057922-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 01/20/21

ORGANICS

VOLATILES

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**SAMPLE RESULTS**

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 1,8260C
 Analytical Date: 01/08/21 16:42
 Analyst: JC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.0	--	1
1,1-Dichloroethane	ND		ug/kg	1.2	--	1
Chloroform	ND		ug/kg	1.8	--	1
Carbon tetrachloride	ND		ug/kg	1.2	--	1
1,2-Dichloropropane	ND		ug/kg	1.2	--	1
Dibromochloromethane	ND		ug/kg	1.2	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	--	1
Tetrachloroethene	ND		ug/kg	0.60	--	1
Chlorobenzene	ND		ug/kg	0.60	--	1
Trichlorofluoromethane	ND		ug/kg	4.8	--	1
1,2-Dichloroethane	ND		ug/kg	1.2	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.60	--	1
Bromodichloromethane	ND		ug/kg	0.60	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.60	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.60	--	1
1,1-Dichloropropene	ND		ug/kg	0.60	--	1
Bromoform	ND		ug/kg	4.8	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.60	--	1
Benzene	ND		ug/kg	0.60	--	1
Toluene	ND		ug/kg	1.2	--	1
Ethylbenzene	ND		ug/kg	1.2	--	1
Chloromethane	ND		ug/kg	4.8	--	1
Bromomethane	ND		ug/kg	2.4	--	1
Vinyl chloride	ND		ug/kg	1.2	--	1
Chloroethane	ND		ug/kg	2.4	--	1
1,1-Dichloroethene	ND		ug/kg	1.2	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**SAMPLE RESULTS**

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.60	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.4	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.4	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.4	--	1
Methyl tert butyl ether	ND		ug/kg	2.4	--	1
p/m-Xylene	ND		ug/kg	2.4	--	1
o-Xylene	ND		ug/kg	1.2	--	1
Xylenes, Total	ND		ug/kg	1.2	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	--	1
Dibromomethane	ND		ug/kg	2.4	--	1
1,4-Dichlorobutane	ND		ug/kg	12	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.4	--	1
Styrene	ND		ug/kg	1.2	--	1
Dichlorodifluoromethane	ND		ug/kg	12	--	1
Acetone	ND		ug/kg	30	--	1
Carbon disulfide	ND		ug/kg	12	--	1
2-Butanone	ND		ug/kg	12	--	1
Vinyl acetate	ND		ug/kg	12	--	1
4-Methyl-2-pentanone	ND		ug/kg	12	--	1
2-Hexanone	ND		ug/kg	12	--	1
Ethyl methacrylate	ND		ug/kg	12	--	1
Acrylonitrile	ND		ug/kg	4.8	--	1
Bromochloromethane	ND		ug/kg	2.4	--	1
Tetrahydrofuran	ND		ug/kg	4.8	--	1
2,2-Dichloropropane	ND		ug/kg	2.4	--	1
1,2-Dibromoethane	ND		ug/kg	1.2	--	1
1,3-Dichloropropane	ND		ug/kg	2.4	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.60	--	1
Bromobenzene	ND		ug/kg	2.4	--	1
n-Butylbenzene	ND		ug/kg	1.2	--	1
sec-Butylbenzene	ND		ug/kg	1.2	--	1
tert-Butylbenzene	ND		ug/kg	2.4	--	1
o-Chlorotoluene	ND		ug/kg	2.4	--	1
p-Chlorotoluene	ND		ug/kg	2.4	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.6	--	1
Hexachlorobutadiene	ND		ug/kg	4.8	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

SAMPLE RESULTS

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Isopropylbenzene	ND		ug/kg	1.2	--	1
p-Isopropyltoluene	ND		ug/kg	1.2	--	1
Naphthalene	ND		ug/kg	4.8	--	1
n-Propylbenzene	ND		ug/kg	1.2	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.4	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.4	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.4	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.4	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.0	--	1
Ethyl ether	ND		ug/kg	2.4	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	89		70-130

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
Trichloroethene	ND		ug/kg	0.50	--
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	25	--
Carbon disulfide	ND		ug/kg	10	--
2-Butanone	ND		ug/kg	10	--
Vinyl acetate	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrolein	ND		ug/kg	25	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
1,3,5-Trichlorobenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Ethyl ether	ND		ug/kg	2.0	--
Methyl Acetate	ND		ug/kg	4.0	--
Ethyl Acetate	ND		ug/kg	10	--
Isopropyl Ether	ND		ug/kg	2.0	--
Cyclohexane	ND		ug/kg	10	--
Tert-Butyl Alcohol	ND		ug/kg	20	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--
Methyl cyclohexane	ND		ug/kg	4.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	4.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
Methylene chloride	97		97		70-130	0		30
1,1-Dichloroethane	114		114		70-130	0		30
Chloroform	100		99		70-130	1		30
Carbon tetrachloride	100		99		70-130	1		30
1,2-Dichloropropane	116		112		70-130	4		30
Dibromochloromethane	90		90		70-130	0		30
1,1,2-Trichloroethane	87		86		70-130	1		30
2-Chloroethylvinyl ether	103		98		70-130	5		30
Tetrachloroethene	103		102		70-130	1		30
Chlorobenzene	90		90		70-130	0		30
Trichlorofluoromethane	98		100		70-139	2		30
1,2-Dichloroethane	98		94		70-130	4		30
1,1,1-Trichloroethane	100		97		70-130	3		30
Bromodichloromethane	98		93		70-130	5		30
trans-1,3-Dichloropropene	88		87		70-130	1		30
cis-1,3-Dichloropropene	104		101		70-130	3		30
1,1-Dichloropropene	106		104		70-130	2		30
Bromoform	90		85		70-130	6		30
1,1,1,2-Tetrachloroethane	82		79		70-130	4		30
Benzene	106		104		70-130	2		30
Toluene	91		92		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
Chloromethane	122		123		52-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
Bromomethane	98		95		57-147	3		30
Vinyl chloride	112		113		67-130	1		30
Chloroethane	91		89		50-151	2		30
1,1-Dichloroethene	113		113		65-135	0		30
trans-1,2-Dichloroethene	110		108		70-130	2		30
Trichloroethene	104		104		70-130	0		30
1,2-Dichlorobenzene	84		82		70-130	2		30
1,3-Dichlorobenzene	85		84		70-130	1		30
1,4-Dichlorobenzene	85		84		70-130	1		30
Methyl tert butyl ether	96		95		66-130	1		30
p/m-Xylene	90		91		70-130	1		30
o-Xylene	88		89		70-130	1		30
cis-1,2-Dichloroethene	103		102		70-130	1		30
Dibromomethane	95		93		70-130	2		30
1,4-Dichlorobutane	90		86		70-130	5		30
1,2,3-Trichloropropane	78		76		68-130	3		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	102		102		30-146	0		30
Acetone	90		79		54-140	13		30
Carbon disulfide	106		106		59-130	0		30
2-Butanone	90		85		70-130	6		30
Vinyl acetate	97		90		70-130	7		30
4-Methyl-2-pentanone	95		94		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
2-Hexanone	78		76		70-130	3		30
Ethyl methacrylate	85		83		70-130	2		30
Acrolein	126		122		70-130	3		30
Acrylonitrile	119		116		70-130	3		30
Bromochloromethane	105		103		70-130	2		30
Tetrahydrofuran	94		89		66-130	5		30
2,2-Dichloropropane	102		100		70-130	2		30
1,2-Dibromoethane	89		88		70-130	1		30
1,3-Dichloropropane	87		87		69-130	0		30
1,1,1,2-Tetrachloroethane	91		91		70-130	0		30
Bromobenzene	90		86		70-130	5		30
n-Butylbenzene	80		80		70-130	0		30
sec-Butylbenzene	82		82		70-130	0		30
tert-Butylbenzene	84		83		70-130	1		30
1,3,5-Trichlorobenzene	96		95		70-139	1		30
o-Chlorotoluene	81		80		70-130	1		30
p-Chlorotoluene	83		82		70-130	1		30
1,2-Dibromo-3-chloropropane	86		82		68-130	5		30
Hexachlorobutadiene	94		97		67-130	3		30
Isopropylbenzene	86		84		70-130	2		30
p-Isopropyltoluene	83		82		70-130	1		30
Naphthalene	88		86		70-130	2		30
n-Propylbenzene	84		83		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
1,2,3-Trichlorobenzene	94		95		70-130	1		30
1,2,4-Trichlorobenzene	98		98		70-130	0		30
1,3,5-Trimethylbenzene	82		81		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30
trans-1,4-Dichloro-2-butene	84		80		70-130	5		30
Ethyl ether	108		104		67-130	4		30
Methyl Acetate	98		93		65-130	5		30
Ethyl Acetate	93		89		70-130	4		30
Isopropyl Ether	110		107		66-130	3		30
Cyclohexane	128		125		70-130	2		30
Tert-Butyl Alcohol	106		100		70-130	6		30
Ethyl-Tert-Butyl-Ether	116		114		70-130	2		30
Tertiary-Amyl Methyl Ether	100		98		70-130	2		30
1,4-Dioxane	103		100		65-136	3		30
Methyl cyclohexane	108		108		70-130	0		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	111		112		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	90		92		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	93		93		70-130

SEMIVOLATILES

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

SAMPLE RESULTS

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 01/04/21 13:13
 Analyst: GP
 Percent Solids: 79%

Extraction Method: EPA 3570
 Extraction Date: 01/02/21 11:26
 Cleanup Method: EPA 3630
 Cleanup Date: 01/04/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	5.16		ug/kg	4.87	--	1
Acenaphthylene	17.4		ug/kg	4.87	--	1
Acenaphthene	ND		ug/kg	4.87	--	1
Fluorene	6.95		ug/kg	4.87	--	1
Phenanthrene	88.5		ug/kg	4.87	--	1
Anthracene	12.0		ug/kg	4.87	--	1
Fluoranthene	75.4		ug/kg	4.87	--	1
Pyrene	128		ug/kg	4.87	--	1
Benz(a)anthracene	40.6		ug/kg	4.87	--	1
Chrysene	57.0		ug/kg	4.87	--	1
Benzo(b)fluoranthene	33.6		ug/kg	4.87	--	1
Benzo(k)fluoranthene	37.5		ug/kg	4.87	--	1
Benzo(a)pyrene	45.6		ug/kg	4.87	--	1
Indeno(1,2,3-cd)Pyrene	23.4		ug/kg	4.87	--	1
Dibenz(a,h)anthracene	7.29		ug/kg	4.87	--	1
Benzo(ghi)perylene	28.9		ug/kg	4.87	--	1
Cl2-BZ#8	ND		ug/kg	0.487	--	1
Cl3-BZ#18	ND		ug/kg	0.487	--	1
Cl3-BZ#28	ND		ug/kg	0.487	--	1
Cl4-BZ#44	ND		ug/kg	0.487	--	1
Cl4-BZ#49	ND		ug/kg	0.487	--	1
Cl4-BZ#52	ND		ug/kg	0.487	--	1
Cl4-BZ#66	ND		ug/kg	0.487	--	1
Cl5-BZ#87	ND		ug/kg	0.487	--	1
Cl5-BZ#101	ND		ug/kg	0.487	--	1
Cl5-BZ#105	ND		ug/kg	0.487	--	1
Cl5-BZ#118	ND		ug/kg	0.487	--	1
Cl6-BZ#128	ND		ug/kg	0.487	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**SAMPLE RESULTS**

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.487	--	1
Cl6-BZ#153	ND		ug/kg	0.487	--	1
Cl7-BZ#170	ND		ug/kg	0.487	--	1
Cl7-BZ#180	ND		ug/kg	0.487	--	1
Cl7-BZ#183	ND		ug/kg	0.487	--	1
Cl7-BZ#184	ND		ug/kg	0.487	--	1
Cl7-BZ#187	ND		ug/kg	0.487	--	1
Cl8-BZ#195	ND		ug/kg	0.487	--	1
Cl9-BZ#206	ND		ug/kg	0.487	--	1
Cl10-BZ#209	ND		ug/kg	0.487	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	70		30-150
Pyrene-d10	89		30-150
Benzo(b)fluoranthene-d12	88		30-150
DBOB	87		50-125
BZ 198	82		50-125

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/04/21 11:41
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/02/21 11:26
Cleanup Method: EPA 3630
Cleanup Date: 01/04/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1450998-1					
Naphthalene	ND		ug/kg	4.00	--
Acenaphthylene	ND		ug/kg	4.00	--
Acenaphthene	ND		ug/kg	4.00	--
Fluorene	ND		ug/kg	4.00	--
Phenanthrene	ND		ug/kg	4.00	--
Anthracene	ND		ug/kg	4.00	--
Fluoranthene	ND		ug/kg	4.00	--
Pyrene	ND		ug/kg	4.00	--
Benz(a)anthracene	ND		ug/kg	4.00	--
Chrysene	ND		ug/kg	4.00	--
Benzo(b)fluoranthene	ND		ug/kg	4.00	--
Benzo(k)fluoranthene	ND		ug/kg	4.00	--
Benzo(a)pyrene	ND		ug/kg	4.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	--
Dibenz(a,h)anthracene	ND		ug/kg	4.00	--
Benzo(ghi)perylene	ND		ug/kg	4.00	--
Cl2-BZ#8	ND		ug/kg	0.400	--
Cl3-BZ#18	ND		ug/kg	0.400	--
Cl3-BZ#28	ND		ug/kg	0.400	--
Cl4-BZ#44	ND		ug/kg	0.400	--
Cl4-BZ#49	ND		ug/kg	0.400	--
Cl4-BZ#52	ND		ug/kg	0.400	--
Cl4-BZ#66	ND		ug/kg	0.400	--
Cl5-BZ#87	ND		ug/kg	0.400	--
Cl5-BZ#101	ND		ug/kg	0.400	--
Cl5-BZ#105	ND		ug/kg	0.400	--
Cl5-BZ#118	ND		ug/kg	0.400	--
Cl6-BZ#128	ND		ug/kg	0.400	--
Cl6-BZ#138	ND		ug/kg	0.400	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/04/21 11:41
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/02/21 11:26
Cleanup Method: EPA 3630
Cleanup Date: 01/04/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1450998-1					
CI6-BZ#153	ND		ug/kg	0.400	--
CI7-BZ#170	ND		ug/kg	0.400	--
CI7-BZ#180	ND		ug/kg	0.400	--
CI7-BZ#183	ND		ug/kg	0.400	--
CI7-BZ#184	ND		ug/kg	0.400	--
CI7-BZ#187	ND		ug/kg	0.400	--
CI8-BZ#195	ND		ug/kg	0.400	--
CI9-BZ#206	ND		ug/kg	0.400	--
CI10-BZ#209	ND		ug/kg	0.400	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	69		30-150
Pyrene-d10	98		30-150
Benzo(b)fluoranthene-d12	99		30-150
DBOB	84		50-125
BZ 198	84		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1450998-2 WG1450998-3								
Naphthalene	74		77		40-140	4		30
Acenaphthylene	87		90		40-140	3		30
Acenaphthene	86		88		40-140	2		30
Fluorene	89		92		40-140	3		30
Phenanthrene	95		96		40-140	1		30
Anthracene	103		106		40-140	3		30
Fluoranthene	104		106		40-140	2		30
Pyrene	100		102		40-140	2		30
Benz(a)anthracene	99		100		40-140	1		30
Chrysene	105		107		40-140	2		30
Benzo(b)fluoranthene	120		124		40-140	3		30
Benzo(k)fluoranthene	100		101		40-140	1		30
Benzo(a)pyrene	105		107		40-140	2		30
Indeno(1,2,3-cd)Pyrene	101		104		40-140	3		30
Dibenz(a,h)anthracene	100		102		40-140	2		30
Benzo(ghi)perylene	104		106		40-140	2		30
Cl2-BZ#8	92		95		40-140	3		50
Cl3-BZ#18	89		94		40-140	5		50
Cl3-BZ#28	94		98		40-140	4		50
Cl4-BZ#44	97		102		40-140	5		50
Cl4-BZ#49	95		100		40-140	5		50
Cl4-BZ#52	87		91		40-140	4		50
Cl4-BZ#66	90		95		40-140	5		50

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1450998-2 WG1450998-3								
CI5-BZ#87	95		100		40-140	5		50
CI5-BZ#101	92		98		40-140	6		50
CI5-BZ#105	93		100		40-140	7		50
CI5-BZ#118	90		95		40-140	5		50
CI6-BZ#128	91		96		40-140	5		50
CI6-BZ#138	92		97		40-140	5		50
CI6-BZ#153	93		98		40-140	5		50
CI7-BZ#170	93		98		40-140	5		50
CI7-BZ#180	94		98		40-140	4		50
CI7-BZ#183	81		84		40-140	4		50
CI7-BZ#184	90		95		40-140	5		50
CI7-BZ#187	90		96		40-140	6		50
CI8-BZ#195	93		99		40-140	6		50
CI9-BZ#206	93		99		40-140	6		50
CI10-BZ#209	89		93		40-140	4		50

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	75		75		30-150
Pyrene-d10	100		98		30-150
Benzo(b)fluoranthene-d12	100		97		30-150
DBOB	87		87		50-125
BZ 198	86		91		50-125



PETROLEUM HYDROCARBONS

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**SAMPLE RESULTS**

Lab ID: L2057922-01
 Client ID: BB18
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 01/04/21 20:15
 Analyst: SC
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 01/03/21 15:39
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 01/04/21

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.99	--	1
C19-C36 Aliphatics	ND		mg/kg	7.99	--	1
C11-C22 Aromatics	ND		mg/kg	7.99	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.99	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	75		40-140
o-Terphenyl	82		40-140
2-Fluorobiphenyl	91		40-140
2-Bromonaphthalene	93		40-140

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 135,EPH-19-2.1
Analytical Date: 01/04/21 16:59
Analyst: SC

Extraction Method: EPA 3546
Extraction Date: 01/02/21 18:52
Cleanup Method: EPH-04-1
Cleanup Date: 01/04/21

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1451044-1					
C9-C18 Aliphatics	ND		mg/kg	6.30	--
C19-C36 Aliphatics	ND		mg/kg	6.30	--
C11-C22 Aromatics	ND		mg/kg	6.30	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.30	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	90		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1451044-2 WG1451044-3								
C9-C18 Aliphatics	81		78		40-140	4		25
C19-C36 Aliphatics	91		89		40-140	2		25
C11-C22 Aromatics	123		109		40-140	12		25
Naphthalene	109		98		40-140	11		25
2-Methylnaphthalene	112		102		40-140	9		25
Acenaphthylene	109		97		40-140	12		25
Acenaphthene	117		105		40-140	11		25
Fluorene	118		104		40-140	13		25
Phenanthrene	120		106		40-140	12		25
Anthracene	122		108		40-140	12		25
Fluoranthene	125		110		40-140	13		25
Pyrene	125		110		40-140	13		25
Benzo(a)anthracene	125		110		40-140	13		25
Chrysene	127		112		40-140	13		25
Benzo(b)fluoranthene	137		121		40-140	12		25
Benzo(k)fluoranthene	103		91		40-140	12		25
Benzo(a)pyrene	120		106		40-140	12		25
Indeno(1,2,3-cd)Pyrene	115		102		40-140	12		25
Dibenzo(a,h)anthracene	118		105		40-140	12		25
Benzo(ghi)perylene	110		96		40-140	14		25

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1451044-2 WG1451044-3								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
Chloro-Octadecane	64		64		40-140
o-Terphenyl	98		86		40-140
2-Fluorobiphenyl	114		98		40-140
2-Bromonaphthalene	115		99		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

METALS

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**SAMPLE RESULTS**

Lab ID: L2057922-01

Date Collected: 12/29/20 10:00

Client ID: BB18

Date Received: 12/29/20

Sample Location: WEWEANTIC RIVER BRIDGE

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.17		mg/kg	0.617	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Cadmium, Total	ND		mg/kg	0.247	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Chromium, Total	4.85		mg/kg	2.47	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Copper, Total	3.31		mg/kg	2.47	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Lead, Total	4.98		mg/kg	0.741	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Mercury, Total	0.012		mg/kg	0.008	--	5	01/08/21 12:36	01/12/21 17:49	EPA 7474	1,7474	TM
Nickel, Total	3.62		mg/kg	1.23	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM
Zinc, Total	17.5		mg/kg	12.3	--	10	01/08/21 06:10	01/08/21 13:08	EPA 3050B	1,6020B	AM

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1452273-1									
Arsenic, Total	ND	mg/kg	0.500	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Cadmium, Total	ND	mg/kg	0.200	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Chromium, Total	ND	mg/kg	2.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Copper, Total	ND	mg/kg	2.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Lead, Total	ND	mg/kg	0.600	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Nickel, Total	ND	mg/kg	1.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Zinc, Total	ND	mg/kg	10.0	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1452278-1									
Mercury, Total	ND	mg/kg	0.013	--	5	01/08/21 12:36	01/12/21 17:32	1,7474	TM

Prep Information

Digestion Method: EPA 7474



Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2057922

Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1452273-2 SRM Lot Number: D109-540								
Arsenic, Total	108		-		70-130	-		20
Cadmium, Total	101		-		75-125	-		20
Chromium, Total	100		-		70-130	-		20
Copper, Total	103		-		75-125	-		20
Lead, Total	106		-		72-128	-		20
Nickel, Total	99		-		70-130	-		20
Zinc, Total	104		-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1452278-2 SRM Lot Number: D109-540								
Mercury, Total	69		-		60-140	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452273-3 QC Sample: L2057265-01 Client ID: MS Sample												
Arsenic, Total	2.32	14	15.3	92	-	-	-	-	75-125	-	-	20
Cadmium, Total	ND	5.96	6.04	101	-	-	-	-	75-125	-	-	20
Chromium, Total	4.35	23.4	26.2	93	-	-	-	-	75-125	-	-	20
Copper, Total	6.02	29.2	33.8	95	-	-	-	-	75-125	-	-	20
Lead, Total	5.16	59.6	64.7	100	-	-	-	-	75-125	-	-	20
Nickel, Total	1.60	58.4	53.4	89	-	-	-	-	75-125	-	-	20
Zinc, Total	ND	58.4	66.6	114	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452278-4 QC Sample: L2056508-01 Client ID: MS Sample												
Mercury, Total	0.053	0.794	0.808	95	-	-	-	-	80-120	-	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2057922

Report Date: 01/20/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452273-4 QC Sample: L2057265-01 Client ID: DUP Sample						
Arsenic, Total	2.32	2.38	mg/kg	3		20
Cadmium, Total	ND	ND	mg/kg	NC		20
Chromium, Total	4.35	4.30	mg/kg	1		20
Copper, Total	6.02	6.75	mg/kg	11		20
Lead, Total	5.16	5.37	mg/kg	4		20
Nickel, Total	1.60	1.71	mg/kg	7		20
Zinc, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452278-5 QC Sample: L2056508-01 Client ID: DUP Sample						
Mercury, Total	0.053	0.041	mg/kg	24	Q	20

