



ANALYTICAL REPORT

Lab Number:	L2037324
Client:	Bayside Engineering, Inc. 600 Unicorn Park Drive Woburn, MA 01801
ATTN:	Bree Sullivan
Phone:	(781) 932-3201
Project Name:	BOXFORD OUTFALLS
Project Number:	2192645
Report Date:	09/15/20

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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: BOXFORD OUTFALLS
Project Number: 2192645

Lab Number: L2037324
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Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2037324-01	OUT-1467-BORON	WATER	BOXFORD, MA	09/09/20 13:05	09/09/20
L2037324-02	OUT-109-MACDONALD	WATER	BOXFORD, MA	09/09/20 12:40	09/09/20
L2037324-03	OUT-1621-TRASK	WATER	BOXFORD, MA	09/09/20 12:25	09/09/20

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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.

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Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

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: *Tiffani Morrissey* - Tiffani Morrissey

Title: Technical Director/Representative

Date: 09/15/20

INORGANICS & MISCELLANEOUS

Project Name: BOXFORD OUTFALLS**Project Number:** 2192645**Lab Number:** L2037324**Report Date:** 09/15/20**SAMPLE RESULTS****Lab ID:** L2037324-01**Client ID:** OUT-1467-BORON**Sample Location:** BOXFORD, MA**Date Collected:** 09/09/20 13:05**Date Received:** 09/09/20**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										
E. Coli (MF)	10		col/100ml	2.0	NA	2	-	09/09/20 19:51	121,9213D	CM
ENTEROCOCCUS	38		col/100ml	2.0	2.0	2	-	09/09/20 18:20	23,1600	CM



Project Name: BOXFORD OUTFALLS
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SAMPLE RESULTS

Lab ID: L2037324-02
Client ID: OUT-109-MACDONALD
Sample Location: BOXFORD, MA

Date Collected: 09/09/20 12:40
Date Received: 09/09/20
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										
E. Coli (MF)	23		col/100ml	2.0	NA	2	-	09/09/20 19:51	121,9213D	CM
ENTEROCOCCUS	94		col/100ml	2.0	2.0	2	-	09/09/20 18:20	23,1600	CM



Project Name: BOXFORD OUTFALLS
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SAMPLE RESULTS

Lab ID: L2037324-03
Client ID: OUT-1621-TRASK
Sample Location: BOXFORD, MA

Date Collected: 09/09/20 12:25
Date Received: 09/09/20
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										
E. Coli (MF)	72		col/100ml	2.0	NA	2	-	09/09/20 19:51	121,9213D	CM
ENTEROCOCCUS	1800		col/100ml	10	10.	10	-	09/09/20 18:20	23,1600	CM



Project Name: BOXFORD OUTFALLS

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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): 01-03 Batch: WG1408061-1										
ENTEROCOCCUS	ND		col/100ml	1.0	1.0	1	-	09/09/20 18:20	23,1600	CM
Microbiological Analysis - Westborough Lab for sample(s): 01-03 Batch: WG1408074-1										
E. Coli (MF)	ND		col/100ml	1.0	NA	1	-	09/09/20 19:51	121,9213D	CM

Project Name: BOXFORD OUTFALLS**Lab Number:** L2037324**Project Number:** 2192645**Report Date:** 09/15/20**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(*)
L2037324-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-01B	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-01C	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)
L2037324-01D	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)
L2037324-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-02B	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-02C	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)
L2037324-02D	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)
L2037324-03A	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-03B	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		E-COLI-MF(.33)
L2037324-03C	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)
L2037324-03D	Bacteria Cup Na2S2O3 preserved	A	NA		2.7	Y	Absent		ENTRO-MF(.33)

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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.
LCS D	- 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.
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.

Footnotes

Report Format: DU Report with 'J' Qualifiers



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- 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, Dibenzo(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. 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. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. 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 method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- 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.

Report Format: DU Report with 'J' Qualifiers



Project Name: BOXFORD OUTFALLS**Lab Number:** L2037324**Project Number:** 2192645**Report Date:** 09/15/20**Data Qualifiers**

- 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.

