



TOWN OF ALLENSTOWN OUTFALL SUMMARY REPORT

ALLENSTOWN MS4 AREA Allenstown, New Hampshire

August 22, 2023 File No. 09.0026194.00 REV1



PREPARED FOR:

Gale Associates, Inc. 6 Bedford Farms Drive, Suite 101 Bedford, NH 03110

GZA GeoEnvironmental, Inc.

707 Sable Oaks Drive, Suite 150 | South Portland, Maine, 04106

Offices Nationwide www.gza.com

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Known for excellence Built on trust.

GEOTECHNICAL

ENVIRONMENTAL

ECOLOGICAL

WATER

CONSTRUCTION MANAGEMENT

707 Sable Oaks Drive
Suite 150
South Portland, ME 04106
T: 207.879.9190
F: 207.536.1173

VIA EMAIL

August 22, 2023 File No. 09.0026194.00 REV1

Scott M. Bourcier, PE Gale Associates, Inc. 6 Bedford Farms Drive, Suite 101 Bedford, NH 03110

Re: Outfall Summary Report Allenstown MS4 Area Allenstown, New Hampshire 03275

Dear Mr. Bourcier,

GZA GeoEnvironmental, Inc. (GZA) is pleased to submit the attached Town of Allenstown Outfall Summary Report for the MS4 area located in the Town of Allenstown, New Hampshire. This revised report corrects the outfall identification numbers and summarizes the results of the field work completed in June 2023 to identify and inspect MS4 outfalls, sample outfalls observed to be flowing during dry weather conditions, and provide recommendations based on our findings for compliance with the NH MS4 permit requirements.

Should you have any questions, please feel free to contact Aimee Mountain at 207-344-9704.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Aimee Mountain, GISP, CPMSM

Senior Project Manager

Kenneth D. Boivin, CHMM

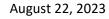
Principal

Tracy Tarr, CWS, CWB, CESSWI Consultant/Reviewer

ADM/KDB/TLT

 $p:\ 09\ jobs\ 0026100s\ 09.0026194.00\ -\ gale\ -\ allenstown\ 2023\ ms4\ length\ outfall\ summary\ report\ rev1.docx$

Attachments: Town of Allenstown – Outfall Summary Report





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1.0 BACKGROUND

The 2017 New Hampshire (NH) Municipal Separate Storm Sewer Systems (MS4) permit, administered by the United States Environmental Protection Agency's (EPA), establishes the specific requirements that must be met by regulated municipalities to obtain and maintain authorization to discharge under the National Pollutant Discharge Elimination System (NPDES). The 2017 NH MS4 permit became effective on July 1, 2018, and permit modifications became effective on January 6, 2021.

2.0 PURPOSE

This report summarizes the outfall inspection and sampling services performed by GZA GeoEnvironmental, Inc. (GZA) under the NH MS4 permit for Gale Associates, Inc. (Gale) and on behalf of the Town of Allenstown, New Hampshire (Town). This report addresses inspections and sampling completed by GZA and the Town in June 2023.

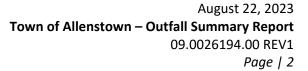
The goals of this work were: (1) to identify and inspect MS4 outfalls (point sources) in the Town that convey stormwater, (2) to sample each of the identified outfalls that were observed to be flowing during dry weather (considered no more than 0.1 inches of rainfall in the previous 24-hour period and no significant snow melt), and (3) provide recommendations based on our findings for compliance with the NH MS4 permit requirements. This report is subject to the limitations provided as **Appendix A**.

3.0 PROCEDURE

Pipe diameter measurements were either provided by the Town or estimated by GZA during the outfall inspections. Outfall sampling was conducted and water quality field measurements were taken by GZA pursuant to the sampling procedures in the 2012 draft Environmental Protection Agency (EPA) New England Bacteria Source Tracking Protocol. Field measurements for temperature, conductivity, salinity, ammonia, and free chlorine were performed at each flowing outfall. Bacteria (E. Coli), surfactants, and ammonia samples (if ammonia test strip result was greater than or equal to 0.5 milligrams/liter [mg/L]) obtained from flowing outfalls were brought to Eastern Analytical, Inc. in Concord, New Hampshire for analysis.