INORGANICS & MISCELLANEOUS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

SAMPLE RESULTS

Lab ID: L2057922-01
Client ID: BB18
Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:00
Date Received: 12/29/20
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.222		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
Total Organic Carbon (Rep2)	0.263		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
Total Organic Carbon (Average)	0.242		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
Grain Size Analysis - Mansfield Lab										
% Total Gravel	9.80		%	0.100	NA	1	-	01/12/21 10:42	12,D6913/D7928	RM
% Coarse Sand	10.4		%	0.100	NA	1	-	01/12/21 10:42	12,D6913/D7928	RM
% Medium Sand	21.5		%	0.100	NA	1	-	01/12/21 10:42	12,D6913/D7928	RM
% Fine Sand	34.6		%	0.100	NA	1	-	01/12/21 10:42	12,D6913/D7928	RM
% Total Fines	23.7		%	0.100	NA	1	-	01/12/21 10:42	12,D6913/D7928	RM
General Chemistry - Mansfield Lab										
Solids, Total	79.1		%	0.100	--	1	-	01/09/21 12:46	121,2540G	AL



Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

SAMPLE RESULTS

Lab ID: L2057922-02
 Client ID: ABOVE BRIDGE
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:15
 Date Received: 12/29/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	33		MPN/100ml	2	NA	1	-	12/29/20 20:18	121,9221E	CM
General Chemistry - Westborough Lab										
SALINITY	5.7		SU	2.0	--	1	-	12/30/20 22:13	121,2520B	AS
Nitrogen, Nitrate/Nitrite	0.10		mg/l	0.10	--	1	-	01/06/21 08:14	121,4500NO3-F	MR
Total Nitrogen	ND		mg/l	0.60	--	2	-	01/18/21 12:46	107,-	JO
Nitrogen, Total Kjeldahl	ND		mg/l	0.600	--	2	01/15/21 17:00	01/15/21 22:08	121,4500NH3-H	AT
Phosphorus, Total	ND		mg/l	0.025	--	2.5	01/07/21 09:45	01/07/21 13:27	121,4500P-E	SD



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

SAMPLE RESULTS

Lab ID: L2057922-03
Client ID: BELOW BRIDGE
Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/29/20 10:16
Date Received: 12/29/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
Coliform, Fecal (MPN)	23		MPN/100ml	2	NA	1	-	12/29/20 20:18	121,9221E	CM
General Chemistry - Westborough Lab										
SALINITY	10		SU	2.0	--	1	-	12/30/20 22:13	121,2520B	AS
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	--	1	-	01/06/21 08:15	121,4500NO3-F	MR
Total Nitrogen	ND		mg/l	1.5	--	5	-	01/18/21 12:46	107,-	JO
Nitrogen, Total Kjeldahl	ND		mg/l	1.50	--	5	01/15/21 17:00	01/15/21 22:09	121,4500NH3-H	AT
Phosphorus, Total	ND		mg/l	0.025	--	2.5	01/07/21 09:45	01/07/21 13:28	121,4500P-E	SD



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 02-03 Batch: WG1450111-1										
Coliform, Fecal (MPN)	<2		MPN/100ml	2	NA	1	-	12/29/20 20:18	121,9221E	CM
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1452007-1										
Nitrogen, Nitrate/Nitrite	ND		mg/l	0.10	--	1	-	01/06/21 07:40	121,4500NO3-F	MR
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1452511-1										
Phosphorus, Total	ND		mg/l	0.010	--	1	01/07/21 09:45	01/07/21 13:25	121,4500P-E	SD
Total Organic Carbon - Mansfield Lab for sample(s): 01 Batch: WG1454685-1										
Total Organic Carbon (Rep1)	ND		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
Total Organic Carbon (Rep2)	ND		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
Total Organic Carbon (Average)	ND		%	0.010	--	1	-	01/12/21 18:52	1,9060A	SM
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1455524-1										
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	--	1	01/15/21 17:00	01/15/21 22:05	121,4500NH3-H	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1450561-1								
SALINITY	100		-			-		
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1452007-2								
Nitrogen, Nitrate/Nitrite	96		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1452511-2								
Phosphorus, Total	101		-		80-120	-		
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 Batch: WG1454685-2								
Total Organic Carbon (Rep1)	108		-		75-125	-		25
Total Organic Carbon (Rep2)	102		-		75-125	-		25
Total Organic Carbon (Average)	105		-		75-125	-		25
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1455524-2								
Nitrogen, Total Kjeldahl	90		-		78-122	-		

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1452007-4 QC Sample: L2100009-27 Client ID: MS Sample												
Nitrogen, Nitrate/Nitrite	0.91	4	4.8	97		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1452511-3 QC Sample: L2100146-02 Client ID: MS Sample												
Phosphorus, Total	0.162	0.5	0.612	90		-	-		75-125	-		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454685-3 QC Sample: L2100744-15 Client ID: MS Sample												
Total Organic Carbon (Rep1)	3.77	0.863	3.26	0	Q	-	-		75-125	-		25
Total Organic Carbon (Rep2)	3.50	0.682	3.01	0	Q	-	-		75-125	-		25
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1455524-4 QC Sample: L2101672-01 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	10.5	8	17.9	92		-	-		77-111	-		24

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2057922

Report Date: 01/20/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1450561-2 QC Sample: L2057922-03 Client ID: BELOW BRIDGE						
SALINITY	10	10	SU	0		
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1452007-3 QC Sample: L2100009-27 Client ID: DUP Sample						
Nitrogen, Nitrate/Nitrite	0.91	0.91	mg/l	0		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1452511-4 QC Sample: L2100146-02 Client ID: DUP Sample						
Phosphorus, Total	0.162	0.157	mg/l	3		20
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1453341-1 QC Sample: L2057265-01 Client ID: DUP Sample						
Solids, Total	65.7	65.7	%	0		10
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454080-1 QC Sample: L2057922-01 Client ID: BB18						
% Total Gravel	9.80	28.6	%	98	Q	20
% Coarse Sand	10.4	8.10	%	25	Q	20
% Medium Sand	21.5	17.3	%	22	Q	20
% Fine Sand	34.6	27.1	%	24	Q	20
% Total Fines	23.7	18.9	%	23	Q	20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454685-4 QC Sample: L2100744-15 Client ID: DUP Sample						
Total Organic Carbon (Rep1)	3.77	3.06	%	21		25
Total Organic Carbon (Rep2)	3.50	3.10	%	12		25
Total Organic Carbon (Average)	3.64	3.08	%	17		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2057922

Report Date: 01/20/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1455524-3 QC Sample: L2101672-01 Client ID: DUP Sample					
Nitrogen, Total Kjeldahl	10.5	10.3	mg/l	2	24

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2057922-01A	Vial MeOH preserved	A	NA		4.9	Y	Absent		8260HLW(14)
L2057922-01B	Vial water preserved	A	NA		4.9	Y	Absent	29-DEC-20 20:32	8260HLW(14)
L2057922-01C	Vial water preserved	A	NA		4.9	Y	Absent	29-DEC-20 20:32	8260HLW(14)
L2057922-01D	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		EPH-20(14)
L2057922-01E	Plastic 8oz unpreserved for Grain Size	A	NA		4.9	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-TS(7),A2-HYDRO-CSAND(),A2-TOC-9060-2REPS(28)
L2057922-01F	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		A2-PB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-PAH/PCBCONG(14),A2-CU-6020T(180)
L2057922-02A	Bacteria Cup Na2S2O3 preserved	A	NA		4.9	Y	Absent		F-COLI-MPN(.33)
L2057922-02B	Glass 120ml/4oz unpreserved	A	7	7	4.9	Y	Absent		SALINITY(28)
L2057922-02C	Plastic 120ml H2SO4 preserved split	A	7	<2	4.9	N	Absent		TKN-4500(28),TPHOS-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L2057922-03A	Bacteria Cup Na2S2O3 preserved	A	NA		4.9	Y	Absent		F-COLI-MPN(.33)
L2057922-03B	Plastic 120ml H2SO4 preserved split	A	7	<2	4.9	N	Absent		TKN-4500(28),TPHOS-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L2057922-03C	Glass 120ml/4oz unpreserved	A	7	7	4.9	Y	Absent		SALINITY(28)

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2057922**Project Number:** Not Specified**Report Date:** 01/20/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2057922
Report Date: 01/20/21

Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2057922

Project Number: Not Specified

Report Date: 01/20/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 135 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, December 2019, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, March 1, 2020.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

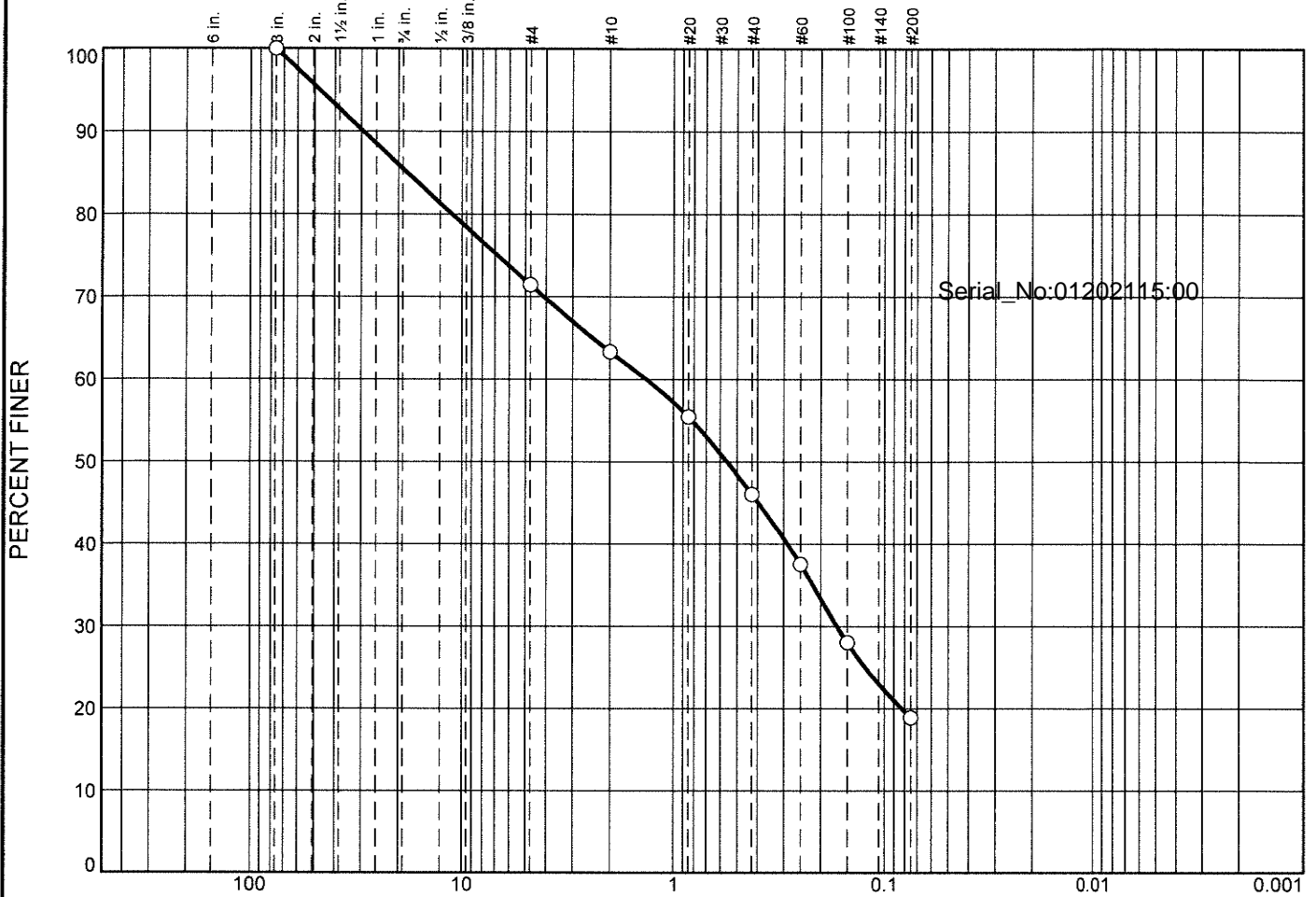
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:01202115:00

ASTM D6913/D7928
GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	14.5	14.1	8.1	17.3	27.1	18.9			
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			18.1430	1.3471	0.5580	0.1677				

Material Description	USCS	AASHTO
○		

<p>Project No. Client:</p> <p>Project:</p> <p>○ Source of Sample: BB18 Sample Number: WG1454080-1</p>	<p>Remarks:</p>
<p>Alpha Analytical</p> <p>Mansfield, MA</p>	

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/15/2021

Location: BB18

Sample Number: WG1454080-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 159.83
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
159.83	0.00	3"	0.00	0.00	100.0
		#4	45.64	0.00	71.4
		#10	12.94	0.00	63.3
		#20	12.59	0.00	55.5
		#40	15.09	0.00	46.0
		#60	13.54	0.00	37.6
		#100	15.23	0.00	28.0
		#200	14.60	0.00	18.9

Serial_No:01202115:00

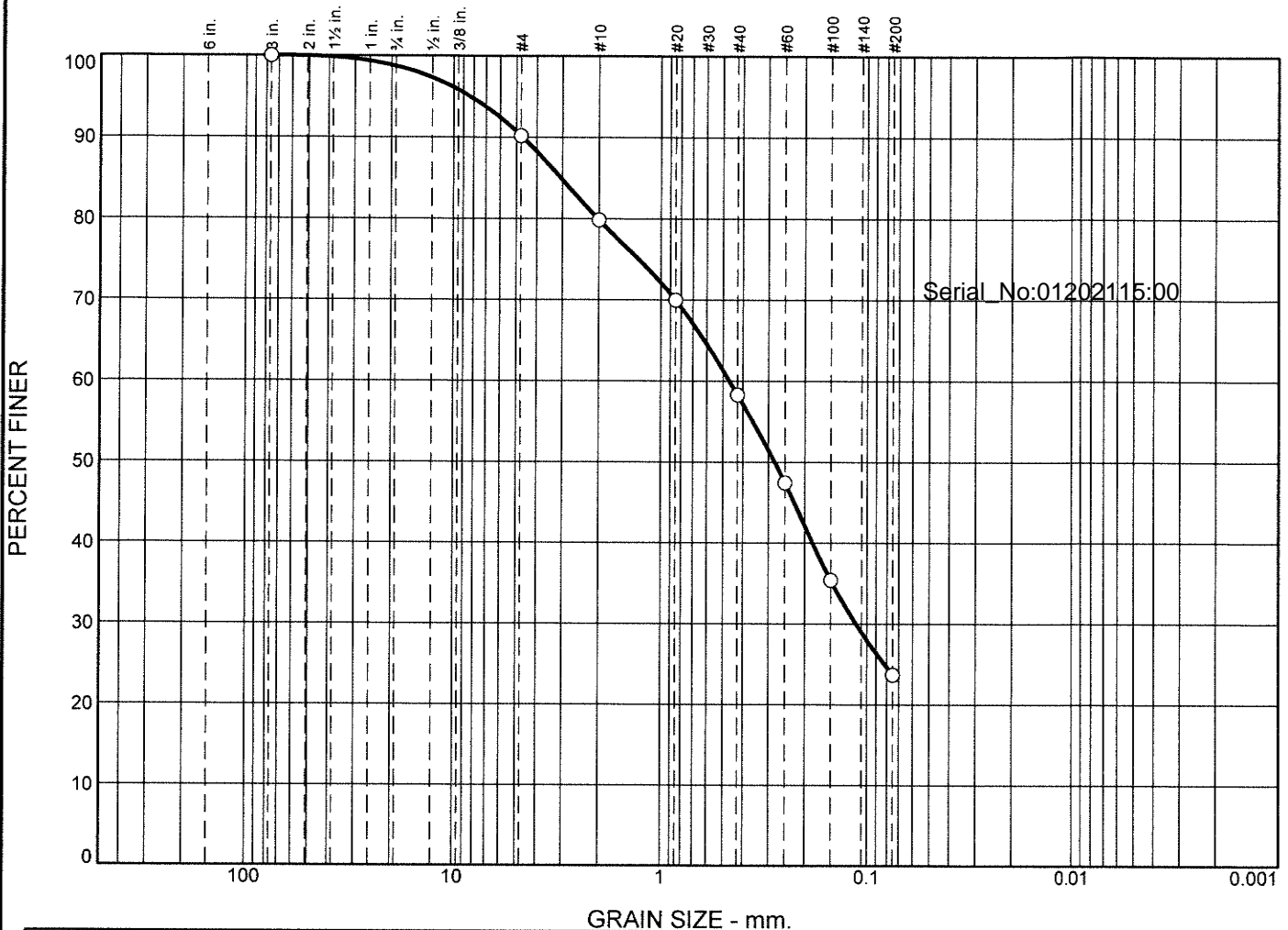
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	14.5	14.1	28.6	8.1	17.3	27.1	52.5			18.9

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0827	0.1677	0.2878	0.5580	1.3471	11.1478	18.1430	29.3612	47.3427

Fineness Modulus
3.29

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>	0.0	1.3	8.5	10.4	21.5	34.6	23.7			
<input checked="" type="checkbox"/>	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>			3.0560	0.4654	0.2803	0.1128				

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No.	Client:	Remarks:
Project:		
<input type="radio"/> Source of Sample: BB18	Sample Number: L2057922-01	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

1/15/2021

Location: BB18

Sample Number: L2057922-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 158.68
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
158.68	0.00	3"	0.00	0.00	100.0
		#4	15.58	0.00	90.2
		#10	16.42	0.00	79.8
		#20	15.63	0.00	70.0
		#40	18.53	0.00	58.3
		#60	17.23	0.00	47.4
		#100	19.10	0.00	35.4
		#200	18.60	0.00	23.7

Serial_No:01202115:00

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	1.3	8.5	9.8	10.4	21.5	34.6	66.5			23.7

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
				0.1128	0.1833	0.2803	0.4654	2.0291	3.0560	4.6696	8.3327

Fineness Modulus
2.08

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics

EPA 3C Fixed gases

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd In Lab: 12/29/20

ALPHA Job #: L2057922

5 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information

Project Name: Weweantic River Bridge

Project Location: Weweantic River Bridge

Project #:

Project Manager:

ALPHA Quote #:

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program Criteria

Client Information

Client: BSC Group, Inc.

Address: 349 Route 28, Unit D

Phone: 508-778-8919

Email: P.Mancuso@BSCGroup.com

Additional Project Information:

-Sediment Sample BB18 needs Full 401 WQC.
 -H₂O samples need Total N, salinity, Total P and fecal coliform

ANALYSIS		SAMPLE INFO Filtration <input type="checkbox"/> Field <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do
VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> S24.2		
SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH		
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15		
METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8		
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
PCB <input type="checkbox"/> PEST		
TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		
401 Water Quality Cert Salinity Fecal coliform Total Nitrite Total Phosphorus		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
57922-01	BB18	12/29/20	10:00 am		PM
	02 Above Bridge	12/29	10:15		PM
	03 Below Bridge	12/29	10:16		PM

Container Type
 P= Plastic
 A= Amber glass
 V= Vial
 G= Glass
 B= Bacteria cup
 C= Cube
 O= Other
 E= Encore
 D= BOD Bottle

Preservative
 A= None
 B= HCl
 C= HNO₃
 D= H₂SO₄
 E= NaOH
 F= MeOH
 G= NaHSO₄
 H= Na₂S₂O₈
 I= Ascorbic Acid
 J= NH₄Cl
 K= Zn Acetate
 O= Other

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	12/29 3:40	<u>[Signature]</u>	12/29/20 16:50
<u>[Signature]</u>	12-29-20 16:50	<u>[Signature]</u>	12/29/20 16:50

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
 FORM NO. 01-01 (rev. 12-Mar-2012)



ANALYTICAL REPORT

Lab Number:	L2058178
Client:	The BSC Group, Inc. 349 Route 28, Unit D West Yarmouth, MA 02673
ATTN:	Matt Creighton
Phone:	(508) 778-8919
Project Name:	WEWEANTIC RIVER BRIDGE
Project Number:	Not Specified
Report Date:	01/21/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2058178-01	BB 22	SEDIMENT	WEWEANTIC RIVER BRIDGE	12/30/20 10:00	12/30/20

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Case Narrative (continued)

PAHs/PCB Congeners


The WG1452701-3 LCS recovery, associated with L2058178-01, is above the acceptance criteria for dibenz(a,h)anthracene (142%) and benzo(ghi)perylene (143%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

Grain Size Analysis

The WG1454086-1 Laboratory Duplicate RPD for % total gravel (61%) and % coarse sand (43%), performed on L2058178-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 01/21/21

ORGANICS

VOLATILES

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2058178**Project Number:** Not Specified**Report Date:** 01/21/21**SAMPLE RESULTS**

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 1,8260C
 Analytical Date: 01/08/21 17:07
 Analyst: JC
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.5	--	1
1,1-Dichloroethane	ND		ug/kg	1.3	--	1
Chloroform	ND		ug/kg	1.9	--	1
Carbon tetrachloride	ND		ug/kg	1.3	--	1
1,2-Dichloropropane	ND		ug/kg	1.3	--	1
Dibromochloromethane	ND		ug/kg	1.3	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	--	1
Tetrachloroethene	ND		ug/kg	0.65	--	1
Chlorobenzene	ND		ug/kg	0.65	--	1
Trichlorofluoromethane	ND		ug/kg	5.2	--	1
1,2-Dichloroethane	ND		ug/kg	1.3	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.65	--	1
Bromodichloromethane	ND		ug/kg	0.65	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.65	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.65	--	1
1,1-Dichloropropene	ND		ug/kg	0.65	--	1
Bromoform	ND		ug/kg	5.2	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.65	--	1
Benzene	ND		ug/kg	0.65	--	1
Toluene	ND		ug/kg	1.3	--	1
Ethylbenzene	ND		ug/kg	1.3	--	1
Chloromethane	ND		ug/kg	5.2	--	1
Bromomethane	ND		ug/kg	2.6	--	1
Vinyl chloride	ND		ug/kg	1.3	--	1
Chloroethane	ND		ug/kg	2.6	--	1
1,1-Dichloroethene	ND		ug/kg	1.3	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2058178**Project Number:** Not Specified**Report Date:** 01/21/21**SAMPLE RESULTS**