Report Format: DU Report with 'J' Qualifiers

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REFERENCES

- 23 Method 1600: Membrane Filter Test Method for Enterococci in Water, EPA-821-R-97-004a, May 1997.
- 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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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Published Date: 4/28/2020 9:42:21 AM

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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

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Date Rec'd in Lab:

ALPHA Job #: L237324

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

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

Client Information

Client: Bayside Engineering

Address: 600 Unicorn Park
Woburn, MA 01801

Phone: 781-932-3201

Email: bree.sullivan @

Additional Project Information:

Project Information

Project Name: BeaFord O.Hills

Project Location: Box Ford, NA

Project #: 2192645

Project Manager: Bree Sullivan

ALPHA Quote #: 11721

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 _____

ANALYSIS		SAMPLE INFO	
VOC: ☐ 8260 ☐ 624 ☐ 524.2		Filtration	
SVOC: ☐ ABN ☐ PAH		☐ Field	
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15		☐ Lab to do	
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13		Preservation	
EPH: ☐ Ranges & Targets ☐ Ranges Only		☐ Lab to do	
VPH: ☐ Ranges & Targets ☐ Ranges Only			
☐ PCB ☐ PEST			
TPH: ☐ Quant Only ☐ Fingerprint			
SH 921.3D E.Coli EPA 160 ENR20		Sample Comments	

TOTAL

BOTTLES[illegible]**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

Received By:

Date/Time

Relinquished By:

BAYSIDE ENG
Don Flegg

Date/Time
9/9/20

Das Fluss

P	P
H	H

9/9/20 1:50
9/9/20 16:00

All samples submitted are subject to Alpha's Terms and Conditions.
See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

Outfall ID: 1467 Town: _____
 Inspector: _____ Date: _____
 Street Name: BOREN LN
 Last rainfall event: _____

BAYSIDE
ENGINEERING
 600 Unicorn Park Drive
 Woburn, MA 01801
 781-932-3201



DRY WEATHER OUTFALL INSPECTION SURVEY

Type of Outfall (check one):		Pipe Outfall ☒		Open Swale Outfall ☐	
Outfall Label:		Stencil ☐	Ground Inset ☐	Sign ☐	None ☐ Other _____
Pipe Material:	Concrete	☐	Pipe Condition:	Good	☐ Poor ☐
	Corrugated metal	☒		Fair	☐ Crumbling ☐
	Clay Tile	☐			
	Plastic	☐			
	Other: _____	☐			
Swale Material:	Paved (asphalt)	☐	Swale Condition:	Good	☐ Poor ☐
	Concrete	☐		Fair	☐ Crumbling ☐
	Earthen	☐			
	Stone	☐			
	Other: _____	☐			
Shape of Pipe/Swale (check one)					
☒		☐		☐	
Rounded Pipe/Swale		Rectangular Pipe/Swale		Triangular Swale	
Pipe Measurements:		Swale Measurements:		Is there a headwall?	
Inner Dia. (in): d= <u>18 3/4</u>		Swale Width (in): T= _____		Yes ☐ No ☒	
Outer Dia. (in): D= _____		Flow Width (in): t= _____		Condition:	
Pipe Width (in): T= _____		Swale Height (in): H= _____		Good ☐ Poor ☐	
Pipe Height (in): H= _____		Flow Height (in): h= _____*		Fair ☐ Crumbling ☐	
Flow Width (in): h= _____*		Bottom Width (in): b= _____			
Description of Flow: Heavy ☐ Moderate ☐ Trickling ☒ Dry ☐					
If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in):				Circle All Materials Present:	
Odor:		Yes ☐ No ☒		Rip rap	
Optical enhancers suspected?		Yes ☐ No ☐		Excessive sediment	
Has channelization occurred?		Yes ☒ No ☐		Foam	
Has scouring occurred below the outlet?		Yes ☒ No ☐		Sanitary Waste	
Required Maintenance:		Tree Work		Orange Staining	
Ditch Work		Remove Trash/Debris		Excessive Vegetation	
Structural Corrosion		Blocked Pipe			
N/A		Erosion at Structure			
Comments:		Other			

WATER QUALITY SCREENING FORM

Outfall I.D.	1467		
Outfall Location	Boren LN		
Inspector's Name	BREE SULLIVAN		
Date of Inspection	8/1/20	Date of Last Inspection	N/A
Start Time	10:30 am	End Time	10:54 am
Type of Inspection:	Regular ☒	Pre-Storm Event ☐	During Storm Event ☐ Post-Storm Event ☐
Most Recent Storm Event	> 48 hours		

FIELD WATER QUALITY SCREENING RESULTS

Sample Parameter	Field Test Kit or Portable Instrument Meter	Benchmark	Field Screening Result	Full Analytical Required?
Ammonia ¹	HATCH STRIPS	> 50.0 mg/L	0	☐ Yes ☒ No
Chloride ²	—	230 mg/L	—	☐ Yes ☐ No
Color ¹	—	> 500 units	—	☐ Yes ☐ No
Specific Conductance ¹	YSI 650	> 2,000 µS/cm	0.265 S/cm	☐ Yes ☒ No
Detergents & Surfactants ³	CHEMETS K-9000	> 0.25 mg/L	< 0.25 mg/L	☐ Yes ☒ No
pH ¹	YSI 650	< 5	7.8	☐ Yes ☒ No
Turbidity ¹	YSI 650	> 1,000 NTU	< 10 NTU	☐ Yes ☒ No
Temperature	YSI 650		13.7°C	
Optical Enhancers	—		—	
Chlorine	HATCH D2900		0	

¹ – Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

² – Env-Ws 1703.21 Water Quality Criteria for Toxic Substances, State of New Hampshire Department Surface Water Quality Regulations.