4.0 FINDINGS

In June 2023, GZA and the Town inspected 28 outfalls in Allenstown (see **Figure 1**). Two (2) outfalls (OF-5 and OF-6) were found to be obsolete as the connecting catch basins were removed and the pipes were abandoned in place. OF-23 appears to consist entirely of private drainage infrastructure and likely is not covered under the Town of Allenstown's MS4 permit. Additionally, five (5) outfalls (OF 24-28) are not included in the current NH MS4 permit but were inspected and sampled (if active flow was observed) as they will be included in the next NH MS4 permit. **Table** 1 provides an outfall condition summary. Outfall conditions were categorized as good (minor defects without





deterioration), fair (moderate defects that will continue to deteriorate), or poor (severe defects that require attention).

Of the inspected outfalls, six (6) were observed to be flowing at the time of inspection and were sampled. Field measurements were completed at each sampled outfall. Observed temperatures ranged from 14.3 to 16.6 degrees Celsius, conductivity ranged from 100.4 to 776 microsiemens per centimeter (μS/cm), free chlorine ranged from less than 0.01 mg/L to 0.02 mg/L, and ammonia was not detected except at OF-19 where 0.5 mg/L was detected via ammonia test strip, triggering confirmatory laboratory testing. A duplicate sample was collected at OF-19 and ammonia laboratory results ranged from 0.53 mg/L to 0.92 mg/L, which exceed the 2021 Town of Allenstown, New Hampshire Illicit Discharge Detection and Elimination (IDDE) Plan "Threshold Water Quality Criteria (Fresh Water)" level of ≥ 0.5 mg/L. Surfactants (Methylene Blue Active Substance [MBAS]) were not detected in laboratory analysis. Escherichia coli (E. coli) results ranged from 1.0 to 1046.2 cfu/100mL, one of which (OF-19) exceeded the 2021 Town of Allenstown, New Hampshire Illicit Discharge Detection and Elimination (IDDE) Plan "Threshold Water Quality Criteria (Fresh Water)" level of 235 cfu/100mL. A summary of sample results is outlined in **Table 2** and the complete laboratory analytical results from Eastern Analytical, Inc. are included in **Appendix B**.

5.0 RECOMMENDATIONS

Photographs of each outfall locations with specific maintenance notes can be found in **Appendix C**. Maintenance is recommended at eleven (11) outfalls: OF-2 (fully submerged), OF-8 (broken pipe), OF-10 (partially submerged), OF-11 (partially filled with leaves), OF-13 (broken pipe), OF-15 (partially submerged), OF-16 (covered with rip rap), OF-17 (partially submerged), OF-20 (partially filled with soil/sediment), OF-21 (partially filled with leaves), and OF-27 (broken head wall).

GZA recommends the Town update the priority ranking of outfalls and interconnections in its Illicit Discharge Detection and Elimination (IDDE) plan along with updating its GIS mapping to reflect the findings outlined in this report. GZA recommends source tracing and investigation for OF-19, which should be categorized as a problem outfall pending investigation.