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.65	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	--	1
Methyl tert butyl ether	ND		ug/kg	2.6	--	1
p/m-Xylene	ND		ug/kg	2.6	--	1
o-Xylene	ND		ug/kg	1.3	--	1
Xylenes, Total	ND		ug/kg	1.3	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.3	--	1
Dibromomethane	ND		ug/kg	2.6	--	1
1,4-Dichlorobutane	ND		ug/kg	13	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	--	1
Styrene	ND		ug/kg	1.3	--	1
Dichlorodifluoromethane	ND		ug/kg	13	--	1
Acetone	ND		ug/kg	32	--	1
Carbon disulfide	ND		ug/kg	13	--	1
2-Butanone	ND		ug/kg	13	--	1
Vinyl acetate	ND		ug/kg	13	--	1
4-Methyl-2-pentanone	ND		ug/kg	13	--	1
2-Hexanone	ND		ug/kg	13	--	1
Ethyl methacrylate	ND		ug/kg	13	--	1
Acrylonitrile	ND		ug/kg	5.2	--	1
Bromochloromethane	ND		ug/kg	2.6	--	1
Tetrahydrofuran	ND		ug/kg	5.2	--	1
2,2-Dichloropropane	ND		ug/kg	2.6	--	1
1,2-Dibromoethane	ND		ug/kg	1.3	--	1
1,3-Dichloropropane	ND		ug/kg	2.6	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.65	--	1
Bromobenzene	ND		ug/kg	2.6	--	1
n-Butylbenzene	ND		ug/kg	1.3	--	1
sec-Butylbenzene	ND		ug/kg	1.3	--	1
tert-Butylbenzene	ND		ug/kg	2.6	--	1
o-Chlorotoluene	ND		ug/kg	2.6	--	1
p-Chlorotoluene	ND		ug/kg	2.6	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.9	--	1
Hexachlorobutadiene	ND		ug/kg	5.2	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

SAMPLE RESULTS

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Isopropylbenzene	ND		ug/kg	1.3	--	1
p-Isopropyltoluene	ND		ug/kg	1.3	--	1
Naphthalene	ND		ug/kg	5.2	--	1
n-Propylbenzene	ND		ug/kg	1.3	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.5	--	1
Ethyl ether	ND		ug/kg	2.6	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	91		70-130

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
Trichloroethene	ND		ug/kg	0.50	--
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	25	--
Carbon disulfide	ND		ug/kg	10	--
2-Butanone	ND		ug/kg	10	--
Vinyl acetate	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrolein	ND		ug/kg	25	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
1,3,5-Trichlorobenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Ethyl ether	ND		ug/kg	2.0	--
Methyl Acetate	ND		ug/kg	4.0	--
Ethyl Acetate	ND		ug/kg	10	--
Isopropyl Ether	ND		ug/kg	2.0	--
Cyclohexane	ND		ug/kg	10	--
Tert-Butyl Alcohol	ND		ug/kg	20	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--
Methyl cyclohexane	ND		ug/kg	4.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/08/21 16:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1453616-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	4.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
Methylene chloride	97		97		70-130	0		30
1,1-Dichloroethane	114		114		70-130	0		30
Chloroform	100		99		70-130	1		30
Carbon tetrachloride	100		99		70-130	1		30
1,2-Dichloropropane	116		112		70-130	4		30
Dibromochloromethane	90		90		70-130	0		30
1,1,2-Trichloroethane	87		86		70-130	1		30
2-Chloroethylvinyl ether	103		98		70-130	5		30
Tetrachloroethene	103		102		70-130	1		30
Chlorobenzene	90		90		70-130	0		30
Trichlorofluoromethane	98		100		70-139	2		30
1,2-Dichloroethane	98		94		70-130	4		30
1,1,1-Trichloroethane	100		97		70-130	3		30
Bromodichloromethane	98		93		70-130	5		30
trans-1,3-Dichloropropene	88		87		70-130	1		30
cis-1,3-Dichloropropene	104		101		70-130	3		30
1,1-Dichloropropene	106		104		70-130	2		30
Bromoform	90		85		70-130	6		30
1,1,2,2-Tetrachloroethane	82		79		70-130	4		30
Benzene	106		104		70-130	2		30
Toluene	91		92		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
Chloromethane	122		123		52-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
Bromomethane	98		95		57-147	3		30
Vinyl chloride	112		113		67-130	1		30
Chloroethane	91		89		50-151	2		30
1,1-Dichloroethene	113		113		65-135	0		30
trans-1,2-Dichloroethene	110		108		70-130	2		30
Trichloroethene	104		104		70-130	0		30
1,2-Dichlorobenzene	84		82		70-130	2		30
1,3-Dichlorobenzene	85		84		70-130	1		30
1,4-Dichlorobenzene	85		84		70-130	1		30
Methyl tert butyl ether	96		95		66-130	1		30
p/m-Xylene	90		91		70-130	1		30
o-Xylene	88		89		70-130	1		30
cis-1,2-Dichloroethene	103		102		70-130	1		30
Dibromomethane	95		93		70-130	2		30
1,4-Dichlorobutane	90		86		70-130	5		30
1,2,3-Trichloropropane	78		76		68-130	3		30
Styrene	86		85		70-130	1		30
Dichlorodifluoromethane	102		102		30-146	0		30
Acetone	90		79		54-140	13		30
Carbon disulfide	106		106		59-130	0		30
2-Butanone	90		85		70-130	6		30
Vinyl acetate	97		90		70-130	7		30
4-Methyl-2-pentanone	95		94		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
2-Hexanone	78		76		70-130	3		30
Ethyl methacrylate	85		83		70-130	2		30
Acrolein	126		122		70-130	3		30
Acrylonitrile	119		116		70-130	3		30
Bromochloromethane	105		103		70-130	2		30
Tetrahydrofuran	94		89		66-130	5		30
2,2-Dichloropropane	102		100		70-130	2		30
1,2-Dibromoethane	89		88		70-130	1		30
1,3-Dichloropropane	87		87		69-130	0		30
1,1,1,2-Tetrachloroethane	91		91		70-130	0		30
Bromobenzene	90		86		70-130	5		30
n-Butylbenzene	80		80		70-130	0		30
sec-Butylbenzene	82		82		70-130	0		30
tert-Butylbenzene	84		83		70-130	1		30
1,3,5-Trichlorobenzene	96		95		70-139	1		30
o-Chlorotoluene	81		80		70-130	1		30
p-Chlorotoluene	83		82		70-130	1		30
1,2-Dibromo-3-chloropropane	86		82		68-130	5		30
Hexachlorobutadiene	94		97		67-130	3		30
Isopropylbenzene	86		84		70-130	2		30
p-Isopropyltoluene	83		82		70-130	1		30
Naphthalene	88		86		70-130	2		30
n-Propylbenzene	84		83		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1453616-3 WG1453616-4								
1,2,3-Trichlorobenzene	94		95		70-130	1		30
1,2,4-Trichlorobenzene	98		98		70-130	0		30
1,3,5-Trimethylbenzene	82		81		70-130	1		30
1,2,4-Trimethylbenzene	83		82		70-130	1		30
trans-1,4-Dichloro-2-butene	84		80		70-130	5		30
Ethyl ether	108		104		67-130	4		30
Methyl Acetate	98		93		65-130	5		30
Ethyl Acetate	93		89		70-130	4		30
Isopropyl Ether	110		107		66-130	3		30
Cyclohexane	128		125		70-130	2		30
Tert-Butyl Alcohol	106		100		70-130	6		30
Ethyl-Tert-Butyl-Ether	116		114		70-130	2		30
Tertiary-Amyl Methyl Ether	100		98		70-130	2		30
1,4-Dioxane	103		100		65-136	3		30
Methyl cyclohexane	108		108		70-130	0		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	111		112		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	90		92		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	93		93		70-130

SEMIVOLATILES

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

SAMPLE RESULTS

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 01/11/21 12:52
 Analyst: GP
 Percent Solids: 74%

Extraction Method: EPA 3570
 Extraction Date: 01/07/21 19:24
 Cleanup Method: EPA 3630
 Cleanup Date: 01/08/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	5.08	--	1
Acenaphthylene	ND		ug/kg	5.08	--	1
Acenaphthene	ND		ug/kg	5.08	--	1
Fluorene	ND		ug/kg	5.08	--	1
Phenanthrene	ND		ug/kg	5.08	--	1
Anthracene	ND		ug/kg	5.08	--	1
Fluoranthene	ND		ug/kg	5.08	--	1
Pyrene	ND		ug/kg	5.08	--	1
Benz(a)anthracene	ND		ug/kg	5.08	--	1
Chrysene	ND		ug/kg	5.08	--	1
Benzo(b)fluoranthene	ND		ug/kg	5.08	--	1
Benzo(k)fluoranthene	ND		ug/kg	5.08	--	1
Benzo(a)pyrene	ND		ug/kg	5.08	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	5.08	--	1
Dibenz(a,h)anthracene	ND		ug/kg	5.08	--	1
Benzo(ghi)perylene	ND		ug/kg	5.08	--	1
Cl2-BZ#8	ND		ug/kg	0.508	--	1
Cl3-BZ#18	ND		ug/kg	0.508	--	1
Cl3-BZ#28	ND		ug/kg	0.508	--	1
Cl4-BZ#44	ND		ug/kg	0.508	--	1
Cl4-BZ#49	ND		ug/kg	0.508	--	1
Cl4-BZ#52	ND		ug/kg	0.508	--	1
Cl4-BZ#66	ND		ug/kg	0.508	--	1
Cl5-BZ#87	ND		ug/kg	0.508	--	1
Cl5-BZ#101	ND		ug/kg	0.508	--	1
Cl5-BZ#105	ND		ug/kg	0.508	--	1
Cl5-BZ#118	ND		ug/kg	0.508	--	1
Cl6-BZ#128	ND		ug/kg	0.508	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

SAMPLE RESULTS

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.508	--	1
Cl6-BZ#153	ND		ug/kg	0.508	--	1
Cl7-BZ#170	ND		ug/kg	0.508	--	1
Cl7-BZ#180	ND		ug/kg	0.508	--	1
Cl7-BZ#183	ND		ug/kg	0.508	--	1
Cl7-BZ#184	ND		ug/kg	0.508	--	1
Cl7-BZ#187	ND		ug/kg	0.508	--	1
Cl8-BZ#195	ND		ug/kg	0.508	--	1
Cl9-BZ#206	ND		ug/kg	0.508	--	1
Cl10-BZ#209	ND		ug/kg	0.508	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	56		30-150
Pyrene-d10	96		30-150
Benzo(b)fluoranthene-d12	63		30-150
DBOB	75		50-125
BZ 198	83		50-125

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/11/21 11:13
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/07/21 19:24
Cleanup Method: EPA 3630
Cleanup Date: 01/08/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1452701-1					
Naphthalene	ND		ug/kg	4.00	--
Acenaphthylene	ND		ug/kg	4.00	--
Acenaphthene	ND		ug/kg	4.00	--
Fluorene	ND		ug/kg	4.00	--
Phenanthrene	ND		ug/kg	4.00	--
Anthracene	ND		ug/kg	4.00	--
Fluoranthene	ND		ug/kg	4.00	--
Pyrene	ND		ug/kg	4.00	--
Benz(a)anthracene	ND		ug/kg	4.00	--
Chrysene	ND		ug/kg	4.00	--
Benzo(b)fluoranthene	ND		ug/kg	4.00	--
Benzo(k)fluoranthene	ND		ug/kg	4.00	--
Benzo(a)pyrene	ND		ug/kg	4.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	--
Dibenz(a,h)anthracene	ND		ug/kg	4.00	--
Benzo(ghi)perylene	ND		ug/kg	4.00	--
Cl2-BZ#8	ND		ug/kg	0.400	--
Cl3-BZ#18	ND		ug/kg	0.400	--
Cl3-BZ#28	ND		ug/kg	0.400	--
Cl4-BZ#44	ND		ug/kg	0.400	--
Cl4-BZ#49	ND		ug/kg	0.400	--
Cl4-BZ#52	ND		ug/kg	0.400	--
Cl4-BZ#66	ND		ug/kg	0.400	--
Cl5-BZ#87	ND		ug/kg	0.400	--
Cl5-BZ#101	ND		ug/kg	0.400	--
Cl5-BZ#105	ND		ug/kg	0.400	--
Cl5-BZ#118	ND		ug/kg	0.400	--
Cl6-BZ#128	ND		ug/kg	0.400	--
Cl6-BZ#138	ND		ug/kg	0.400	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/11/21 11:13
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/07/21 19:24
Cleanup Method: EPA 3630
Cleanup Date: 01/08/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1452701-1					
CI6-BZ#153	ND		ug/kg	0.400	--
CI7-BZ#170	ND		ug/kg	0.400	--
CI7-BZ#180	ND		ug/kg	0.400	--
CI7-BZ#183	ND		ug/kg	0.400	--
CI7-BZ#184	ND		ug/kg	0.400	--
CI7-BZ#187	ND		ug/kg	0.400	--
CI8-BZ#195	ND		ug/kg	0.400	--
CI9-BZ#206	ND		ug/kg	0.400	--
CI10-BZ#209	ND		ug/kg	0.400	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	58		30-150
Pyrene-d10	95		30-150
Benzo(b)fluoranthene-d12	109		30-150
DBOB	93		50-125
BZ 198	94		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1452701-2 WG1452701-3								
Naphthalene	65		57		40-140	13		30
Acenaphthylene	82		77		40-140	6		30
Acenaphthene	76		71		40-140	7		30
Fluorene	81		79		40-140	3		30
Phenanthrene	88		94		40-140	7		30
Anthracene	104		116		40-140	11		30
Fluoranthene	99		116		40-140	16		30
Pyrene	91		108		40-140	17		30
Benz(a)anthracene	108		129		40-140	18		30
Chrysene	99		116		40-140	16		30
Benzo(b)fluoranthene	118		137		40-140	15		30
Benzo(k)fluoranthene	105		126		40-140	18		30
Benzo(a)pyrene	108		128		40-140	17		30
Indeno(1,2,3-cd)Pyrene	110		125		40-140	13		30
Dibenz(a,h)anthracene	120		142	Q	40-140	17		30
Benzo(ghi)perylene	120		143	Q	40-140	17		30
Cl2-BZ#8	75		75		40-140	0		50
Cl3-BZ#18	70		74		40-140	6		50
Cl3-BZ#28	76		88		40-140	15		50
Cl4-BZ#44	77		89		40-140	14		50
Cl4-BZ#49	72		83		40-140	14		50
Cl4-BZ#52	69		80		40-140	15		50
Cl4-BZ#66	88		104		40-140	17		50

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1452701-2 WG1452701-3								
CI5-BZ#87	80		95		40-140	17		50
CI5-BZ#101	74		89		40-140	18		50
CI5-BZ#105	87		103		40-140	17		50
CI5-BZ#118	73		86		40-140	16		50
CI6-BZ#128	86		103		40-140	18		50
CI6-BZ#138	87		103		40-140	17		50
CI6-BZ#153	81		97		40-140	18		50
CI7-BZ#170	93		110		40-140	17		50
CI7-BZ#180	79		94		40-140	17		50
CI7-BZ#183	75		90		40-140	18		50
CI7-BZ#184	82		96		40-140	16		50
CI7-BZ#187	87		105		40-140	19		50
CI8-BZ#195	97		116		40-140	18		50
CI9-BZ#206	90		108		40-140	18		50
CI10-BZ#209	79		94		40-140	17		50

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	67		60		30-150
Pyrene-d10	91		107		30-150
Benzo(b)fluoranthene-d12	102		121		30-150
DBOB	96		90		50-125
BZ 198	92		106		50-125



PETROLEUM HYDROCARBONS

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2058178**Project Number:** Not Specified**Report Date:** 01/21/21**SAMPLE RESULTS**

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 01/04/21 20:40
 Analyst: SC
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 01/03/21 15:39
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 01/04/21

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.80	--	1
C19-C36 Aliphatics	ND		mg/kg	8.80	--	1
C11-C22 Aromatics	ND		mg/kg	8.80	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	8.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	70		40-140
o-Terphenyl	79		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	94		40-140

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 135,EPH-19-2.1
Analytical Date: 01/04/21 16:59
Analyst: SC

Extraction Method: EPA 3546
Extraction Date: 01/02/21 18:52
Cleanup Method: EPH-04-1
Cleanup Date: 01/04/21

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1451044-1					
C9-C18 Aliphatics	ND		mg/kg	6.30	--
C19-C36 Aliphatics	ND		mg/kg	6.30	--
C11-C22 Aromatics	ND		mg/kg	6.30	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.30	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	90		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1451044-2 WG1451044-3								
C9-C18 Aliphatics	81		78		40-140	4		25
C19-C36 Aliphatics	91		89		40-140	2		25
C11-C22 Aromatics	123		109		40-140	12		25
Naphthalene	109		98		40-140	11		25
2-Methylnaphthalene	112		102		40-140	9		25
Acenaphthylene	109		97		40-140	12		25
Acenaphthene	117		105		40-140	11		25
Fluorene	118		104		40-140	13		25
Phenanthrene	120		106		40-140	12		25
Anthracene	122		108		40-140	12		25
Fluoranthene	125		110		40-140	13		25
Pyrene	125		110		40-140	13		25
Benzo(a)anthracene	125		110		40-140	13		25
Chrysene	127		112		40-140	13		25
Benzo(b)fluoranthene	137		121		40-140	12		25
Benzo(k)fluoranthene	103		91		40-140	12		25
Benzo(a)pyrene	120		106		40-140	12		25
Indeno(1,2,3-cd)Pyrene	115		102		40-140	12		25
Dibenzo(a,h)anthracene	118		105		40-140	12		25
Benzo(ghi)perylene	110		96		40-140	14		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1451044-2 WG1451044-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	64		64		40-140
o-Terphenyl	98		86		40-140
2-Fluorobiphenyl	114		98		40-140
2-Bromonaphthalene	115		99		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

METALS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

SAMPLE RESULTS

Lab ID: L2058178-01
 Client ID: BB 22
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
 Date Received: 12/30/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	1.91		mg/kg	0.668	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Cadmium, Total	ND		mg/kg	0.267	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Chromium, Total	4.73		mg/kg	2.67	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Copper, Total	ND		mg/kg	2.67	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Lead, Total	3.61		mg/kg	0.801	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Mercury, Total	0.016		mg/kg	0.009	--	5	01/08/21 12:36	01/12/21 17:52	EPA 7474	1,7474	TM
Nickel, Total	2.32		mg/kg	1.34	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM
Zinc, Total	13.7		mg/kg	13.4	--	10	01/08/21 06:10	01/08/21 13:13	EPA 3050B	1,6020B	AM



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1452273-1									
Arsenic, Total	ND	mg/kg	0.500	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Cadmium, Total	ND	mg/kg	0.200	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Chromium, Total	ND	mg/kg	2.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Copper, Total	ND	mg/kg	2.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Lead, Total	ND	mg/kg	0.600	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Nickel, Total	ND	mg/kg	1.00	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM
Zinc, Total	ND	mg/kg	10.0	--	10	01/08/21 06:10	01/08/21 11:58	1,6020B	AM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1452278-1									
Mercury, Total	ND	mg/kg	0.013	--	5	01/08/21 12:36	01/12/21 17:32	1,7474	TM

Prep Information

Digestion Method: EPA 7474

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2058178

Report Date: 01/21/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1452273-2 SRM Lot Number: D109-540								
Arsenic, Total	108		-		70-130	-		20
Cadmium, Total	101		-		75-125	-		20
Chromium, Total	100		-		70-130	-		20
Copper, Total	103		-		75-125	-		20
Lead, Total	106		-		72-128	-		20
Nickel, Total	99		-		70-130	-		20
Zinc, Total	104		-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1452278-2 SRM Lot Number: D109-540								
Mercury, Total	69		-		60-140	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452273-3 QC Sample: L2057265-01 Client ID: MS Sample												
Arsenic, Total	2.32	14	15.3	92	-	-	-	-	75-125	-	-	20
Cadmium, Total	ND	5.96	6.04	101	-	-	-	-	75-125	-	-	20
Chromium, Total	4.35	23.4	26.2	93	-	-	-	-	75-125	-	-	20
Copper, Total	6.02	29.2	33.8	95	-	-	-	-	75-125	-	-	20
Lead, Total	5.16	59.6	64.7	100	-	-	-	-	75-125	-	-	20
Nickel, Total	1.60	58.4	53.4	89	-	-	-	-	75-125	-	-	20
Zinc, Total	ND	58.4	66.6	114	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452278-4 QC Sample: L2056508-01 Client ID: MS Sample												
Mercury, Total	0.053	0.794	0.808	95	-	-	-	-	80-120	-	-	20

Lab Duplicate Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452273-4 QC Sample: L2057265-01 Client ID: DUP Sample						
Arsenic, Total	2.32	2.38	mg/kg	3		20
Cadmium, Total	ND	ND	mg/kg	NC		20
Chromium, Total	4.35	4.30	mg/kg	1		20
Copper, Total	6.02	6.75	mg/kg	11		20
Lead, Total	5.16	5.37	mg/kg	4		20
Nickel, Total	1.60	1.71	mg/kg	7		20
Zinc, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1452278-5 QC Sample: L2056508-01 Client ID: DUP Sample						
Mercury, Total	0.053	0.041	mg/kg	24	Q	20



INORGANICS & MISCELLANEOUS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

SAMPLE RESULTS

Lab ID: L2058178-01
Client ID: BB 22
Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 12/30/20 10:00
Date Received: 12/30/20
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.23		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM
Total Organic Carbon (Rep2)	1.42		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM
Total Organic Carbon (Average)	1.32		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM
Grain Size Analysis - Mansfield Lab										
% Total Gravel	6.20		%	0.100	NA	1	-	01/12/21 10:52	12,D6913/D7928	RM
% Coarse Sand	4.90		%	0.100	NA	1	-	01/12/21 10:52	12,D6913/D7928	RM
% Medium Sand	14.2		%	0.100	NA	1	-	01/12/21 10:52	12,D6913/D7928	RM
% Fine Sand	45.3		%	0.100	NA	1	-	01/12/21 10:52	12,D6913/D7928	RM
% Total Fines	29.4		%	0.100	NA	1	-	01/12/21 10:52	12,D6913/D7928	RM
General Chemistry - Mansfield Lab										
Solids, Total	73.7		%	0.100	--	1	-	01/14/21 09:08	121,2540G	AL



Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01 Batch: WG1454139-1										
Total Organic Carbon (Rep1)	ND		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM
Total Organic Carbon (Rep2)	ND		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM
Total Organic Carbon (Average)	ND		%	0.010	--	1	-	01/14/21 13:14	1,9060A	SM

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2058178

Report Date: 01/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 Batch: WG1454139-2								
Total Organic Carbon (Rep1)	113		-		75-125	-		25
Total Organic Carbon (Rep2)	94		-		75-125	-		25
Total Organic Carbon (Average)	104		-		75-125	-		25