³ – Appendix I – Field Measurements, Benchmarks and Instrumentation, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

Outfall ID: 109 Town: _____
 Inspector: _____ Date: _____
 Street Name: MacDonnell
 Last rainfall event: _____

BAYSIDE
ENGINEERING
 600 Unicorn Park Drive
 Woburn, MA 01801
 781-932-3201



DRY WEATHER OUTFALL INSPECTION SURVEY

Type of Outfall (check one):		Pipe Outfall ☐	Open Swale Outfall ☐
Outfall Label:	Stencil ☐	Ground Inset ☐	Sign ☐ None ☐ Other _____
Pipe Material:	Concrete ☐ Corrugated metal ☐ Clay Tile ☐ Plastic ☐ Other: <u>AC Pipe</u> ☒	Pipe Condition:	Good ☒ Fair ☐ Poor ☐ Crumbling ☐
Swale Material:	Paved (asphalt) ☐ Concrete ☐ Earthen ☐ Stone ☐ Other: _____ ☐	Swale Condition:	Good ☐ Fair ☐ Poor ☐ Crumbling ☐

Shape of Pipe/Swale (check one)

 ☒	 ☐	 ☐	 ☐
Rounded Pipe/Swale	Rectangular Pipe/Swale	Triangular Swale	Trapezoidal Swale

Pipe Measurements: Inner Dia. (in): d= <u>18</u> Outer Dia. (in): D= <u>18</u> Pipe Width (in): T= _____ Pipe Height (in): H= <u>18</u> Flow Width (in): h= _____*	Swale Measurements: Swale Width (in): T= <u>25</u> Flow Width (in): t= <u>20</u> Swale Height (in): H= _____ Flow Height (in): h= _____* Bottom Width (in): b= _____	Is there a headwall? Yes ☒ No ☐ Condition: Good ☒ Poor ☐ Fair ☐ Crumbling ☐	Location Sketch <u>6" water</u>
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Description of Flow: Heavy ☐ Moderate ☐ Trickling ☒ Dry ☐

If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in):

Odor: Yes ☐ No ☒ Optical enhancers suspected? Yes ☒ No ☐ Has channelization occurred? Yes ☒ No ☐ Has scouring occurred below the outlet? Yes ☐ No ☒	<u>Abductor</u> <u>Bbsenet</u>
Required Maintenance: Tree Work _____ Ditch Work _____ Structural Corrosion _____ N/A _____	Remove Trash/Debris _____ Blocked Pipe _____ Erosion at Structure _____ Other _____

Comments:

Circle All Materials Present:

Rip rap	Sheen: Bacterial
Excessive sediment	Sheen: Petroleum
Foam	Floatables
Sanitary Waste	Algae
Orange Staining	Excessive Vegetation

WATER QUALITY SCREENING FORM

Outfall I.D.	109		
Outfall Location	MacDonald Dr		
Inspector's Name	BREE SULLIVAN		
Date of Inspection	8/1/2020	Date of Last Inspection	—
Start Time	12:38	End Time	12:56
Type of Inspection:	Regular ☒	Pre-Storm Event ☐	During Storm Event ☐ Post-Storm Event ☐
Most Recent Storm Event	> 24 Hours		

FIELD WATER QUALITY SCREENING RESULTS

Sample Parameter	Field Test Kit or Portable Instrument Meter	Benchmark	Field Screening Result	Full Analytical Required?
Ammonia ¹	HATCH STRIP	> 50.0 mg/L	0	☐ Yes ☒ No
Chloride ²	—	230 mg/L	—	☐ Yes ☐ No
Color ¹	—	> 500 units	—	☐ Yes ☐ No
Specific Conductance ¹	YSI 650 meter	> 2,000 µS/cm	0.245 S/cm	☐ Yes ☒ No
Detergents & Surfactants ³	CHEMets K-9400	> 0.25 mg/L	< 0.25 mg/L	☐ Yes ☒ No
pH ¹	YSI 650 meter	< 5	7.4	☐ Yes ☒ No
Turbidity ¹	YSI 650 meter	> 1,000 NTU	10.1 NTU	☐ Yes ☒ No
Temperature	YSI 650 meter		21.7°C	
Optical Enhancers				
Chlorine	Hatch DR900		0	

¹ — *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

² — *Env-Ws 1703.21 Water Quality Criteria for Toxic Substances*, State of New Hampshire Department Surface Water Quality Regulations.