Tables

	Table 1 - Outfall Condition Summary												
Outfall	Date	Time	Pipe	Pipe	EL.	0.1.	El I. lal	144	C				
(OF) ID	Inspected	Inspected	Diameter	Condition	Flow	Odor	Floatables	Weather	Comments				
OF-1	6/8/2023	8:24 AM	30	Good	Yes	No	No	Mist, 50s	Sample Collected.				
05.3	c /o /2022	0.51 444				Datualassa	NI-	D.::I- FO-	Outfall pipe completely submerged. Sample collected from flowing upstream drain manhole.				
OF-2	6/8/2023	8:51 AM	_	_	-	Petroleum	No	Drizzle, 50s	Petroleum odor observed in upstream drain manhole.				
OF-3	6/8/2023	8:57 AM	12	Good	No	No	No	Drizzle, 50s					
OF-4	6/8/2023	8:58 AM	6	Good	No	No	No	Drizzle, 50s					
OF-5	6/8/2023	11:13 AM	_	-	-	ı	П	Cloudy, 50s	No pipe outlet located. Catch basin removed. No longer an outfall.				
OF-6	6/8/2023	11:04 AM	-	-	ı	1	-	Cloudy, 50s	Catch basin removed, pipe abandoned in place. No longer an outfall. Abandoned pipe outlet located.				
OF-7	6/8/2023	8:43 AM	8	Good	No	No	No	Drizzle, 50s					
OF-8	6/8/2023	9:13 AM	12	Poor	Yes	No	No	Mist, 50s	Pipe is broken - see photo log. Sample collected.				
OF-9	6/8/2023	10:08 AM	14	Good	No	No	No	Mist, 50s					
OF-10	6/8/2023	10:12 AM	30	Fair	Yes	No	No	Cloudy, 50s	Outfall partially submerged. Sample taken from flowing upstream catch basin.				
OF-11	6/8/2023	10:57 AM	16	Good	No	No	No	Drizzle, 50s	Outfall pipe partially filled with leaves.				
OF-12	6/8/2023	10:58 AM	14	Good	No	No	No	Drizzle, 50s					
OF-13	6/8/2023	10:48 AM	8	Poor	No	No	No	Cloudy, 50s	Pipe is broken - see photo log.				
OF-14	6/8/2023	10:42 AM	12	Fair	No	No	No	Cloudy, 50s					
OF-15	6/8/2023	10:36 AM	14	Good	No	No	No		Outfall partially submerged. Upstream catch basin not flowing.				
OF-16	6/12/2023	3:04 PM	8	Good	No	No	No		Pipe outlet is covered with rip rap.				
OF-17	6/12/2023	3:03 PM	12	Good	No	No	No	Sunny, 60s	Outfall partially submerged. No flow in upstream catch basin.				
OF-18	6/8/2023	12:03 AM	10	Good	No	No	No	Sunny, 60s	No outfall pipe outlet observed. Need to confirm mapping. Catch basins discharge to drain				
01-18	0/0/2023	12.03 AIVI	10	doou	INO	NO	NO	Suriny, 003	manhole then goes to NHDOT drain. No active flow in upstream catch basin.				
OF-19	6/8/2023	11:32 AM	24	Good	Yes	No	No	Sunny, 50s	Field sample and duplicate sample collected for laboratory analysis. Small PVC private drain				
01-13		11.32 AIVI	24	doou	163	NO	NO	Julilly, Jus	pipe was observed adjacent to outfall.				
OF-20		11:20 AM	12	Good	No	No	No		Outfall pipe partially filled with soil/sediment.				
OF-21	6/8/2023	11:23 AM	6	Good	No	No	No	Drizzle, 50s	Outfall pipe partially filled with leaves.				
OF-22	6/8/2023	11:26 AM	6	Good	No	No	No	Mist, 50s					
OF-23	6/8/2023	10:13 AM	24	Poor	No	No	No	Cloudy, 50s	Outfall partially submerged. Outfall appears to be private drainage.				
OF-24	6/8/2023	12:34 PM	18	Fair	Yes	No	Foam		Outfall to be included in next MS4 permit. Foam observed. Sample collected.				
OF-25	6/8/2023	12:12 PM	8	Good	No	No	No	Sunny, 60s	Outfall to be included in next MS4 permit.				
OF-26	6/8/2023	12:19 PM	6	Good	No	No	No		Outfall to be included in next MS4 permit.				
OF-27	6/8/2023	12:26 PM	8	Fair	No	No	No		Outfall to be included in next MS4 permit. Pipe outlet located in broken head wall.				
OF-28	6/8/2023	1:00 PM	8	Fair	No	No	No	Sunny, 60s	Outfall to be included in next MS4 permit.				