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454139-4 QC Sample: L2100691-09 Client ID: MS Sample												
Total Organic Carbon (Rep1)	1.04	0.728	1.81	106	-	-	-	-	75-125	-	-	25
Total Organic Carbon (Rep2)	1.07	0.64	1.70	98	-	-	-	-	75-125	-	-	25
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454139-5 QC Sample: L2100711-03 Client ID: MS Sample												
Total Organic Carbon (Rep1)	0.945	0.611	1.52	94	-	-	-	-	75-125	-	-	25
Total Organic Carbon (Rep2)	0.898	0.703	1.59	98	-	-	-	-	75-125	-	-	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2058178

Report Date: 01/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454086-1 QC Sample: L2058178-01 Client ID: BB 22						
% Total Gravel	6.20	3.30	%	61	Q	20
% Coarse Sand	4.90	7.60	%	43	Q	20
% Medium Sand	14.2	15.6	%	9		20
% Fine Sand	45.3	44.8	%	1		20
% Total Fines	29.4	28.7	%	2		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454139-3 QC Sample: L2100691-09 Client ID: DUP Sample						
Total Organic Carbon (Rep1)	1.04	1.05	%	1		25
Total Organic Carbon (Rep2)	1.07	1.07	%	0		25
Total Organic Carbon (Average)	1.06	1.06	%	0		25
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1454937-1 QC Sample: L2056508-02 Client ID: DUP Sample						
Solids, Total	54.5	53.4	%	2		10

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2058178**Project Number:** Not Specified**Report Date:** 01/21/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2058178-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		8260HLW(14)
L2058178-01B	Vial water preserved	A	NA		2.3	Y	Absent	30-DEC-20 19:12	8260HLW(14)
L2058178-01C	Vial water preserved	A	NA		2.3	Y	Absent	30-DEC-20 19:12	8260HLW(14)
L2058178-01D	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		EPH-20(14)
L2058178-01E	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TS(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-PAH/PCBCONG(14),A2-CU-6020T(180)
L2058178-01F	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND()

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2058178
Report Date: 01/21/21

Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2058178

Project Number: Not Specified

Report Date: 01/21/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 135 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, December 2019, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, March 1, 2020.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

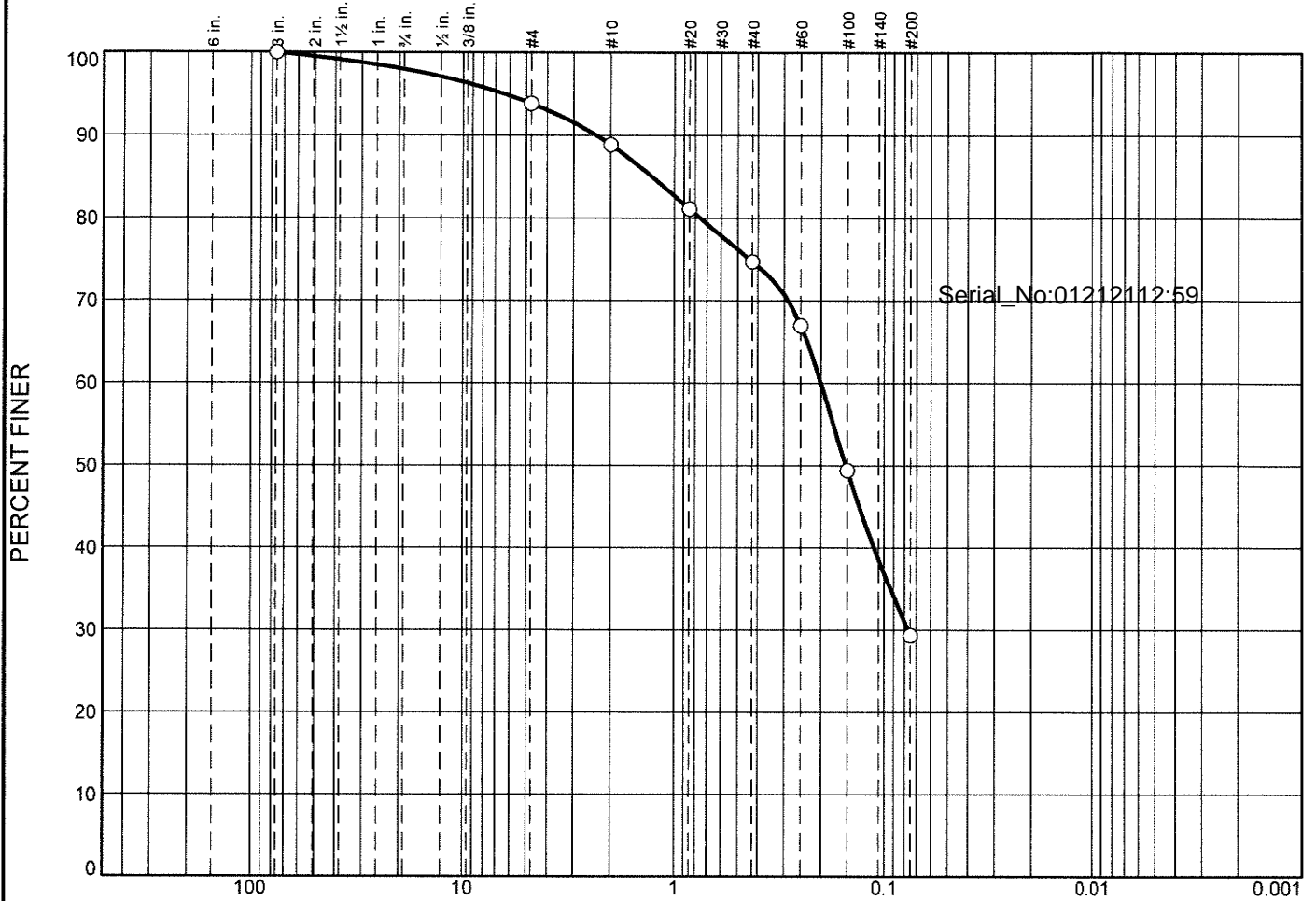
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:01212112:59

ASTM D6913/D7928
GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>	0.0	2.0	4.2	4.9	14.2	45.3	29.4			
<input checked="" type="checkbox"/>	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>			1.2775	0.2003	0.1525	0.0769				

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No.	Client:	Remarks:
Project:		
<input type="radio"/> Source of Sample: BB 22	Sample Number: L2058178-01	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

1/15/2021

Location: BB 22

Sample Number: L2058178-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 94.17
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
94.17	0.00	3"	0.00	0.00	100.0
		#4	5.82	0.00	93.8
		#10	4.67	0.00	88.9
		#20	7.29	0.00	81.1
		#40	6.02	0.00	74.7
		#60	7.31	0.00	67.0
		#100	16.53	0.00	49.4
		#200	18.89	0.00	29.4

Serial_No:01212112:59

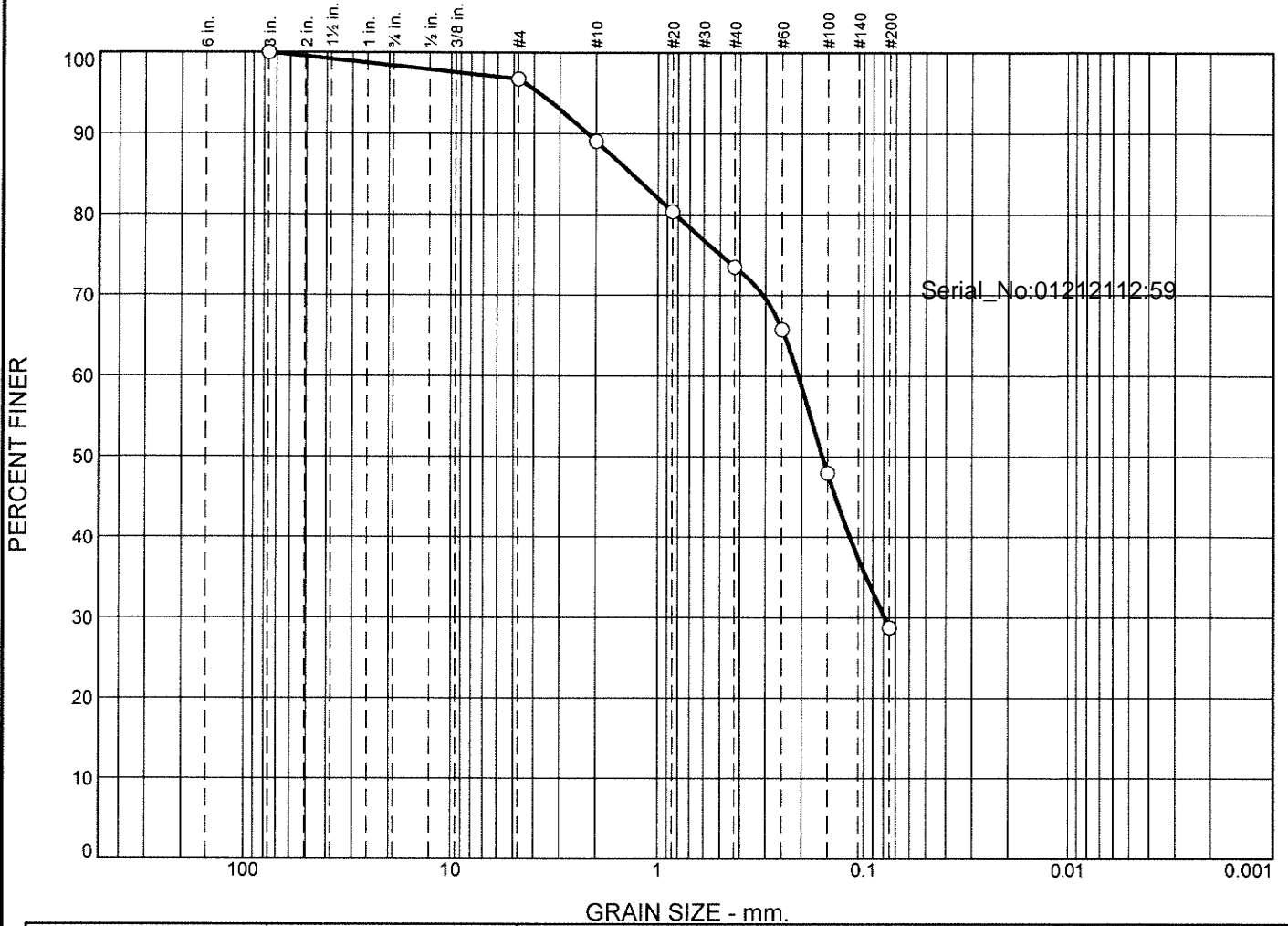
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.0	4.2	6.2	4.9	14.2	45.3	64.4			29.4

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
				0.0769	0.1115	0.1525	0.2003	0.7550	1.2775	2.3418	6.3919

Fineness Modulus
1.40

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.6	1.7	7.6	15.6	44.8	28.7	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		1.3403	0.2078	0.1588	0.0791				

Material Description	USCS	AASHTO

Project No.	Client:	Remarks:
Project:		
<input type="radio"/> Source of Sample: BB 22	Sample Number: WG1454086-1	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

1/15/2021

Location: BB 22

Sample Number: WG1454086-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 93.75
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
93.75	0.00	3"	0.00	0.00	100.0
		#4	3.05	0.00	96.7
		#10	7.21	0.00	89.1
		#20	8.18	0.00	80.3
		#40	6.40	0.00	73.5
		#60	7.24	0.00	65.8
		#100	16.71	0.00	48.0
		#200	18.03	0.00	28.7

Serial_No:01212112:59

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	1.6	1.7	3.3	7.6	15.6	44.8	68.0			28.7

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0791	0.1166	0.1588	0.2078	0.8230	1.3403	2.1987	3.7787

Fineness Modulus
1.39

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics

EPA 3C Fixed gases

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2102897
Client:	The BSC Group, Inc. 349 Route 28, Unit D West Yarmouth, MA 02673
ATTN:	Matt Creighton
Phone:	(508) 778-8919
Project Name:	WEWEANTIC RIVER BRIDGE
Project Number:	Not Specified
Report Date:	02/09/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2102897-01	BB 23	SEDIMENT	WEWEANTIC RIVER BRIDGE	01/19/21 11:00	01/19/21

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Case Narrative (continued)

Grain Size Analysis

The WG1461561-1 Laboratory Duplicate RPDs for % total gravel (64%) and % coarse sand (28%), performed on L2102897-01, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Susan O'Neil

Title: Technical Director/Representative

Date: 02/09/21

ORGANICS

VOLATILES

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21**SAMPLE RESULTS**

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 1,8260C
 Analytical Date: 01/29/21 13:21
 Analyst: MKS
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.4	--	1
1,1-Dichloroethane	ND		ug/kg	0.89	--	1
Chloroform	ND		ug/kg	1.3	--	1
Carbon tetrachloride	ND		ug/kg	0.89	--	1
1,2-Dichloropropane	ND		ug/kg	0.89	--	1
Dibromochloromethane	ND		ug/kg	0.89	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.89	--	1
Tetrachloroethene	ND		ug/kg	0.44	--	1
Chlorobenzene	ND		ug/kg	0.44	--	1
Trichlorofluoromethane	ND		ug/kg	3.5	--	1
1,2-Dichloroethane	ND		ug/kg	0.89	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.44	--	1
Bromodichloromethane	ND		ug/kg	0.44	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.89	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.44	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.44	--	1
1,1-Dichloropropene	ND		ug/kg	0.44	--	1
Bromoform	ND		ug/kg	3.5	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.44	--	1
Benzene	ND		ug/kg	0.44	--	1
Toluene	ND		ug/kg	0.89	--	1
Ethylbenzene	ND		ug/kg	0.89	--	1
Chloromethane	ND		ug/kg	3.5	--	1
Bromomethane	ND		ug/kg	1.8	--	1
Vinyl chloride	ND		ug/kg	0.89	--	1
Chloroethane	ND		ug/kg	1.8	--	1
1,1-Dichloroethene	ND		ug/kg	0.89	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.3	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21**SAMPLE RESULTS**

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.44	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	--	1
Methyl tert butyl ether	ND		ug/kg	1.8	--	1
p/m-Xylene	ND		ug/kg	1.8	--	1
o-Xylene	ND		ug/kg	0.89	--	1
Xylenes, Total	ND		ug/kg	0.89	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.89	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.89	--	1
Dibromomethane	ND		ug/kg	1.8	--	1
1,4-Dichlorobutane	ND		ug/kg	8.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	--	1
Styrene	ND		ug/kg	0.89	--	1
Dichlorodifluoromethane	ND		ug/kg	8.9	--	1
Acetone	36		ug/kg	22	--	1
Carbon disulfide	ND		ug/kg	8.9	--	1
2-Butanone	ND		ug/kg	8.9	--	1
Vinyl acetate	ND		ug/kg	8.9	--	1
4-Methyl-2-pentanone	ND		ug/kg	8.9	--	1
2-Hexanone	ND		ug/kg	8.9	--	1
Ethyl methacrylate	ND		ug/kg	8.9	--	1
Acrylonitrile	ND		ug/kg	3.5	--	1
Bromochloromethane	ND		ug/kg	1.8	--	1
Tetrahydrofuran	ND		ug/kg	3.5	--	1
2,2-Dichloropropane	ND		ug/kg	1.8	--	1
1,2-Dibromoethane	ND		ug/kg	0.89	--	1
1,3-Dichloropropane	ND		ug/kg	1.8	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.44	--	1
Bromobenzene	ND		ug/kg	1.8	--	1
n-Butylbenzene	ND		ug/kg	0.89	--	1
sec-Butylbenzene	ND		ug/kg	0.89	--	1
tert-Butylbenzene	ND		ug/kg	1.8	--	1
o-Chlorotoluene	ND		ug/kg	1.8	--	1
p-Chlorotoluene	ND		ug/kg	1.8	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.6	--	1
Hexachlorobutadiene	ND		ug/kg	3.5	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

SAMPLE RESULTS

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Isopropylbenzene	ND		ug/kg	0.89	--	1
p-Isopropyltoluene	ND		ug/kg	0.89	--	1
Naphthalene	ND		ug/kg	3.5	--	1
n-Propylbenzene	ND		ug/kg	0.89	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	4.4	--	1
Ethyl ether	ND		ug/kg	1.8	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/29/21 07:04
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1460187-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/29/21 07:04
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1460187-5					
Trichloroethene	ND		ug/kg	0.50	--
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	25	--
Carbon disulfide	ND		ug/kg	10	--
2-Butanone	ND		ug/kg	10	--
Vinyl acetate	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrolein	ND		ug/kg	25	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 01/29/21 07:04
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1460187-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
1,3,5-Trichlorobenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Ethyl ether	ND		ug/kg	2.0	--
Methyl Acetate	ND		ug/kg	4.0	--
Ethyl Acetate	ND		ug/kg	10	--
Isopropyl Ether	ND		ug/kg	2.0	--
Cyclohexane	ND		ug/kg	10	--
Tert-Butyl Alcohol	ND		ug/kg	20	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--
Methyl cyclohexane	ND		ug/kg	4.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/29/21 07:04
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1460187-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	4.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1460187-3 WG1460187-4								
Methylene chloride	99		92		70-130	7		30
1,1-Dichloroethane	102		97		70-130	5		30
Chloroform	107		101		70-130	6		30
Carbon tetrachloride	111		104		70-130	7		30
1,2-Dichloropropane	98		94		70-130	4		30
Dibromochloromethane	99		96		70-130	3		30
1,1,2-Trichloroethane	91		89		70-130	2		30
2-Chloroethylvinyl ether	110		104		70-130	6		30
Tetrachloroethene	88		85		70-130	3		30
Chlorobenzene	86		83		70-130	4		30
Trichlorofluoromethane	112		106		70-139	6		30
1,2-Dichloroethane	115		106		70-130	8		30
1,1,1-Trichloroethane	105		98		70-130	7		30
Bromodichloromethane	104		100		70-130	4		30
trans-1,3-Dichloropropene	99		97		70-130	2		30
cis-1,3-Dichloropropene	99		93		70-130	6		30
1,1-Dichloropropene	98		93		70-130	5		30
Bromoform	98		97		70-130	1		30
1,1,2,2-Tetrachloroethane	82		80		70-130	2		30
Benzene	92		86		70-130	7		30
Toluene	88		84		70-130	5		30
Ethylbenzene	93		91		70-130	2		30
Chloromethane	92		84		52-130	9		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1460187-3 WG1460187-4								
Bromomethane	104		96		57-147	8		30
Vinyl chloride	98		91		67-130	7		30
Chloroethane	108		101		50-151	7		30
1,1-Dichloroethene	99		91		65-135	8		30
trans-1,2-Dichloroethene	99		92		70-130	7		30
Trichloroethene	98		90		70-130	9		30
1,2-Dichlorobenzene	88		85		70-130	3		30
1,3-Dichlorobenzene	86		84		70-130	2		30
1,4-Dichlorobenzene	87		84		70-130	4		30
Methyl tert butyl ether	109		101		66-130	8		30
p/m-Xylene	87		83		70-130	5		30
o-Xylene	87		83		70-130	5		30
cis-1,2-Dichloroethene	102		95		70-130	7		30
Dibromomethane	103		96		70-130	7		30
1,4-Dichlorobutane	89		88		70-130	1		30
1,2,3-Trichloropropane	85		84		68-130	1		30
Styrene	93		90		70-130	3		30
Dichlorodifluoromethane	83		79		30-146	5		30
Acetone	97		98		54-140	1		30
Carbon disulfide	87		82		59-130	6		30
2-Butanone	91		83		70-130	9		30
Vinyl acetate	99		96		70-130	3		30
4-Methyl-2-pentanone	88		85		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1460187-3 WG1460187-4								
2-Hexanone	90		86		70-130	5		30
Ethyl methacrylate	99		95		70-130	4		30
Acrolein	83		82		70-130	1		30
Acrylonitrile	100		92		70-130	8		30
Bromochloromethane	100		95		70-130	5		30
Tetrahydrofuran	96		91		66-130	5		30
2,2-Dichloropropane	108		100		70-130	8		30
1,2-Dibromoethane	89		86		70-130	3		30
1,3-Dichloropropane	93		89		69-130	4		30
1,1,1,2-Tetrachloroethane	94		91		70-130	3		30
Bromobenzene	87		87		70-130	0		30
n-Butylbenzene	83		82		70-130	1		30
sec-Butylbenzene	88		85		70-130	3		30
tert-Butylbenzene	90		88		70-130	2		30
1,3,5-Trichlorobenzene	86		84		70-139	2		30
o-Chlorotoluene	88		87		70-130	1		30
p-Chlorotoluene	88		87		70-130	1		30
1,2-Dibromo-3-chloropropane	97		94		68-130	3		30
Hexachlorobutadiene	90		93		67-130	3		30
Isopropylbenzene	88		87		70-130	1		30
p-Isopropyltoluene	87		87		70-130	0		30
Naphthalene	88		89		70-130	1		30
n-Propylbenzene	85		85		70-130	0		30

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1460187-3 WG1460187-4								
1,2,3-Trichlorobenzene	90		88		70-130	2		30
1,2,4-Trichlorobenzene	88		88		70-130	0		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	90		88		70-130	2		30
trans-1,4-Dichloro-2-butene	91		86		70-130	6		30
Ethyl ether	101		94		67-130	7		30
Methyl Acetate	100		93		65-130	7		30
Ethyl Acetate	100		95		70-130	5		30
Isopropyl Ether	106		99		66-130	7		30
Cyclohexane	97		91		70-130	6		30
Tert-Butyl Alcohol	109		99		70-130	10		30
Ethyl-Tert-Butyl-Ether	110		103		70-130	7		30
Tertiary-Amyl Methyl Ether	107		100		70-130	7		30
1,4-Dioxane	106		96		65-136	10		30
Methyl cyclohexane	95		88		70-130	8		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	102		95		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		109		70-130
Toluene-d8	96		98		70-130
4-Bromofluorobenzene	99		102		70-130
Dibromofluoromethane	108		106		70-130



SEMIVOLATILES

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

SAMPLE RESULTS

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 01/26/21 15:00
 Analyst: GP
 Percent Solids: 77%