³ — *Appendix I – Field Measurements, Benchmarks and Instrumentation*, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.

Outfall ID: 1621 Town: _____
 Inspector: _____ Date: _____
 Street Name: Trook RD
 Last rainfall event: _____



600 Unicorn Park Drive
 Woburn, MA 01801
 781-932-3201



DRY WEATHER OUTFALL INSPECTION SURVEY

Type of Outfall (check one):		Pipe Outfall ☐	Open Swale Outfall ☐
Outfall Label:	Stencil ☐	Ground Inset ☐	Sign ☐ None ☐ Other _____
Pipe Material: <u>HDPE</u>	Concrete ☐ Corrugated metal ☐ Clay Tile ☐ Plastic ☒ Other: _____	Pipe Condition:	Good ☒ Poor ☐ Fair ☐ Crumbling ☐
Swale Material:	Paved (asphalt) ☐ Concrete ☐ Earthen ☒ Stone ☐ Other: _____	Swale Condition:	Good ☐ Poor ☐ Fair ☒ Crumbling ☐
Shape of Pipe/Swale (check one)			
☒		☐	
Rounded Pipe/Swale		Rectangular Pipe/Swale	Triangular Swale
Pipe Measurements: Inner Dia. (in): d= <u>15</u> Outer Dia. (in): D= _____ Pipe Width (in): T= _____ Pipe Height (in): H= _____ Flow Width (in): h= _____*		Swale Measurements: Swale Width (in): T= _____ Flow Width (in): t= _____ Swale Height (in): H= _____ Flow Height (in): h= _____* Bottom Width (in): b= _____	
Description of Flow: Heavy ☐ Moderate ☐ <u>Trickling</u> ☒ Dry ☐		Is there a headwall? Yes ☐ No ☐ Condition: Good ☐ Poor ☐ Fair ☐ Crumbling ☐	
If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in): _____		Circle All Materials Present:	
Odor: Yes ☐ No ☒ Optical enhancers suspected? Yes ☐ No ☒ Has channelization occurred? Yes ☒ No ☐ Has scouring occurred below the outlet? Yes ☒ No ☐		Rip rap Excessive sediment Foam Sanitary Waste Orange Staining	
Required Maintenance: Tree Work Ditch Work Structural Corrosion N/A		Sheen: Bacterial Sheen: Petroleum Floatables Algae Excessive Vegetation	
Comments: _____			

WATER QUALITY SCREENING FORM

Outfall I.D.	1621		
Outfall Location	TRASK LN		
Inspector's Name	BREE SULLIVAN		
Date of Inspection	8/1/2020	Date of Last Inspection	N/A
Start Time	11:17	End Time	11:35
Type of Inspection:	Regular ☒	Pre-Storm Event ☐	During Storm Event ☐ Post-Storm Event ☐
Most Recent Storm Event	> 24 hours		

FIELD WATER QUALITY SCREENING RESULTS

Sample Parameter	Field Test Kit or Portable Instrument Meter	Benchmark	Field Screening Result	Full Analytical Required?
Ammonia ¹	HATCH STRIPS	> 50.0 mg/L	0	☐ Yes ☒ No
Chloride ²	—	230 mg/L	—	☐ Yes ☐ No
Color ¹	—	> 500 units	—	☐ Yes ☐ No
Specific Conductance ¹	YSI 650 meter	> 2,000 μ S/cm	0.602 $\frac{S}{cm}$	☐ Yes ☒ No
Detergents & Surfactants ³	CHEMets K-9400	> 0.25 mg/L	< 0.25 $\frac{mg}{L}$	☐ Yes ☒ No
pH ¹	YSI 650 meter	< 5	7.2	☐ Yes ☒ No
Turbidity ¹	YSI 650 meter	> 1,000 NTU	< 10 NTU	☐ Yes ☒ No
Temperature	YSI 65 meter		19.1 °C	
Optical Enhancers				
Chlorine	HATCH DR900		0	

¹ – Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45.

² – Env-Ws 1703.21 Water Quality Criteria for Toxic Substances, State of New Hampshire Department Surface Water Quality Regulations.

³ – Appendix I – Field Measurements, Benchmarks and Instrumentation, Draft Massachusetts North Coastal Small MS4 General Permit, 2009.