Extraction Method: EPA 3570
 Extraction Date: 01/21/21 11:32
 Cleanup Method: EPA 3630
 Cleanup Date: 01/26/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	5.05	--	1
Acenaphthylene	ND		ug/kg	5.05	--	1
Acenaphthene	ND		ug/kg	5.05	--	1
Fluorene	ND		ug/kg	5.05	--	1
Phenanthrene	ND		ug/kg	5.05	--	1
Anthracene	ND		ug/kg	5.05	--	1
Fluoranthene	5.62		ug/kg	5.05	--	1
Pyrene	ND		ug/kg	5.05	--	1
Benz(a)anthracene	ND		ug/kg	5.05	--	1
Chrysene	ND		ug/kg	5.05	--	1
Benzo(b)fluoranthene	ND		ug/kg	5.05	--	1
Benzo(k)fluoranthene	ND		ug/kg	5.05	--	1
Benzo(a)pyrene	ND		ug/kg	5.05	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	5.05	--	1
Dibenz(a,h)anthracene	ND		ug/kg	5.05	--	1
Benzo(ghi)perylene	ND		ug/kg	5.05	--	1
Cl2-BZ#8	ND		ug/kg	0.505	--	1
Cl3-BZ#18	ND		ug/kg	0.505	--	1
Cl3-BZ#28	ND		ug/kg	0.505	--	1
Cl4-BZ#44	ND		ug/kg	0.505	--	1
Cl4-BZ#49	ND		ug/kg	0.505	--	1
Cl4-BZ#52	ND		ug/kg	0.505	--	1
Cl4-BZ#66	ND		ug/kg	0.505	--	1
Cl5-BZ#87	ND		ug/kg	0.505	--	1
Cl5-BZ#101	ND		ug/kg	0.505	--	1
Cl5-BZ#105	ND		ug/kg	0.505	--	1
Cl5-BZ#118	ND		ug/kg	0.505	--	1
Cl6-BZ#128	ND		ug/kg	0.505	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

SAMPLE RESULTS

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.505	--	1
Cl6-BZ#153	ND		ug/kg	0.505	--	1
Cl7-BZ#170	ND		ug/kg	0.505	--	1
Cl7-BZ#180	ND		ug/kg	0.505	--	1
Cl7-BZ#183	ND		ug/kg	0.505	--	1
Cl7-BZ#184	ND		ug/kg	0.505	--	1
Cl7-BZ#187	ND		ug/kg	0.505	--	1
Cl8-BZ#195	ND		ug/kg	0.505	--	1
Cl9-BZ#206	ND		ug/kg	0.505	--	1
Cl10-BZ#209	ND		ug/kg	0.505	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	69		30-150
Pyrene-d10	90		30-150
Benzo(b)fluoranthene-d12	92		30-150
DBOB	100		50-125
BZ 198	100		50-125

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/26/21 12:12
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/21/21 11:32
Cleanup Method: EPA 3630
Cleanup Date: 01/26/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1457336-1					
Naphthalene	ND		ug/kg	4.00	--
Acenaphthylene	ND		ug/kg	4.00	--
Acenaphthene	ND		ug/kg	4.00	--
Fluorene	ND		ug/kg	4.00	--
Phenanthrene	ND		ug/kg	4.00	--
Anthracene	ND		ug/kg	4.00	--
Fluoranthene	ND		ug/kg	4.00	--
Pyrene	ND		ug/kg	4.00	--
Benz(a)anthracene	ND		ug/kg	4.00	--
Chrysene	ND		ug/kg	4.00	--
Benzo(b)fluoranthene	ND		ug/kg	4.00	--
Benzo(k)fluoranthene	ND		ug/kg	4.00	--
Benzo(a)pyrene	ND		ug/kg	4.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	--
Dibenz(a,h)anthracene	ND		ug/kg	4.00	--
Benzo(ghi)perylene	ND		ug/kg	4.00	--
Cl2-BZ#8	ND		ug/kg	0.400	--
Cl3-BZ#18	ND		ug/kg	0.400	--
Cl3-BZ#28	ND		ug/kg	0.400	--
Cl4-BZ#44	ND		ug/kg	0.400	--
Cl4-BZ#49	ND		ug/kg	0.400	--
Cl4-BZ#52	ND		ug/kg	0.400	--
Cl4-BZ#66	ND		ug/kg	0.400	--
Cl5-BZ#87	ND		ug/kg	0.400	--
Cl5-BZ#101	ND		ug/kg	0.400	--
Cl5-BZ#105	ND		ug/kg	0.400	--
Cl5-BZ#118	ND		ug/kg	0.400	--
Cl6-BZ#128	ND		ug/kg	0.400	--
Cl6-BZ#138	ND		ug/kg	0.400	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/26/21 12:12
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/21/21 11:32
Cleanup Method: EPA 3630
Cleanup Date: 01/26/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1457336-1					
CI6-BZ#153	ND		ug/kg	0.400	--
CI7-BZ#170	ND		ug/kg	0.400	--
CI7-BZ#180	ND		ug/kg	0.400	--
CI7-BZ#183	ND		ug/kg	0.400	--
CI7-BZ#184	ND		ug/kg	0.400	--
CI7-BZ#187	ND		ug/kg	0.400	--
CI8-BZ#195	ND		ug/kg	0.400	--
CI9-BZ#206	ND		ug/kg	0.400	--
CI10-BZ#209	ND		ug/kg	0.400	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	77		30-150
Pyrene-d10	95		30-150
Benzo(b)fluoranthene-d12	98		30-150
DBOB	100		50-125
BZ 198	95		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1457336-2 WG1457336-3								
Naphthalene	71		71		40-140	0		30
Acenaphthylene	87		88		40-140	1		30
Acenaphthene	80		82		40-140	2		30
Fluorene	84		87		40-140	4		30
Phenanthrene	89		92		40-140	3		30
Anthracene	100		105		40-140	5		30
Fluoranthene	100		106		40-140	6		30
Pyrene	86		90		40-140	5		30
Benz(a)anthracene	102		106		40-140	4		30
Chrysene	87		92		40-140	6		30
Benzo(b)fluoranthene	109		116		40-140	6		30
Benzo(k)fluoranthene	93		95		40-140	2		30
Benzo(a)pyrene	82		87		40-140	6		30
Indeno(1,2,3-cd)Pyrene	92		96		40-140	4		30
Dibenz(a,h)anthracene	102		108		40-140	6		30
Benzo(ghi)perylene	104		109		40-140	5		30
Cl2-BZ#8	88		93		40-140	6		50
Cl3-BZ#18	82		86		40-140	5		50
Cl3-BZ#28	88		92		40-140	4		50
Cl4-BZ#44	88		93		40-140	6		50
Cl4-BZ#49	80		84		40-140	5		50
Cl4-BZ#52	78		84		40-140	7		50
Cl4-BZ#66	90		95		40-140	5		50

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1457336-2 WG1457336-3								
CI5-BZ#87	91		95		40-140	4		50
CI5-BZ#101	86		92		40-140	7		50
CI5-BZ#105	93		98		40-140	5		50
CI5-BZ#118	84		88		40-140	5		50
CI6-BZ#128	97		102		40-140	5		50
CI6-BZ#138	96		101		40-140	5		50
CI6-BZ#153	93		99		40-140	6		50
CI7-BZ#170	101		107		40-140	6		50
CI7-BZ#180	85		89		40-140	5		50
CI7-BZ#183	82		87		40-140	6		50
CI7-BZ#184	93		98		40-140	5		50
CI7-BZ#187	98		102		40-140	4		50
CI8-BZ#195	105		110		40-140	5		50
CI9-BZ#206	91		96		40-140	5		50
CI10-BZ#209	80		84		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	71		73		30-150
Pyrene-d10	88		93		30-150
Benzo(b)fluoranthene-d12	96		101		30-150
DBOB	101		106		50-125
BZ 198	100		104		50-125



PETROLEUM HYDROCARBONS

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21**SAMPLE RESULTS**

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 02/02/21 16:59
 Analyst: SC
 Percent Solids: 77%

Extraction Method: EPA 3546
 Extraction Date: 01/30/21 08:50
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 02/01/21

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.10	--	1
C19-C36 Aliphatics	ND		mg/kg	8.10	--	1
C11-C22 Aromatics	ND		mg/kg	8.10	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	8.10	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	64		40-140
o-Terphenyl	82		40-140
2-Fluorobiphenyl	100		40-140
2-Bromonaphthalene	102		40-140

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 135,EPH-19-2.1
Analytical Date: 02/02/21 14:31
Analyst: SC

Extraction Method: EPA 3546
Extraction Date: 01/30/21 08:50
Cleanup Method: EPH-04-1
Cleanup Date: 02/01/21

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1460321-1					
C9-C18 Aliphatics	ND		mg/kg	6.54	--
C19-C36 Aliphatics	ND		mg/kg	6.54	--
C11-C22 Aromatics	ND		mg/kg	6.54	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.54	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	61		40-140
o-Terphenyl	85		40-140
2-Fluorobiphenyl	104		40-140
2-Bromonaphthalene	106		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1460321-2 WG1460321-3								
C9-C18 Aliphatics	71		66		40-140	7		25
C19-C36 Aliphatics	87		82		40-140	6		25
C11-C22 Aromatics	94		98		40-140	4		25
Naphthalene	84		86		40-140	2		25
2-Methylnaphthalene	88		90		40-140	2		25
Acenaphthylene	85		88		40-140	3		25
Acenaphthene	92		95		40-140	3		25
Fluorene	92		96		40-140	4		25
Phenanthrene	94		98		40-140	4		25
Anthracene	93		98		40-140	5		25
Fluoranthene	96		102		40-140	6		25
Pyrene	97		102		40-140	5		25
Benzo(a)anthracene	96		102		40-140	6		25
Chrysene	96		101		40-140	5		25
Benzo(b)fluoranthene	106		112		40-140	6		25
Benzo(k)fluoranthene	80		84		40-140	5		25
Benzo(a)pyrene	92		97		40-140	5		25
Indeno(1,2,3-cd)Pyrene	88		93		40-140	6		25
Dibenzo(a,h)anthracene	58		61		40-140	5		25
Benzo(ghi)perylene	84		88		40-140	5		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1460321-2 WG1460321-3								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
Chloro-Octadecane	62		59		40-140
o-Terphenyl	79		82		40-140
2-Fluorobiphenyl	90		104		40-140
2-Bromonaphthalene	91		106		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

METALS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

SAMPLE RESULTS

Lab ID: L2102897-01
 Client ID: BB 23
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
 Date Received: 01/19/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	3.45		mg/kg	0.629	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Cadmium, Total	ND		mg/kg	0.252	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Chromium, Total	6.41		mg/kg	2.52	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Copper, Total	2.88		mg/kg	2.52	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Lead, Total	3.73		mg/kg	0.755	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Mercury, Total	ND		mg/kg	0.010	--	5	02/02/21 12:52	02/03/21 14:16	EPA 7474	1,7474	TM
Nickel, Total	3.96		mg/kg	1.26	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM
Zinc, Total	14.9		mg/kg	12.6	--	10	02/03/21 12:29	02/03/21 17:19	EPA 3050B	1,6020B	AM



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1460859-1									
Mercury, Total	ND	mg/kg	0.013	--	5	02/02/21 12:52	02/03/21 13:58	1,7474	TM

Prep Information

Digestion Method: EPA 7474

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1461272-1									
Arsenic, Total	ND	mg/kg	0.500	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Cadmium, Total	ND	mg/kg	0.200	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Chromium, Total	ND	mg/kg	2.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Copper, Total	ND	mg/kg	2.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Lead, Total	ND	mg/kg	0.600	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Nickel, Total	ND	mg/kg	1.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Zinc, Total	ND	mg/kg	10.0	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2102897

Report Date: 02/09/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1460859-2 SRM Lot Number: D109-540								
Mercury, Total	115		-		60-140	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1461272-2 SRM Lot Number: D109-540								
Arsenic, Total	96		-		70-130	-		20
Cadmium, Total	96		-		75-125	-		20
Chromium, Total	88		-		70-130	-		20
Copper, Total	89		-		75-125	-		20
Lead, Total	93		-		72-128	-		20
Nickel, Total	93		-		70-130	-		20
Zinc, Total	90		-		70-130	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460859-3 WG1460859-4 QC Sample: L2102902-03 Client ID: MS Sample												
Mercury, Total	0.101	0.642	0.697	93		0.702	86		80-120	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1461272-3 WG1461272-4 QC Sample: L2102902-03 Client ID: MS Sample												
Arsenic, Total	4.49	18.4	22.0	95		23.4	102		75-125	6		20
Cadmium, Total	0.434	7.81	8.03	97		8.64	105		75-125	7		20
Chromium, Total	123	30.6	87.5	0	Q	91.2	0	Q	75-125	4		20
Copper, Total	48.7	38.3	84.2	93		88.6	104		75-125	5		20
Lead, Total	24.3	78.1	101	98		107	105		75-125	6		20
Nickel, Total	83.9	76.6	111	35	Q	114	39	Q	75-125	3		20
Zinc, Total	141	76.6	216	98		226	110		75-125	5		20

INORGANICS & MISCELLANEOUS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

SAMPLE RESULTS

Lab ID: L2102897-01
Client ID: BB 23
Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/19/21 11:00
Date Received: 01/19/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.695		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Rep2)	0.741		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Average)	0.718		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Grain Size Analysis - Mansfield Lab										
% Total Gravel	24.4		%	0.100	NA	1	-	02/04/21 07:24	12,D6913/D7928	RM
% Coarse Sand	8.90		%	0.100	NA	1	-	02/04/21 07:24	12,D6913/D7928	RM
% Medium Sand	15.3		%	0.100	NA	1	-	02/04/21 07:24	12,D6913/D7928	RM
% Fine Sand	27.1		%	0.100	NA	1	-	02/04/21 07:24	12,D6913/D7928	RM
% Total Fines	24.3		%	0.100	NA	1	-	02/04/21 07:24	12,D6913/D7928	RM
General Chemistry - Mansfield Lab										
Solids, Total	77.4		%	0.100	--	1	-	01/20/21 11:21	121,2540G	AL



Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01 Batch: WG1460879-1									
Total Organic Carbon (Rep1)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Rep2)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Average)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM



Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 Batch: WG1460879-2								
Total Organic Carbon (Rep1)	103		-		75-125	-		25
Total Organic Carbon (Rep2)	98		-		75-125	-		25
Total Organic Carbon (Average)	100		-		75-125	-		25

Matrix Spike Analysis
Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102897

Project Number: Not Specified

Report Date: 02/09/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460879-4 QC Sample: L2100959-20 Client ID: MS Sample												
Total Organic Carbon (Rep1)	1.18	0.687	1.80	90	-	-	-	-	75-125	-	-	25
Total Organic Carbon (Rep2)	1.12	0.754	1.94	109	-	-	-	-	75-125	-	-	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2102897

Report Date: 02/09/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1456870-1 QC Sample: L2102031-18 Client ID: DUP Sample						
Solids, Total	27.4	28.8	%	5		10
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1456870-2 QC Sample: L2102811-01 Client ID: DUP Sample						
Solids, Total	47.0	50.1	%	6		10
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460879-3 QC Sample: L2100959-20 Client ID: DUP Sample						
Total Organic Carbon (Rep1)	1.18	1.14	%	3		25
Total Organic Carbon (Rep2)	1.12	1.11	%	1		25
Total Organic Carbon (Average)	1.15	1.13	%	2		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1461561-1 QC Sample: L2102897-01 Client ID: BB 23						
% Total Gravel	24.4	12.6	%	64	Q	20
% Coarse Sand	8.90	11.8	%	28	Q	20
% Medium Sand	15.3	16.9	%	10		20
% Fine Sand	27.1	31.1	%	14		20
% Total Fines	24.3	27.6	%	13		20

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2102897-01A	Vial MeOH preserved	A	NA		2.7	Y	Absent		8260HLW(14)
L2102897-01B	Vial water preserved	A	NA		2.7	Y	Absent	19-JAN-21 19:07	8260HLW(14)
L2102897-01C	Vial water preserved	A	NA		2.7	Y	Absent	19-JAN-21 19:07	8260HLW(14)
L2102897-01D	Glass 250ml/8oz unpreserved	A	NA		2.7	Y	Absent		EPH-20(14)
L2102897-01E	Glass 250ml/8oz unpreserved	A	NA		2.7	Y	Absent		A2-PB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-TS(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-PAH/PCBCONG(14),A2-CU-6020T(180)
L2102897-01F	Plastic 8oz unpreserved for Grain Size	A	NA		2.7	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND()

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102897
Report Date: 02/09/21

Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102897**Project Number:** Not Specified**Report Date:** 02/09/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 135 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, December 2019, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, March 1, 2020.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:02092113:34

ASTM D6913/D7928 GRAIN SIZE ANALYSIS

GRAIN SIZE DISTRIBUTION TEST DATA

2/5/2021

Location: BB 23

Sample Number: L2102897-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 124.37
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
124.37	0.00	3"	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	16.71	0.00	86.6
		1/2"	0.00	0.00	86.6
		3/8"	3.81	0.00	83.5
		#4	9.83	0.00	75.6
		#10	11.02	0.00	66.7
		#20	11.04	0.00	57.9
		#40	8.09	0.00	51.4
		#60	8.20	0.00	44.8
		#140	19.20	0.00	29.3
		#200	6.28	0.00	24.3

Serial_No:02092113:34

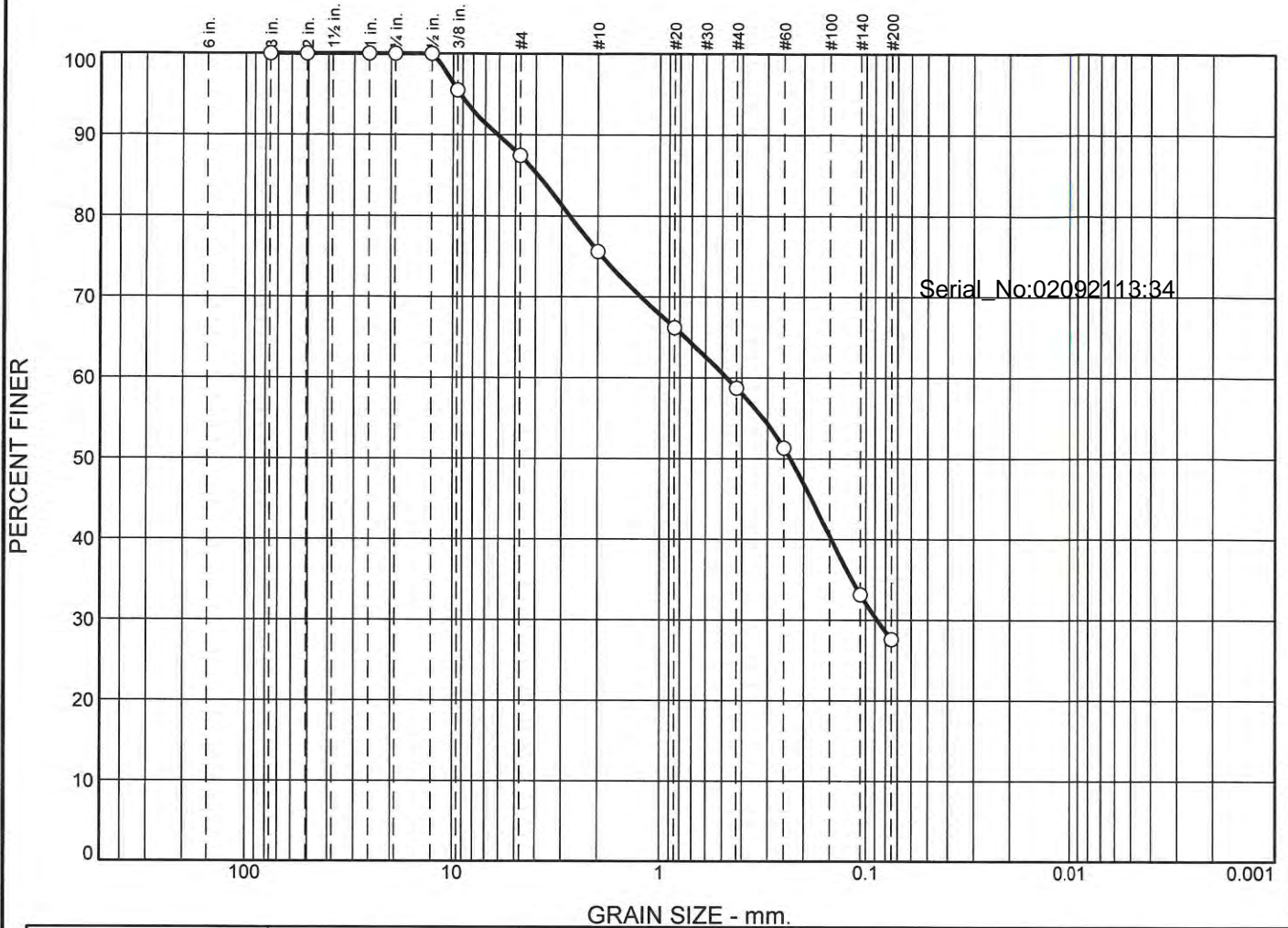
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.4	11.0	24.4	8.9	15.3	27.1	51.3			24.3

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.1104	0.1898	0.3738	1.0561	7.3176	10.9496	20.7767	22.8934

Fineness Modulus
2.87

Particle Size Distribution Report



%	+3"		% Gravel		% Sand			% Fines		
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
○	0.0	12.6	11.8	16.9	31.1	27.6				
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			3.8936	0.4746	0.2329	0.0878				

Material Description	USCS	AASHTO
○		

Project No.	Client:	Remarks:
Project:		
○ Source of Sample: BB 23	Sample Number: WG1461561-1	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

2/5/2021

Location: BB 23

Sample Number: WG1461561-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 123.58
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
123.58	0.00	3"	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		1/2"	0.00	0.00	100.0
		3/8"	5.56	0.00	95.5
		#4	9.95	0.00	87.4
		#10	14.65	0.00	75.6
		#20	11.60	0.00	66.2
		#40	9.23	0.00	58.7
		#60	9.16	0.00	51.3
		#140	22.44	0.00	33.2
		#200	6.87	0.00	27.6

Serial_No:02092113:34

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.6	12.6	11.8	16.9	31.1	59.8			27.6

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0878	0.1471	0.2329	0.4746	2.7360	3.8936	6.0950	9.2372

Fineness Modulus
2.12

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics

EPA 3C Fixed gases

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2102524
Client:	The BSC Group, Inc. 349 Route 28, Unit D West Yarmouth, MA 02673
ATTN:	Matt Creighton
Phone:	(508) 778-8919
Project Name:	WEWEANTIC RIVER BRIDGE
Project Number:	Not Specified
Report Date:	02/07/21

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2102524-01	BB 27	SEDIMENT	WEWEANTIC RIVER BRIDGE	01/15/21 11:00	01/15/21

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Case Narrative (continued)

Volatile Organics

L2102524-01: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

Total Mercury


A larger sample size was used for the mercury digestion.

Grain Size Analysis

The WG1461557-1 Laboratory Duplicate RPD for % total gravel (108%), performed on L2102524-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 02/07/21

ORGANICS

VOLATILES

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**SAMPLE RESULTS**

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 1,8260C
 Analytical Date: 01/27/21 07:39
 Analyst: MV
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	7.8	--	1
1,1-Dichloroethane	ND		ug/kg	1.6	--	1
Chloroform	ND		ug/kg	2.3	--	1
Carbon tetrachloride	ND		ug/kg	1.6	--	1
1,2-Dichloropropane	ND		ug/kg	1.6	--	1
Dibromochloromethane	ND		ug/kg	1.6	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.6	--	1
Tetrachloroethene	2300	E	ug/kg	0.78	--	1
Chlorobenzene	ND		ug/kg	0.78	--	1
Trichlorofluoromethane	ND		ug/kg	6.2	--	1
1,2-Dichloroethane	ND		ug/kg	1.6	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.78	--	1
Bromodichloromethane	ND		ug/kg	0.78	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.78	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.78	--	1
1,1-Dichloropropene	ND		ug/kg	0.78	--	1
Bromoform	ND		ug/kg	6.2	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.78	--	1
Benzene	ND		ug/kg	0.78	--	1
Toluene	ND		ug/kg	1.6	--	1
Ethylbenzene	ND		ug/kg	1.6	--	1
Chloromethane	ND		ug/kg	6.2	--	1
Bromomethane	ND		ug/kg	3.1	--	1
Vinyl chloride	ND		ug/kg	1.6	--	1
Chloroethane	ND		ug/kg	3.1	--	1
1,1-Dichloroethene	ND		ug/kg	1.6	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.3	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**SAMPLE RESULTS**

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.78	--	1
1,2-Dichlorobenzene	ND		ug/kg	3.1	--	1
1,3-Dichlorobenzene	ND		ug/kg	3.1	--	1
1,4-Dichlorobenzene	ND		ug/kg	3.1	--	1
Methyl tert butyl ether	ND		ug/kg	3.1	--	1
p/m-Xylene	ND		ug/kg	3.1	--	1
o-Xylene	ND		ug/kg	1.6	--	1
Xylenes, Total	ND		ug/kg	1.6	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.6	--	1
Dibromomethane	ND		ug/kg	3.1	--	1
1,4-Dichlorobutane	ND		ug/kg	16	--	1
1,2,3-Trichloropropane	ND		ug/kg	3.1	--	1
Styrene	ND		ug/kg	1.6	--	1
Dichlorodifluoromethane	ND		ug/kg	16	--	1
Acetone	ND		ug/kg	39	--	1
Carbon disulfide	ND		ug/kg	16	--	1
2-Butanone	ND		ug/kg	16	--	1
Vinyl acetate	ND		ug/kg	16	--	1
4-Methyl-2-pentanone	ND		ug/kg	16	--	1
2-Hexanone	ND		ug/kg	16	--	1
Ethyl methacrylate	ND		ug/kg	16	--	1
Acrylonitrile	ND		ug/kg	6.2	--	1
Bromochloromethane	ND		ug/kg	3.1	--	1
Tetrahydrofuran	ND		ug/kg	6.2	--	1
2,2-Dichloropropane	ND		ug/kg	3.1	--	1
1,2-Dibromoethane	ND		ug/kg	1.6	--	1
1,3-Dichloropropane	ND		ug/kg	3.1	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.78	--	1
Bromobenzene	ND		ug/kg	3.1	--	1
n-Butylbenzene	ND		ug/kg	1.6	--	1
sec-Butylbenzene	ND		ug/kg	1.6	--	1
tert-Butylbenzene	ND		ug/kg	3.1	--	1
o-Chlorotoluene	ND		ug/kg	3.1	--	1
p-Chlorotoluene	ND		ug/kg	3.1	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.7	--	1
Hexachlorobutadiene	ND		ug/kg	6.2	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Isopropylbenzene	ND		ug/kg	1.6	--	1
p-Isopropyltoluene	ND		ug/kg	1.6	--	1
Naphthalene	ND		ug/kg	6.2	--	1
n-Propylbenzene	ND		ug/kg	1.6	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	3.1	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.1	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.1	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.1	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.8	--	1
Ethyl ether	ND		ug/kg	3.1	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**SAMPLE RESULTS**

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 1,8260C
 Analytical Date: 01/27/21 13:56
 Analyst: MKS
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	660	--	1
1,1-Dichloroethane	ND		ug/kg	130	--	1
Chloroform	ND		ug/kg	200	--	1
Carbon tetrachloride	ND		ug/kg	130	--	1
1,2-Dichloropropane	ND		ug/kg	130	--	1
Dibromochloromethane	ND		ug/kg	130	--	1
1,1,2-Trichloroethane	ND		ug/kg	130	--	1
Tetrachloroethene	7700		ug/kg	66	--	1
Chlorobenzene	ND		ug/kg	66	--	1
Trichlorofluoromethane	ND		ug/kg	530	--	1
1,2-Dichloroethane	ND		ug/kg	130	--	1
1,1,1-Trichloroethane	ND		ug/kg	66	--	1
Bromodichloromethane	ND		ug/kg	66	--	1
trans-1,3-Dichloropropene	ND		ug/kg	130	--	1
cis-1,3-Dichloropropene	ND		ug/kg	66	--	1
1,3-Dichloropropene, Total	ND		ug/kg	66	--	1
1,1-Dichloropropene	ND		ug/kg	66	--	1
Bromoform	ND		ug/kg	530	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	66	--	1
Benzene	ND		ug/kg	66	--	1
Toluene	ND		ug/kg	130	--	1
Ethylbenzene	ND		ug/kg	130	--	1
Chloromethane	ND		ug/kg	530	--	1
Bromomethane	ND		ug/kg	260	--	1
Vinyl chloride	ND		ug/kg	130	--	1
Chloroethane	ND		ug/kg	260	--	1
1,1-Dichloroethene	ND		ug/kg	130	--	1
trans-1,2-Dichloroethene	ND		ug/kg	200	--	1

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**SAMPLE RESULTS**

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatiles Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	66	--	1
1,2-Dichlorobenzene	ND		ug/kg	260	--	1
1,3-Dichlorobenzene	ND		ug/kg	260	--	1
1,4-Dichlorobenzene	ND		ug/kg	260	--	1
Methyl tert butyl ether	ND		ug/kg	260	--	1
p/m-Xylene	ND		ug/kg	260	--	1
o-Xylene	ND		ug/kg	130	--	1
Xylenes, Total	ND		ug/kg	130	--	1
cis-1,2-Dichloroethene	ND		ug/kg	130	--	1
1,2-Dichloroethene, Total	ND		ug/kg	130	--	1
Dibromomethane	ND		ug/kg	260	--	1
1,4-Dichlorobutane	ND		ug/kg	1300	--	1
1,2,3-Trichloropropane	ND		ug/kg	260	--	1
Styrene	ND		ug/kg	130	--	1
Dichlorodifluoromethane	ND		ug/kg	1300	--	1
Acetone	ND		ug/kg	1300	--	1
Carbon disulfide	ND		ug/kg	1300	--	1
2-Butanone	ND		ug/kg	1300	--	1
Vinyl acetate	ND		ug/kg	1300	--	1
4-Methyl-2-pentanone	ND		ug/kg	1300	--	1
2-Hexanone	ND		ug/kg	1300	--	1
Ethyl methacrylate	ND		ug/kg	1300	--	1
Acrylonitrile	ND		ug/kg	530	--	1
Bromochloromethane	ND		ug/kg	260	--	1
Tetrahydrofuran	ND		ug/kg	530	--	1
2,2-Dichloropropane	ND		ug/kg	260	--	1
1,2-Dibromoethane	ND		ug/kg	130	--	1
1,3-Dichloropropane	ND		ug/kg	260	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	66	--	1
Bromobenzene	ND		ug/kg	260	--	1
n-Butylbenzene	ND		ug/kg	130	--	1
sec-Butylbenzene	ND		ug/kg	130	--	1
tert-Butylbenzene	ND		ug/kg	260	--	1
o-Chlorotoluene	ND		ug/kg	260	--	1
p-Chlorotoluene	ND		ug/kg	260	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	400	--	1
Hexachlorobutadiene	ND		ug/kg	530	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	ND		ug/kg	130	--	1
p-Isopropyltoluene	ND		ug/kg	130	--	1
Naphthalene	ND		ug/kg	530	--	1
n-Propylbenzene	ND		ug/kg	130	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	260	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	260	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	260	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	260	--	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	660	--	1
Ethyl ether	ND		ug/kg	260	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1459238-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
2-Chloroethylvinyl ether	ND		ug/kg	20	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1459238-5					
Trichloroethene	ND		ug/kg	0.50	--
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,4-Dichlorobutane	ND		ug/kg	10	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	25	--
Carbon disulfide	ND		ug/kg	10	--
2-Butanone	ND		ug/kg	10	--
Vinyl acetate	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Ethyl methacrylate	ND		ug/kg	10	--
Acrolein	ND		ug/kg	25	--
Acrylonitrile	ND		ug/kg	4.0	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1459238-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
1,3,5-Trichlorobenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	--
Ethyl ether	ND		ug/kg	2.0	--
Methyl Acetate	ND		ug/kg	4.0	--
Ethyl Acetate	ND		ug/kg	10	--
Isopropyl Ether	ND		ug/kg	2.0	--
Cyclohexane	ND		ug/kg	10	--
Tert-Butyl Alcohol	ND		ug/kg	20	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--
Methyl cyclohexane	ND		ug/kg	4.0	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1459238-5					
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	4.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	102		70-130

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 01/27/21 07:14
 Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1459347-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
2-Chloroethylvinyl ether	ND		ug/kg	1000	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1459347-5					
Trichloroethene	ND		ug/kg	25	--
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,4-Dichlorobutane	ND		ug/kg	500	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
2-Butanone	ND		ug/kg	500	--
Vinyl acetate	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Ethyl methacrylate	ND		ug/kg	500	--
Acrolein	ND		ug/kg	1200	--
Acrylonitrile	ND		ug/kg	200	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1459347-5					
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
1,3,5-Trichlorobenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
trans-1,4-Dichloro-2-butene	ND		ug/kg	250	--
Halothane	ND		ug/kg	500	--
Ethyl ether	ND		ug/kg	100	--
Methyl Acetate	ND		ug/kg	200	--
Ethyl Acetate	ND		ug/kg	500	--
Isopropyl Ether	ND		ug/kg	100	--
Cyclohexane	ND		ug/kg	500	--
Tert-Butyl Alcohol	ND		ug/kg	1000	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 01/27/21 07:14
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1459347-5					
Methyl cyclohexane	ND		ug/kg	200	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	200	--
p-Diethylbenzene	ND		ug/kg	100	--
4-Ethyltoluene	ND		ug/kg	100	--
1,2,4,5-Tetramethylbenzene	ND		ug/kg	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1459238-3 WG1459238-4								
Methylene chloride	92		90		70-130	2		30
1,1-Dichloroethane	101		99		70-130	2		30
Chloroform	102		99		70-130	3		30
Carbon tetrachloride	115		111		70-130	4		30
1,2-Dichloropropane	93		91		70-130	2		30
Dibromochloromethane	92		90		70-130	2		30
1,1,2-Trichloroethane	85		85		70-130	0		30
2-Chloroethylvinyl ether	100		98		70-130	2		30
Tetrachloroethene	94		91		70-130	3		30
Chlorobenzene	86		84		70-130	2		30
Trichlorofluoromethane	118		113		70-139	4		30
1,2-Dichloroethane	103		102		70-130	1		30
1,1,1-Trichloroethane	106		102		70-130	4		30
Bromodichloromethane	97		97		70-130	0		30
trans-1,3-Dichloropropene	95		94		70-130	1		30
cis-1,3-Dichloropropene	95		94		70-130	1		30
1,1-Dichloropropene	104		100		70-130	4		30
Bromoform	92		91		70-130	1		30
1,1,2,2-Tetrachloroethane	77		75		70-130	3		30
Benzene	92		89		70-130	3		30
Toluene	89		87		70-130	2		30
Ethylbenzene	96		94		70-130	2		30
Chloromethane	93		90		52-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1459238-3 WG1459238-4								
Bromomethane	107		102		57-147	5		30
Vinyl chloride	104		96		67-130	8		30
Chloroethane	111		105		50-151	6		30
1,1-Dichloroethene	104		101		65-135	3		30
trans-1,2-Dichloroethene	102		97		70-130	5		30
Trichloroethene	98		95		70-130	3		30
1,2-Dichlorobenzene	87		86		70-130	1		30
1,3-Dichlorobenzene	89		89		70-130	0		30
1,4-Dichlorobenzene	88		87		70-130	1		30
Methyl tert butyl ether	100		97		66-130	3		30
p/m-Xylene	88		88		70-130	0		30
o-Xylene	87		85		70-130	2		30
cis-1,2-Dichloroethene	97		93		70-130	4		30
Dibromomethane	92		91		70-130	1		30
1,4-Dichlorobutane	84		83		70-130	1		30
1,2,3-Trichloropropane	80		80		68-130	0		30
Styrene	90		89		70-130	1		30
Dichlorodifluoromethane	91		87		30-146	4		30
Acetone	89		93		54-140	4		30
Carbon disulfide	94		90		59-130	4		30
2-Butanone	84		84		70-130	0		30
Vinyl acetate	99		96		70-130	3		30
4-Methyl-2-pentanone	81		79		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1459238-3 WG1459238-4								
2-Hexanone	83		78		70-130	6		30
Ethyl methacrylate	92		91		70-130	1		30
Acrolein	92		89		70-130	3		30
Acrylonitrile	92		90		70-130	2		30
Bromochloromethane	93		94		70-130	1		30
Tetrahydrofuran	91		84		66-130	8		30
2,2-Dichloropropane	116		110		70-130	5		30
1,2-Dibromoethane	83		82		70-130	1		30
1,3-Dichloropropane	88		85		69-130	3		30
1,1,1,2-Tetrachloroethane	89		87		70-130	2		30
Bromobenzene	87		86		70-130	1		30
n-Butylbenzene	94		93		70-130	1		30
sec-Butylbenzene	92		92		70-130	0		30
tert-Butylbenzene	93		93		70-130	0		30
1,3,5-Trichlorobenzene	95		97		70-139	2		30
o-Chlorotoluene	89		89		70-130	0		30
p-Chlorotoluene	90		91		70-130	1		30
1,2-Dibromo-3-chloropropane	87		83		68-130	5		30
Hexachlorobutadiene	96		95		67-130	1		30
Isopropylbenzene	93		92		70-130	1		30
p-Isopropyltoluene	94		94		70-130	0		30
Naphthalene	86		85		70-130	1		30
n-Propylbenzene	91		90		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1459238-3 WG1459238-4								
1,2,3-Trichlorobenzene	87		90		70-130	3		30
1,2,4-Trichlorobenzene	94		95		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	92		91		70-130	1		30
trans-1,4-Dichloro-2-butene	89		88		70-130	1		30
Ethyl ether	97		91		67-130	6		30
Methyl Acetate	94		89		65-130	5		30
Ethyl Acetate	93		89		70-130	4		30
Isopropyl Ether	101		97		66-130	4		30
Cyclohexane	106		100		70-130	6		30
Tert-Butyl Alcohol	94		89		70-130	5		30
Ethyl-Tert-Butyl-Ether	104		100		70-130	4		30
Tertiary-Amyl Methyl Ether	98		95		70-130	3		30
1,4-Dioxane	87		84		65-136	4		30
Methyl cyclohexane	103		97		70-130	6		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	111		105		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		110		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1459347-3 WG1459347-4								
Methylene chloride	92		90		70-130	2		30
1,1-Dichloroethane	101		99		70-130	2		30
Chloroform	102		99		70-130	3		30
Carbon tetrachloride	115		111		70-130	4		30
1,2-Dichloropropane	93		91		70-130	2		30
Dibromochloromethane	92		90		70-130	2		30
1,1,2-Trichloroethane	85		85		70-130	0		30
2-Chloroethylvinyl ether	100		98		70-130	2		30
Tetrachloroethene	94		91		70-130	3		30
Chlorobenzene	86		84		70-130	2		30
Trichlorofluoromethane	118		113		70-139	4		30
1,2-Dichloroethane	103		102		70-130	1		30
1,1,1-Trichloroethane	106		102		70-130	4		30
Bromodichloromethane	97		97		70-130	0		30
trans-1,3-Dichloropropene	95		94		70-130	1		30
cis-1,3-Dichloropropene	95		94		70-130	1		30
1,1-Dichloropropene	104		100		70-130	4		30
Bromoform	92		91		70-130	1		30
1,1,2,2-Tetrachloroethane	77		75		70-130	3		30
Benzene	92		89		70-130	3		30
Toluene	89		87		70-130	2		30
Ethylbenzene	96		94		70-130	2		30
Chloromethane	93		90		52-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1459347-3 WG1459347-4								
Bromomethane	107		102		57-147	5		30
Vinyl chloride	104		96		67-130	8		30
Chloroethane	111		105		50-151	6		30
1,1-Dichloroethene	104		101		65-135	3		30
trans-1,2-Dichloroethene	102		97		70-130	5		30
Trichloroethene	98		95		70-130	3		30
1,2-Dichlorobenzene	87		86		70-130	1		30
1,3-Dichlorobenzene	89		89		70-130	0		30
1,4-Dichlorobenzene	88		87		70-130	1		30
Methyl tert butyl ether	100		97		66-130	3		30
p/m-Xylene	88		88		70-130	0		30
o-Xylene	87		85		70-130	2		30
cis-1,2-Dichloroethene	97		93		70-130	4		30
Dibromomethane	92		91		70-130	1		30
1,4-Dichlorobutane	84		83		70-130	1		30
1,2,3-Trichloropropane	80		80		68-130	0		30
Styrene	90		89		70-130	1		30
Dichlorodifluoromethane	91		87		30-146	4		30
Acetone	89		93		54-140	4		30
Carbon disulfide	94		90		59-130	4		30
2-Butanone	84		84		70-130	0		30
Vinyl acetate	99		96		70-130	3		30
4-Methyl-2-pentanone	81		79		70-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1459347-3 WG1459347-4								
2-Hexanone	83		78		70-130	6		30
Ethyl methacrylate	92		91		70-130	1		30
Acrolein	92		89		70-130	3		30
Acrylonitrile	92		90		70-130	2		30
Bromochloromethane	93		94		70-130	1		30
Tetrahydrofuran	91		84		66-130	8		30
2,2-Dichloropropane	116		110		70-130	5		30
1,2-Dibromoethane	83		82		70-130	1		30
1,3-Dichloropropane	88		85		69-130	3		30
1,1,1,2-Tetrachloroethane	89		87		70-130	2		30
Bromobenzene	87		86		70-130	1		30
n-Butylbenzene	94		93		70-130	1		30
sec-Butylbenzene	92		92		70-130	0		30
tert-Butylbenzene	93		93		70-130	0		30
1,3,5-Trichlorobenzene	95		97		70-139	2		30
o-Chlorotoluene	89		89		70-130	0		30
p-Chlorotoluene	90		91		70-130	1		30
1,2-Dibromo-3-chloropropane	87		83		68-130	5		30
Hexachlorobutadiene	96		95		67-130	1		30
Isopropylbenzene	93		92		70-130	1		30
p-Isopropyltoluene	94		94		70-130	0		30
Naphthalene	86		85		70-130	1		30
n-Propylbenzene	91		90		70-130	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1459347-3 WG1459347-4								
1,2,3-Trichlorobenzene	87		90		70-130	3		30
1,2,4-Trichlorobenzene	94		95		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	92		91		70-130	1		30
trans-1,4-Dichloro-2-butene	89		88		70-130	1		30
Halothane	102		97		70-130	5		20
Ethyl ether	97		91		67-130	6		30
Methyl Acetate	94		89		65-130	5		30
Ethyl Acetate	93		89		70-130	4		30
Isopropyl Ether	101		97		66-130	4		30
Cyclohexane	106		100		70-130	6		30
Tert-Butyl Alcohol	94		89		70-130	5		30
Ethyl-Tert-Butyl-Ether	104		100		70-130	4		30
Tertiary-Amyl Methyl Ether	98		95		70-130	3		30
1,4-Dioxane	87		84		65-136	4		30
Methyl cyclohexane	103		97		70-130	6		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	111		105		70-130	6		30
p-Diethylbenzene	96		95		70-130	1		30
4-Ethyltoluene	92		92		70-130	0		30
1,2,4,5-Tetramethylbenzene	96		96		70-130	0		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1459347-3 WG1459347-4								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
1,2-Dichloroethane-d4	111		110		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	108		108		70-130

SEMIVOLATILES

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 01/26/21 14:27
 Analyst: GP
 Percent Solids: 72%

Extraction Method: EPA 3570
 Extraction Date: 01/19/21 09:57
 Cleanup Method: EPA 3630
 Cleanup Date: 01/20/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	5.10	--	1
Acenaphthylene	ND		ug/kg	5.10	--	1
Acenaphthene	ND		ug/kg	5.10	--	1
Fluorene	ND		ug/kg	5.10	--	1
Phenanthrene	9.69		ug/kg	5.10	--	1
Anthracene	ND		ug/kg	5.10	--	1
Fluoranthene	54.7		ug/kg	5.10	--	1
Pyrene	47.4		ug/kg	5.10	--	1
Benz(a)anthracene	17.5		ug/kg	5.10	--	1
Chrysene	12.8		ug/kg	5.10	--	1
Benzo(b)fluoranthene	13.4		ug/kg	5.10	--	1
Benzo(k)fluoranthene	8.48		ug/kg	5.10	--	1
Benzo(a)pyrene	11.1		ug/kg	5.10	--	1
Indeno(1,2,3-cd)Pyrene	10.5		ug/kg	5.10	--	1
Dibenz(a,h)anthracene	ND		ug/kg	5.10	--	1
Benzo(ghi)perylene	8.58		ug/kg	5.10	--	1
Cl2-BZ#8	ND		ug/kg	0.510	--	1
Cl3-BZ#18	ND		ug/kg	0.510	--	1
Cl3-BZ#28	ND		ug/kg	0.510	--	1
Cl4-BZ#44	ND		ug/kg	0.510	--	1
Cl4-BZ#49	ND		ug/kg	0.510	--	1
Cl4-BZ#52	ND		ug/kg	0.510	--	1
Cl4-BZ#66	ND		ug/kg	0.510	--	1
Cl5-BZ#87	ND		ug/kg	0.510	--	1
Cl5-BZ#101	1.01		ug/kg	0.510	--	1
Cl5-BZ#105	ND		ug/kg	0.510	--	1
Cl5-BZ#118	ND		ug/kg	0.510	--	1
Cl6-BZ#128	ND		ug/kg	0.510	--	1

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.510	--	1
Cl6-BZ#153	ND		ug/kg	0.510	--	1
Cl7-BZ#170	ND		ug/kg	0.510	--	1
Cl7-BZ#180	ND		ug/kg	0.510	--	1
Cl7-BZ#183	ND		ug/kg	0.510	--	1
Cl7-BZ#184	ND		ug/kg	0.510	--	1
Cl7-BZ#187	ND		ug/kg	0.510	--	1
Cl8-BZ#195	ND		ug/kg	0.510	--	1
Cl9-BZ#206	ND		ug/kg	0.510	--	1
Cl10-BZ#209	ND		ug/kg	0.510	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	71		30-150
Pyrene-d10	97		30-150
Benzo(b)fluoranthene-d12	90		30-150
DBOB	105		50-125
BZ 198	104		50-125

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/26/21 10:32
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/19/21 09:57
Cleanup Method: EPA 3630
Cleanup Date: 01/20/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1456356-1					
Naphthalene	ND		ug/kg	4.00	--
Acenaphthylene	ND		ug/kg	4.00	--
Acenaphthene	ND		ug/kg	4.00	--
Fluorene	ND		ug/kg	4.00	--
Phenanthrene	ND		ug/kg	4.00	--
Anthracene	ND		ug/kg	4.00	--
Fluoranthene	ND		ug/kg	4.00	--
Pyrene	ND		ug/kg	4.00	--
Benz(a)anthracene	ND		ug/kg	4.00	--
Chrysene	ND		ug/kg	4.00	--
Benzo(b)fluoranthene	ND		ug/kg	4.00	--
Benzo(k)fluoranthene	ND		ug/kg	4.00	--
Benzo(a)pyrene	ND		ug/kg	4.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	4.00	--
Dibenz(a,h)anthracene	ND		ug/kg	4.00	--
Benzo(ghi)perylene	ND		ug/kg	4.00	--
Cl2-BZ#8	ND		ug/kg	0.400	--
Cl3-BZ#18	ND		ug/kg	0.400	--
Cl3-BZ#28	ND		ug/kg	0.400	--
Cl4-BZ#44	ND		ug/kg	0.400	--
Cl4-BZ#49	ND		ug/kg	0.400	--
Cl4-BZ#52	ND		ug/kg	0.400	--
Cl4-BZ#66	ND		ug/kg	0.400	--
Cl5-BZ#87	ND		ug/kg	0.400	--
Cl5-BZ#101	ND		ug/kg	0.400	--
Cl5-BZ#105	ND		ug/kg	0.400	--
Cl5-BZ#118	ND		ug/kg	0.400	--
Cl6-BZ#128	ND		ug/kg	0.400	--
Cl6-BZ#138	ND		ug/kg	0.400	--

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 01/26/21 10:32
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 01/19/21 09:57
Cleanup Method: EPA 3630
Cleanup Date: 01/20/21

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01 Batch: WG1456356-1					
CI6-BZ#153	ND		ug/kg	0.400	--
CI7-BZ#170	ND		ug/kg	0.400	--
CI7-BZ#180	ND		ug/kg	0.400	--
CI7-BZ#183	ND		ug/kg	0.400	--
CI7-BZ#184	ND		ug/kg	0.400	--
CI7-BZ#187	ND		ug/kg	0.400	--
CI8-BZ#195	ND		ug/kg	0.400	--
CI9-BZ#206	ND		ug/kg	0.400	--
CI10-BZ#209	ND		ug/kg	0.400	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	66		30-150
Pyrene-d10	92		30-150
Benzo(b)fluoranthene-d12	100		30-150
DBOB	95		50-125
BZ 198	90		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1456356-2 WG1456356-3								
Naphthalene	70		72		40-140	3		30
Acenaphthylene	84		88		40-140	5		30
Acenaphthene	78		82		40-140	5		30
Fluorene	84		88		40-140	5		30
Phenanthrene	92		101		40-140	9		30
Anthracene	105		112		40-140	6		30
Fluoranthene	103		111		40-140	7		30
Pyrene	88		93		40-140	6		30
Benz(a)anthracene	105		113		40-140	7		30
Chrysene	89		93		40-140	4		30
Benzo(b)fluoranthene	114		124		40-140	8		30
Benzo(k)fluoranthene	98		99		40-140	1		30
Benzo(a)pyrene	86		90		40-140	5		30
Indeno(1,2,3-cd)Pyrene	94		99		40-140	5		30
Dibenz(a,h)anthracene	106		113		40-140	6		30
Benzo(ghi)perylene	108		114		40-140	5		30
Cl2-BZ#8	90		94		40-140	4		50
Cl3-BZ#18	84		88		40-140	5		50
Cl3-BZ#28	90		94		40-140	4		50
Cl4-BZ#44	91		95		40-140	4		50
Cl4-BZ#49	82		83		40-140	1		50
Cl4-BZ#52	82		87		40-140	6		50
Cl4-BZ#66	94		98		40-140	4		50

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01 Batch: WG1456356-2 WG1456356-3								
Cl5-BZ#87	94		97		40-140	3		50
Cl5-BZ#101	90		92		40-140	2		50
Cl5-BZ#105	97		99		40-140	2		50
Cl5-BZ#118	85		89		40-140	5		50
Cl6-BZ#128	98		103		40-140	5		50
Cl6-BZ#138	99		103		40-140	4		50
Cl6-BZ#153	97		102		40-140	5		50
Cl7-BZ#170	104		110		40-140	6		50
Cl7-BZ#180	87		91		40-140	4		50
Cl7-BZ#183	85		87		40-140	2		50
Cl7-BZ#184	96		100		40-140	4		50
Cl7-BZ#187	100		107		40-140	7		50
Cl8-BZ#195	108		112		40-140	4		50
Cl9-BZ#206	94		98		40-140	4		50
Cl10-BZ#209	85		88		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	73		71		30-150
Pyrene-d10	95		93		30-150
Benzo(b)fluoranthene-d12	105		104		30-150
DBOB	104		106		50-125
BZ 198	103		104		50-125



PETROLEUM HYDROCARBONS

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**SAMPLE RESULTS**

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 01/29/21 16:54
 Analyst: MEO
 Percent Solids: 72%

Extraction Method: EPA 3546
 Extraction Date: 01/28/21 11:39
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 01/29/21

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.08	--	1
C19-C36 Aliphatics	ND		mg/kg	9.08	--	1
C11-C22 Aromatics	ND		mg/kg	9.08	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	9.08	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	72		40-140
2-Fluorobiphenyl	105		40-140
2-Bromonaphthalene	106		40-140

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 135,EPH-19-2.1
Analytical Date: 01/29/21 15:40
Analyst: MEO

Extraction Method: EPA 3546
Extraction Date: 01/28/21 11:39
Cleanup Method: EPH-04-1
Cleanup Date: 01/29/21

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1459657-1					
C9-C18 Aliphatics	ND		mg/kg	6.57	--
C19-C36 Aliphatics	ND		mg/kg	6.57	--
C11-C22 Aromatics	ND		mg/kg	6.57	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.57	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	81		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1459657-2 WG1459657-3								
C9-C18 Aliphatics	64		72		40-140	12		25
C19-C36 Aliphatics	79		79		40-140	0		25
C11-C22 Aromatics	92		96		40-140	4		25
Naphthalene	75		68		40-140	10		25
2-Methylnaphthalene	78		71		40-140	9		25
Acenaphthylene	80		70		40-140	13		25
Acenaphthene	86		75		40-140	14		25
Fluorene	89		75		40-140	17		25
Phenanthrene	92		76		40-140	19		25
Anthracene	92		76		40-140	19		25
Fluoranthene	96		80		40-140	18		25
Pyrene	96		80		40-140	18		25
Benzo(a)anthracene	97		80		40-140	19		25
Chrysene	95		78		40-140	20		25
Benzo(b)fluoranthene	106		90		40-140	16		25
Benzo(k)fluoranthene	78		66		40-140	17		25
Benzo(a)pyrene	92		76		40-140	19		25
Indeno(1,2,3-cd)Pyrene	87		76		40-140	13		25
Dibenzo(a,h)anthracene	65		54		40-140	18		25
Benzo(ghi)perylene	80		69		40-140	15		25

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1459657-2 WG1459657-3								

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> Criteria
Chloro-Octadecane	63		61		40-140
o-Terphenyl	83		66		40-140
2-Fluorobiphenyl	113		92		40-140
2-Bromonaphthalene	116		92		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

METALS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
 Client ID: BB 27
 Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
 Date Received: 01/15/21
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	5.34		mg/kg	0.670	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Cadmium, Total	ND		mg/kg	0.268	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Chromium, Total	9.26		mg/kg	2.68	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Copper, Total	6.29		mg/kg	2.68	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Lead, Total	8.84		mg/kg	0.804	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Mercury, Total	0.015		mg/kg	0.006	--	5	01/30/21 12:34	02/01/21 13:53	EPA 7474	1,7474	CD
Nickel, Total	6.55		mg/kg	1.34	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM
Zinc, Total	30.8		mg/kg	13.4	--	10	02/03/21 12:29	02/03/21 17:14	EPA 3050B	1,6020B	AM



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1460179-1									
Mercury, Total	ND	mg/kg	0.013	--	5	01/30/21 12:34	02/01/21 12:54	1,7474	CD

Prep Information

Digestion Method: EPA 7474

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1461272-1									
Arsenic, Total	ND	mg/kg	0.500	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Cadmium, Total	ND	mg/kg	0.200	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Chromium, Total	ND	mg/kg	2.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Copper, Total	ND	mg/kg	2.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Lead, Total	ND	mg/kg	0.600	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Nickel, Total	ND	mg/kg	1.00	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM
Zinc, Total	ND	mg/kg	10.0	--	10	02/03/21 12:29	02/03/21 15:45	1,6020B	AM

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2102524

Report Date: 02/07/21

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1460179-2 SRM Lot Number: D109-540								
Mercury, Total	101		-		60-140	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1461272-2 SRM Lot Number: D109-540								
Arsenic, Total	96		-		70-130	-		20
Cadmium, Total	96		-		75-125	-		20
Chromium, Total	88		-		70-130	-		20
Copper, Total	89		-		75-125	-		20
Lead, Total	93		-		72-128	-		20
Nickel, Total	93		-		70-130	-		20
Zinc, Total	90		-		70-130	-		20

Matrix Spike Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460179-3 QC Sample: L2101950-05 Client ID: MS Sample												
Mercury, Total	0.574	0.884	1.50	105		-	-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1461272-3 WG1461272-4 QC Sample: L2102902-03 Client ID: MS Sample												
Arsenic, Total	4.49	18.4	22.0	95		23.4	102		75-125	6		20
Cadmium, Total	0.434	7.81	8.03	97		8.64	105		75-125	7		20
Chromium, Total	123	30.6	87.5	0	Q	91.2	0	Q	75-125	4		20
Copper, Total	48.7	38.3	84.2	93		88.6	104		75-125	5		20
Lead, Total	24.3	78.1	101	98		107	105		75-125	6		20
Nickel, Total	83.9	76.6	111	35	Q	114	39	Q	75-125	3		20
Zinc, Total	141	76.6	216	98		226	110		75-125	5		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2102524

Report Date: 02/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460179-4 QC Sample: L2101950-05 Client ID: DUP Sample						
Mercury, Total	0.574	0.551	mg/kg	4		20

INORGANICS & MISCELLANEOUS

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

SAMPLE RESULTS

Lab ID: L2102524-01
Client ID: BB 27
Sample Location: WEWEANTIC RIVER BRIDGE

Date Collected: 01/15/21 11:00
Date Received: 01/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.596		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Rep2)	0.563		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Average)	0.580		%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Grain Size Analysis - Mansfield Lab										
% Total Gravel	7.00		%	0.100	NA	1	-	02/04/21 07:17	12,D6913/D7928	RM
% Coarse Sand	3.20		%	0.100	NA	1	-	02/04/21 07:17	12,D6913/D7928	RM
% Medium Sand	4.40		%	0.100	NA	1	-	02/04/21 07:17	12,D6913/D7928	RM
% Fine Sand	20.5		%	0.100	NA	1	-	02/04/21 07:17	12,D6913/D7928	RM
% Total Fines	64.9		%	0.100	NA	1	-	02/04/21 07:17	12,D6913/D7928	RM
General Chemistry - Mansfield Lab										
Solids, Total	71.9		%	0.100	--	1	-	01/19/21 10:16	121,2540G	AL



Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01 Batch: WG1460879-1									
Total Organic Carbon (Rep1)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Rep2)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM
Total Organic Carbon (Average)	ND	%	0.010	--	1	-	01/27/21 12:06	1,9060A	SM

Lab Control Sample Analysis Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 Batch: WG1460879-2								
Total Organic Carbon (Rep1)	103		-		75-125	-		25
Total Organic Carbon (Rep2)	98		-		75-125	-		25
Total Organic Carbon (Average)	100		-		75-125	-		25



Matrix Spike Analysis
Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Lab Number: L2102524

Project Number: Not Specified

Report Date: 02/07/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460879-4 QC Sample: L2100959-20 Client ID: MS Sample												
Total Organic Carbon (Rep1)	1.18	0.687	1.80	90	-	-	-	-	75-125	-	-	25
Total Organic Carbon (Rep2)	1.12	0.754	1.94	109	-	-	-	-	75-125	-	-	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: WEWEANTIC RIVER BRIDGE

Project Number: Not Specified

Lab Number: L2102524

Report Date: 02/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1456372-1 QC Sample: L2102386-02 Client ID: DUP Sample						
Solids, Total	25.5	24.8	%	3		10
Total Organic Carbon - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1460879-3 QC Sample: L2100959-20 Client ID: DUP Sample						
Total Organic Carbon (Rep1)	1.18	1.14	%	3		25
Total Organic Carbon (Rep2)	1.12	1.11	%	1		25
Total Organic Carbon (Average)	1.15	1.13	%	2		25
Grain Size Analysis - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1461557-1 QC Sample: L2102524-01 Client ID: BB 27						
% Total Gravel	7.00	2.10	%	108	Q	20
% Coarse Sand	3.20	3.50	%	9		20
% Medium Sand	4.40	4.30	%	2		20
% Fine Sand	20.5	21.5	%	5		20
% Total Fines	64.9	68.6	%	6		20

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2102524-01A	Vial MeOH preserved	A	NA		5.6	Y	Absent		8260HLW(14),8260H(14)
L2102524-01B	Vial water preserved	A	NA		5.6	Y	Absent	15-JAN-21 18:47	8260HLW(14),8260H(14)
L2102524-01C	Vial water preserved	A	NA		5.6	Y	Absent	15-JAN-21 18:47	8260HLW(14),8260H(14)
L2102524-01D	Glass 250ml/8oz unpreserved	A	NA		5.6	Y	Absent		EPH-20(14)
L2102524-01E	Glass 250ml/8oz unpreserved	A	NA		5.6	Y	Absent		A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TS(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-PAH/PCBCONG(14)
L2102524-01F	Plastic 8oz unpreserved for Grain Size	A	NA		5.6	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND()

Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: WEWEANTIC RIVER BRIDGE
Project Number: Not Specified

Lab Number: L2102524
Report Date: 02/07/21

Data Qualifiers

the identification is based on a mass spectral library search.

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: WEWEANTIC RIVER BRIDGE**Lab Number:** L2102524**Project Number:** Not Specified**Report Date:** 02/07/21

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 135 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, December 2019, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, March 1, 2020.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:02072112:08

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.									
% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○ 0.0	0.0	7.0	3.2	4.4	20.5	64.9			
⊗ LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○		0.3775							

Material Description	USCS	AASHTO
○		

Project No.	Client:	Remarks:
Project:		
○ Source of Sample: BB 27	Sample Number: L2102524-01	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

2/5/2021

Location: BB 27

Sample Number: L2102524-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 117.51
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
117.51	0.00	3"	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		1/2"	3.55	0.00	97.0
		3/8"	4.20	0.00	93.4
		#4	0.49	0.00	93.0
		#10	3.77	0.00	89.8
		#20	2.77	0.00	87.4
		#40	2.43	0.00	85.4
		#60	2.87	0.00	82.9
		#140	14.30	0.00	70.7
		#200	6.87	0.00	64.9

Serial_No:02072112:08

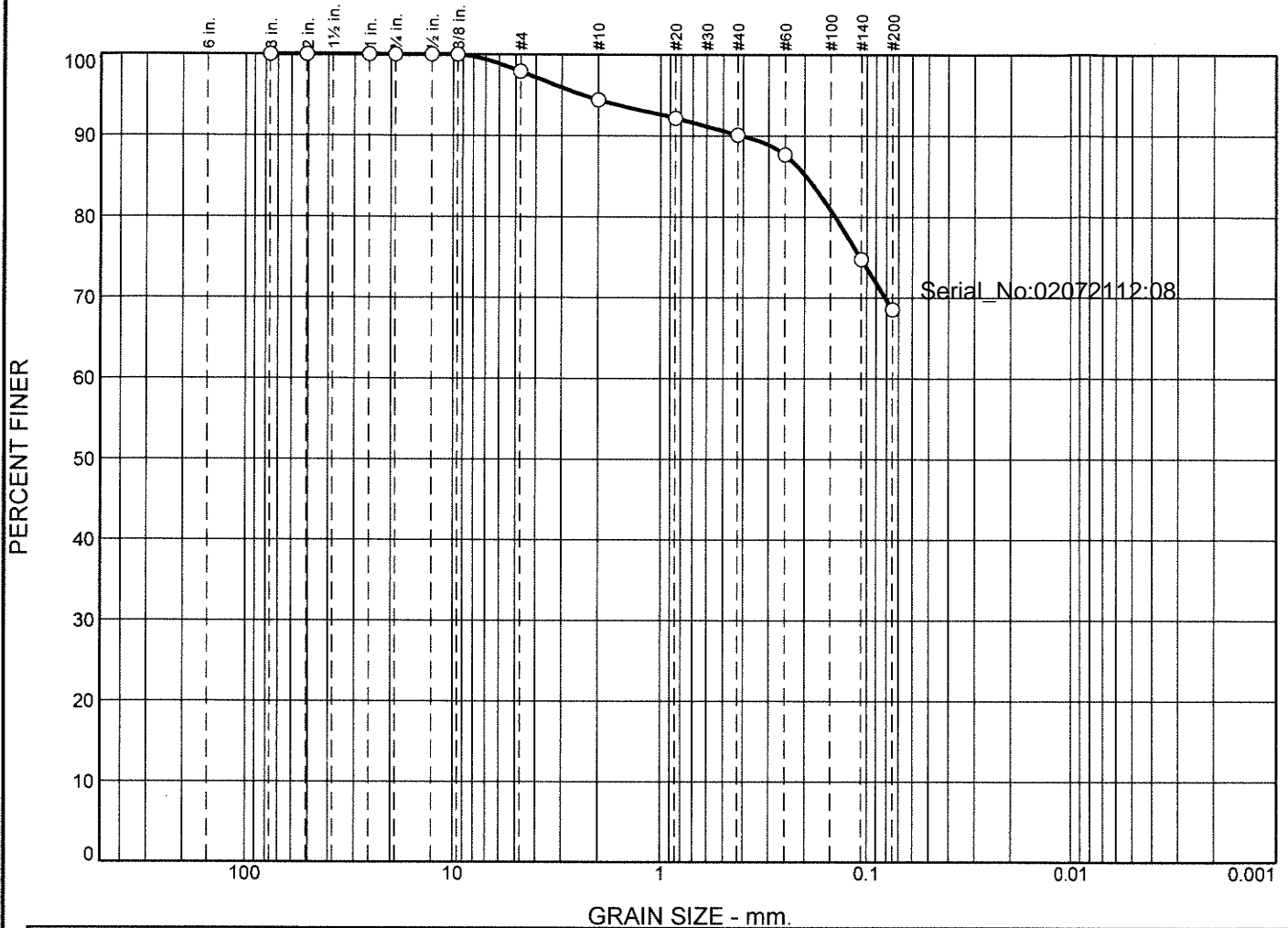
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.0	7.0	3.2	4.4	20.5	28.1			64.9

D ₅	D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₄₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
								0.1908	0.3775	2.1396	10.9361

Fineness Modulus
0.88

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
<input type="radio"/>	0.0	0.0	2.1	3.5	4.3	21.5	68.6			
<input checked="" type="checkbox"/>	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
<input type="radio"/>			0.1966							

Material Description	USCS	AASHTO
<input type="radio"/>		

Project No.	Client:	Remarks:
Project:		
<input type="radio"/> Source of Sample: BB 27	Sample Number: WG1461557-1	
Alpha Analytical		Figure
Mansfield, MA		

GRAIN SIZE DISTRIBUTION TEST DATA

2/5/2021

Location: BB 27

Sample Number: WG1461557-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 116.00
 Tare Wt. = 0.00
 Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
116.00	0.00	3"	0.00	0.00	100.0
		2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	0.00	0.00	100.0
		1/2"	0.00	0.00	100.0
		3/8"	0.00	0.00	100.0
		#4	2.41	0.00	97.9
		#10	4.06	0.00	94.4
		#20	2.60	0.00	92.2
		#40	2.40	0.00	90.1
		#60	2.85	0.00	87.7
		#140	14.94	0.00	74.8
		#200	7.20	0.00	68.6

Serial_No:02072112:08

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	3.5	4.3	21.5	29.3			68.6

D5	D10	D15	D20	D30	D40	D50	D60	D80	D85	D90	D95
								0.1422	0.1966	0.4086	2.3591

Fineness Modulus
0.53

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics

EPA 3C Fixed gases

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Date Rec'd in Lab: 1/15/21 ALPHA Job #: L2102524

Report Information - Data Deliverables

ADEx EMAIL Same as Client info PO #:

Client Information

Client: BSC Group Inc

Address: 349 Route 28 Unit D
West Yarmouth MA 02673

Phone: 508-778-8919

Email: PManucso@BSCGroup.com

Project Information

Project Name: Wewasitic River Bridge

Project Location:

Project #:

Project Manager:

ALPHA Quote #:

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods

Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)

Yes No GW1 Standards (Info Required for Metals & EPH with Targets)

Yes No NPDES RGP

Other State /Fed Program _____ Criteria _____

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

ANALYSIS

VOC: B260 B24 524.2

SVOC: ABN PAH

METALS: MCP 13 MCP 14 RCP 15

METALS: RCRA5 RCRA6 PP13

EPH: Ranges & Targets Ranges Only

VPH: Ranges & Targets Ranges Only

PCB PEST

TPH: Quant Only Fingerprint

401 WQC

SAMPLE INFO

Filtration

Field Lab to do

Preservation

Lab to do

Sample Comments

TOTAL # BOTTLES

Additional Project Information:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
<u>02524-01</u>	<u>BB 27</u>	<u>1/15/21</u>	<u>11.00</u>		<u>PM</u>

- Container Type**
- P= Plastic
 - A= Amber glass
 - V= Vial
 - G= Glass
 - B= Bacteria cup
 - C= Cube
 - O= Other
 - E= Encore
 - D= BOD Bottle
- Preservative**
- A= None
 - B= HCl
 - C= HNO₃
 - D= H₂SO₄
 - E= NaOH
 - F= MeOH
 - G= NaHSO₄
 - H= Na₂S₂O₃
 - I= Ascorbic Acid
 - J= NH₄Cl
 - K= Zn Acetate
 - O= Other

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
<u>Paul Moe</u> <u>APL</u>	<u>1/15/21 4:00</u> <u>1/15/21 17:45</u>	<u>[Signature]</u> <u>AR</u>	<u>1/15/21 16:00</u> <u>1/15/21 17:45</u>

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

Attachment I

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

PARCEL SUMMARY SHEET

**MARION-WAREHAM
WAREHAM STREET (US 6)
OVER WEWEANTIC RIVER**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	21
PROJECT FILE NO.		605311	

**PRELIMINARY RIGHT OF WAY
PARCEL SUMMARY SHEET
SHEET 1 OF 1**

PROJECT TOTALS			
AFFECTED PROPERTIES	FEE TAKINGS	PERMANENT EASEMENTS	TEMPORARY EASEMENTS
6	0	6	0

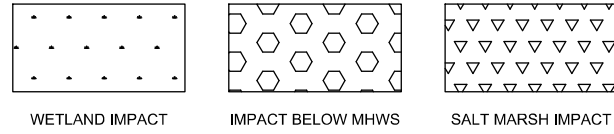
PARCEL NO.	PLAN SHEET NO.	TITLEHOLDER	TITLE REFERENCE				AREA (S.F. +/-)				TOTAL PROPERTY AREA (S.F.)	FRONTAGE ON ROW PLAN (FT.)	PROPERTY ADDRESS	REMARKS	LAND RESTRICTION FROM THE DEED		
			DEED BOOK	PAGE NO.	LCC NO.	CERT NO.	TAKEN		EASEMENT							TOTAL TAKEN	REMAINING
							CITY	STATE	TYPE	AREA							
X-S-1	16	RICHARD T. & LISA M. DIX	13378	19								525	9 RIVER ROAD	PROPOSED 1.5:1 SLOPE LIMITS			
X-S-W-1	17	JEFFREY KAHLER & LORI KAHLER	53285	74								852	WAREHAM ROAD	PROPOSED RETAINING WALL AND 1.5:1 SLOPE LIMITS			
X-S-W-2	17	OWNER UNKNOWN											WEWEANTIC RIVER	PROPOSED RETAINING WALL AND 1.5:1 SLOPE LIMITS			
X-S-W-3	17,18	OWNER UNKNOWN											WEWEANTIC RIVER	PROPOSED RETAINING WALL AND 1.5:1 SLOPE LIMITS			
X-S-W-4	19	BRIARWOOD BEACH LAND TRUST	16935	320								202	0 BRIARWOOD BEACH	PROPOSED RETAINING WALL AND 1.5:1 SLOPE LIMITS			
X-S-W-5	19	ANTONIO CERUNDOLO AND NILADE CERUNDOLO	3895	643								362	388 MARION ROAD	PROPOSED RETAINING WALL AND 1.5:1 SLOPE LIMITS			

Attachment J

Marion-Wareham Bridge Replacement M-05-001=W-06-013, W-06-016
Wareham Street (US-6) over Weweantic River
MassDOT Project No. 605311
Marion & Wareham, MA
25% Design Submission
Early Environmental Coordination

ENVIRONMENTAL PLANS

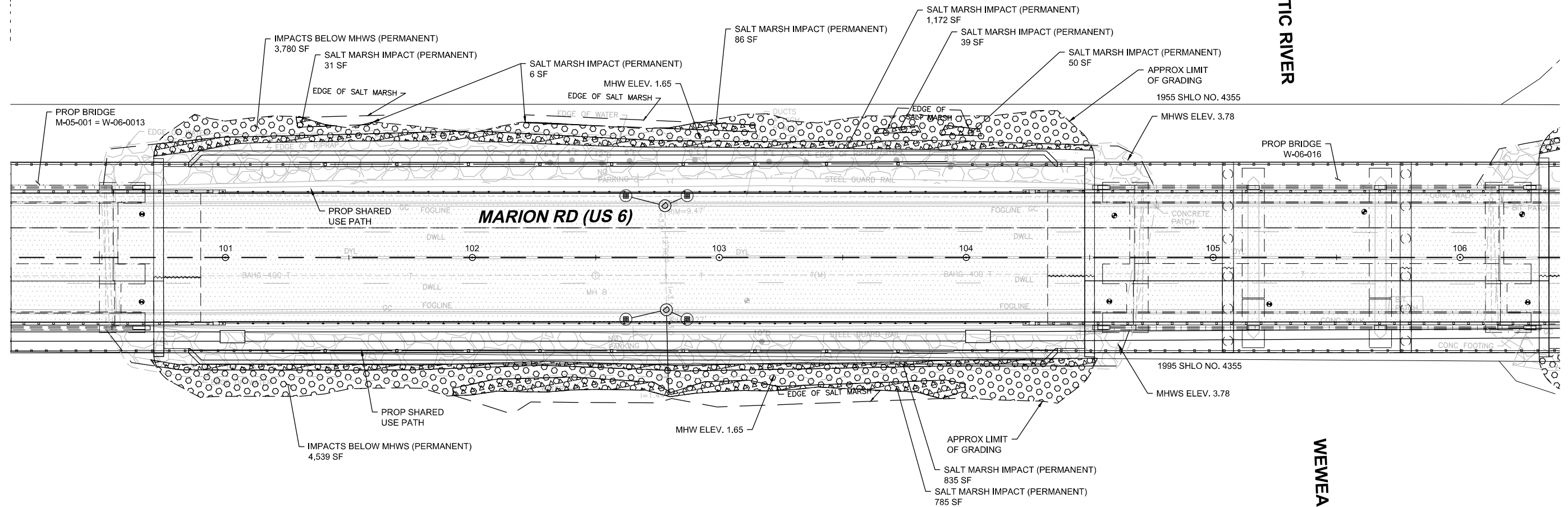
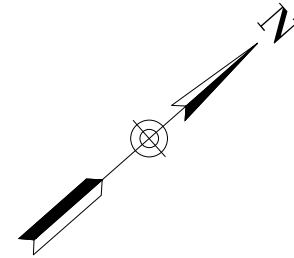
WETLAND IMPACT HATCH LEGEND



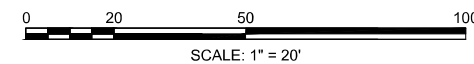
**MARION-WAREHAM
WAREHAM STREET (US 6)
OVER WEWEANTIC RIVER**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	111
PROJECT FILE NO.		605311	

**ENVIRONMENTAL IMPACT PLANS
SHEET 3 OF 6**



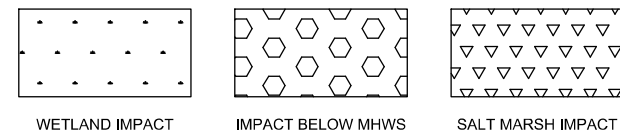
CONTINUED ON SHEET NO. 48



TOTAL PROJECT IMPACT CALCULATIONS

TOTAL VEGETATED WETLAND IMPACTS	1,192 SF
TOTAL IMPACTS ON LAND BELOW MHWS	14,524 SF
TOTAL SALT MARSH IMPACTS	6,069 SF

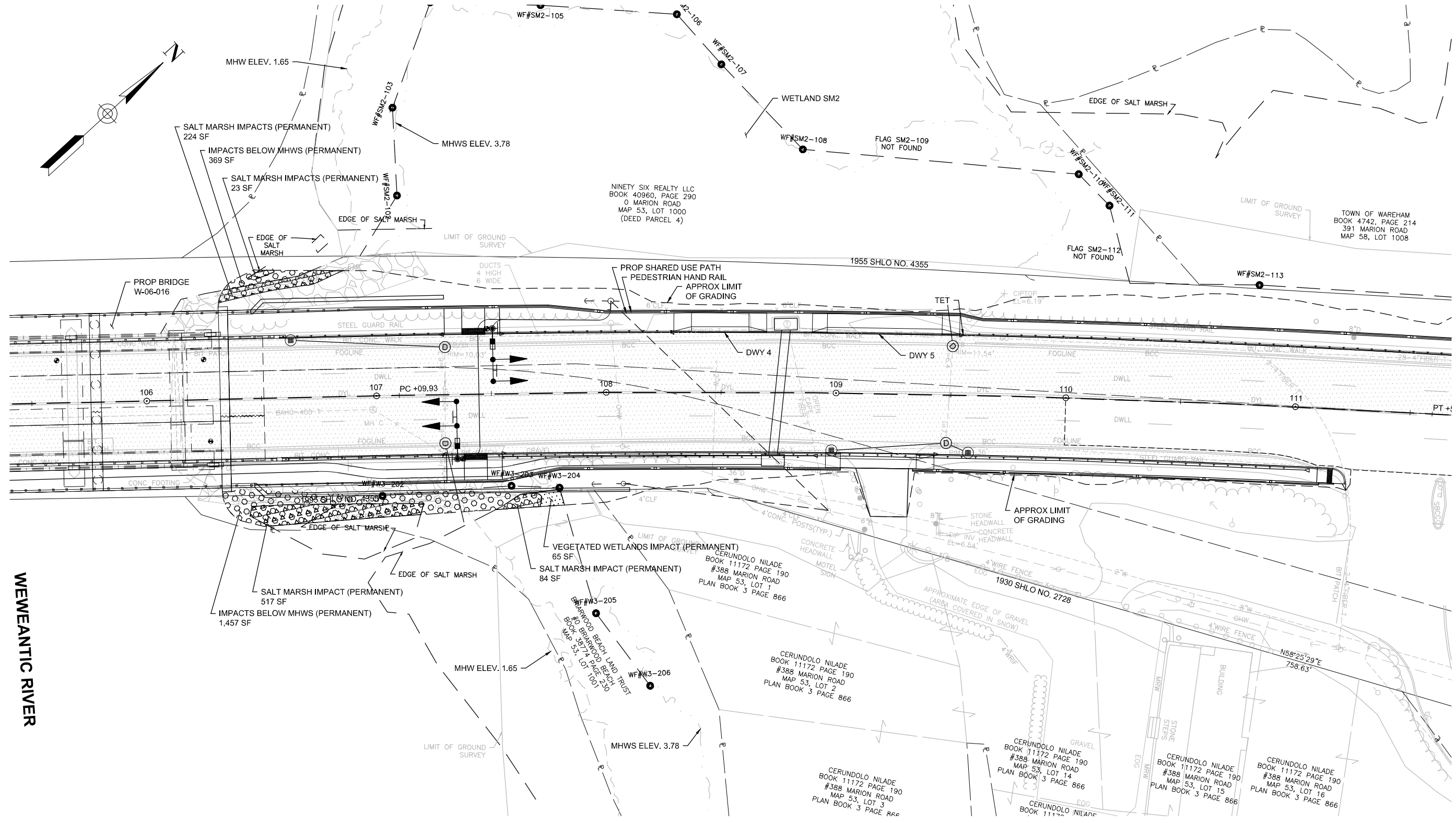
WETLAND IMPACT HATCH LEGEND



**MARION-WAREHAM
WAREHAM STREET (US 6)
OVER WEWEANTIC RIVER**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	111
PROJECT FILE NO. 605311			

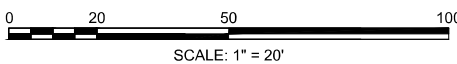
**ENVIRONMENTAL IMPACT PLANS
SHEET 4 OF 6**



CONTINUED ON SHEET NO. 47

CONTINUED ON SHEET NO. 49

WEWEANTIC RIVER

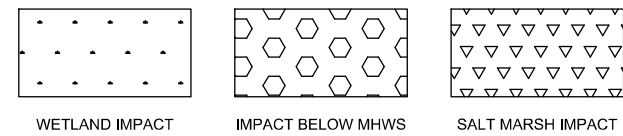


TOTAL PROJECT IMPACT CALCULATIONS

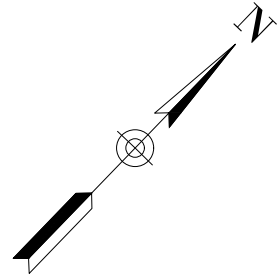
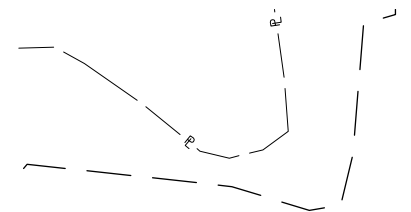
TOTAL VEGETATED WETLAND IMPACTS	1,192 SF
TOTAL IMPACTS ON LAND BELOW MHWS	14,524 SF
TOTAL SALT MARSH IMPACTS	6,069 SF

605311_LEV\PLANS_IMPACT_AREAS.DWG

WETLAND IMPACT HATCH LEGEND



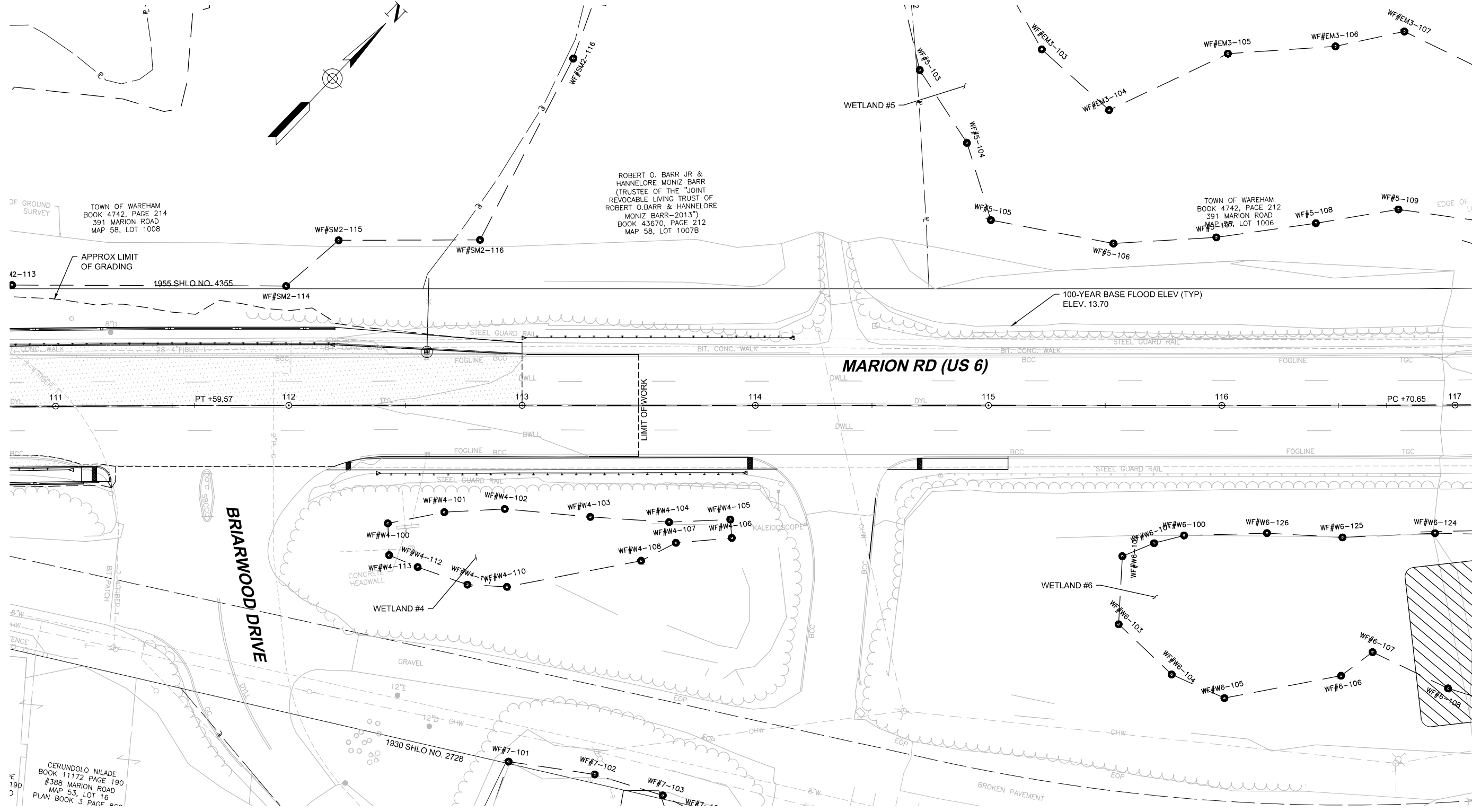
WETLAND IMPACT IMPACT BELOW MHWS SALT MARSH IMPACT



**MARION-WAREHAM
WAREHAM STREET (US 6)
OVER WEWEANTIC RIVER**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	111
PROJECT FILE NO. 605311			

**ENVIRONMENTAL IMPACT PLANS
SHEET 5 OF 6**



CONTINUED ON SHEET NO. 48

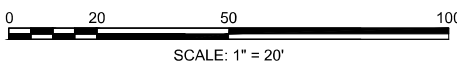
CONTINUED ON SHEET NO. 50

CERUNDOLO NILADE
BOOK 11172 PAGE 190
#388 MARION ROAD
MAP 53, LOT 16
PLAN BOOK 3 PAGE 100

ROBERT O. BARR JR &
HANNELORE MONIZ BARR
(TRUSTEE OF THE "JOINT
REVOCABLE LIVING TRUST OF
ROBERT O. BARR & HANNELORE
MONIZ BARR-2013")
BOOK 43670, PAGE 212
MAP 58, LOT 1007B

TOWN OF WAREHAM
BOOK 4742, PAGE 214
391 MARION ROAD
MAP 58, LOT 1008

TOWN OF WAREHAM
BOOK 4742, PAGE 212
391 MARION ROAD
MAP 58, LOT 1006

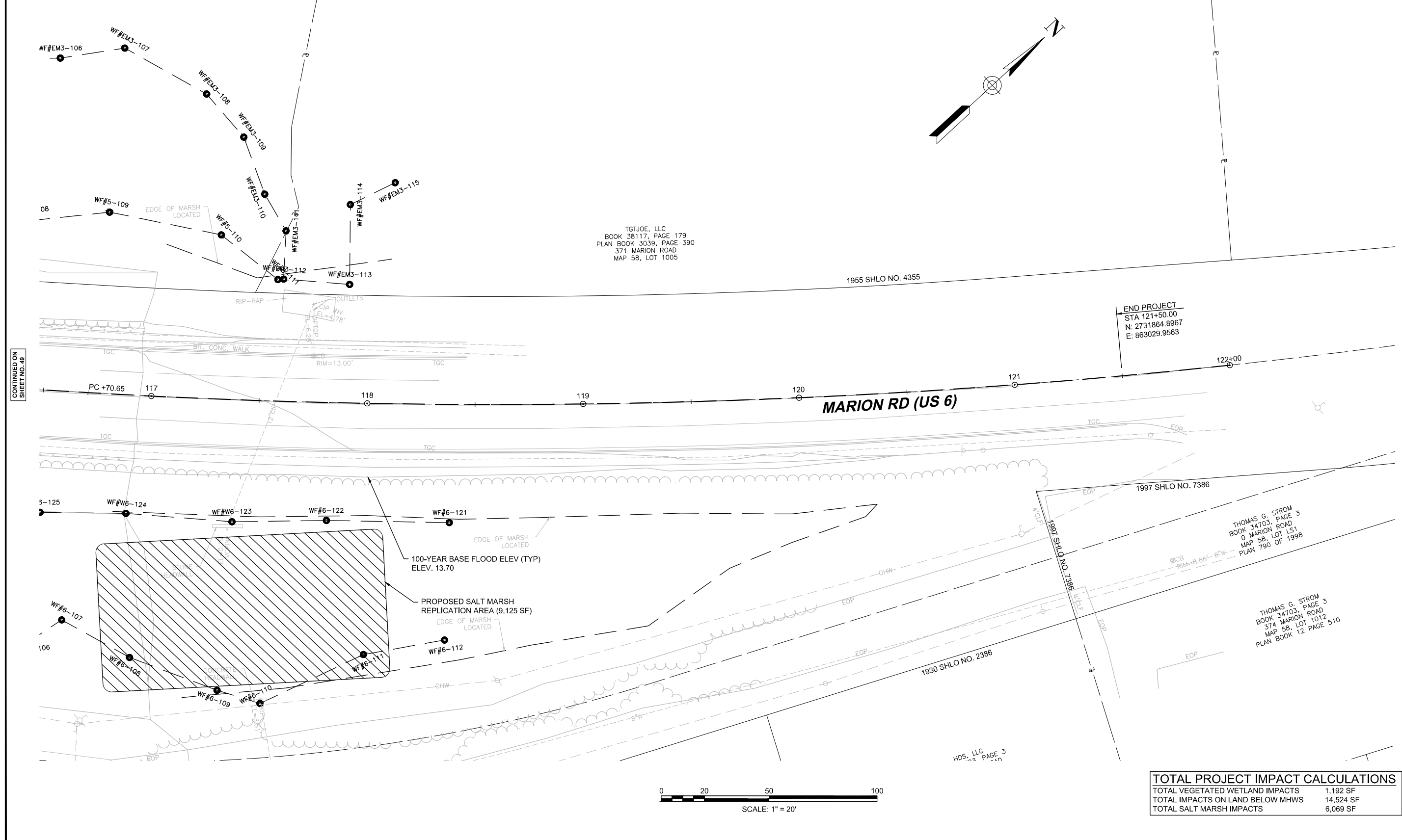
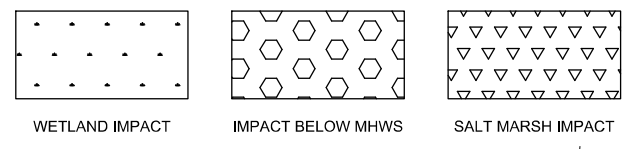


SCALE: 1" = 20'

TOTAL PROJECT IMPACT CALCULATIONS

TOTAL VEGETATED WETLAND IMPACTS	1,192 SF
TOTAL IMPACTS ON LAND BELOW MHWS	14,524 SF
TOTAL SALT MARSH IMPACTS	6,069 SF

WETLAND IMPACT HATCH LEGEND



CONTINUED ON
SHEET NO. 49

TOTAL PROJECT IMPACT CALCULATIONS

TOTAL VEGETATED WETLAND IMPACTS	1,192 SF
TOTAL IMPACTS ON LAND BELOW MHWS	14,524 SF
TOTAL SALT MARSH IMPACTS	6,069 SF