	Table 2 - Outfall Sampling Summary											
Outfall (OF)	Sample Date	Sample Time	Sampler	Ammonia Test Strip Result (mg/L)	Chlorine Full Range (mg/L)	Chlorine Ultra Low (mg/L)	Temperature (°C)	Conductivity (μS/cm)	Salinity (ppt)	E. Coli Lab Results (cfu /100mL)	Surfactants (MBAS) (mg/L)	Ammonia Lab Results (mg/L)
OF-1	6/8/2023	8:28 AM	AJF	< 0.25	< 10	0.01	14.3	740	0.4	50.4	< 0.05	NS
OF-2	6/8/2023	9:48 AM	AJF	< 0.25	< 10	0.01	15.3	691	0.3	3.1	< 0.05	NS
OF-8	6/8/2023	9:24 AM	AJF	< 0.25	< 10	< 0.01	14.4	776	0.4	1.0	< 0.05	NS
OF-10	6/8/2023	10:26 AM	AJF	< 0.25	< 10	0.01	16.6	685	0.3	5.2	< 0.05	NS
OF-19	6/8/2023	11:35 AM	AJF	0.5 (1)	< 10	0.02	14.8	100.4	0.0	1046.2	< 0.05	0.92
OF-19-DUP	6/8/2023	11:35 AM	A)F	0.5	\ 10	10 0.02	14.0	100.4	0.0	770.1	< 0.05	0.53
OF-24 (2)	6/8/2023	12:40 PM	AJF	< 0.25	< 10	0.01	14.8	455	0.2	1.0	< 0.05	NS

Notes:

mg/L = milligrams per liter

mL = milliliter

°C = degrees celsius

cfu = colony-forming unit

 μ S/cm = microsiemens per centimeter

ppt = parts per trillion

AJF = Abigail Farrin (GZA)

NS = Not Sampled

DUP = duplicate sample

MBAS = methylene blue active substance

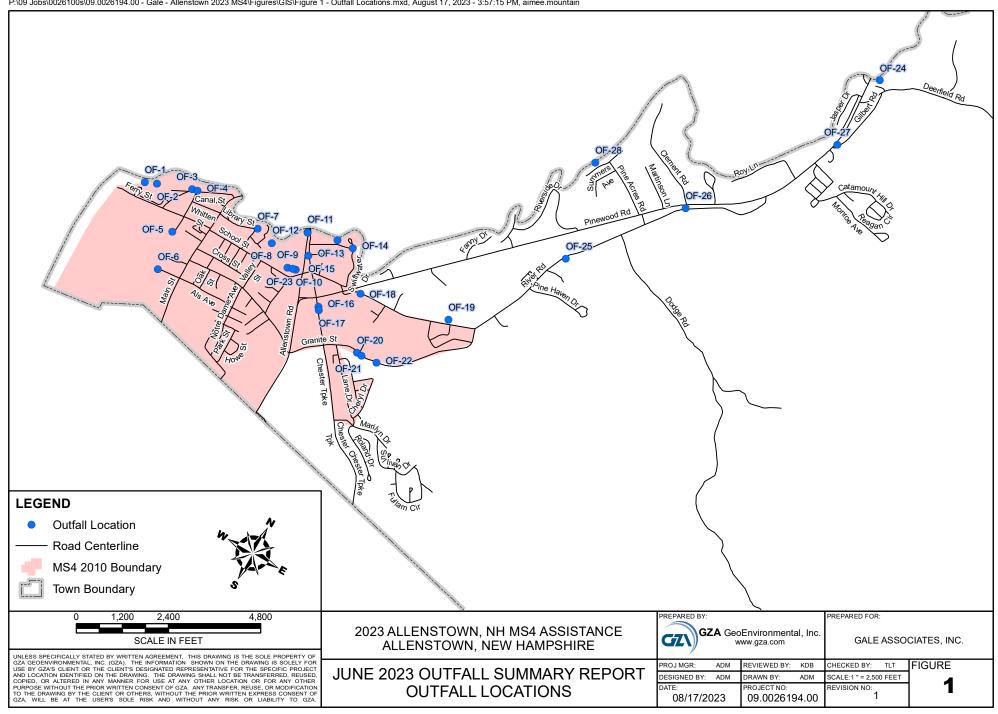
- Test strip result triggered confirmatory lab testing (threshold is $\geq 0.5 \text{ mg/L}$)
- Outfall to be included in next Town of Allenstown NH MS4 permit

Indicates that the sample exceeded the 2021 Town of Allenstown, New Hampshire Illicit Discharge Detection and Elimination (IDDE) Plan "Threshold Water Quality Criteria (Fresh Water)" threshold level of 235cfu/100mL for E. Coli.

Indicates that the sample exceeded the 2021 Town of Allenstown, New Hampshire Illicit Discharge Detection and Elimination (IDDE) Plan "Threshold Water Quality Criteria (Fresh Water)" threshold level of 0.5 mg/L for ammonia.



Figures





Appendix A – Limitations

NATURAL RESOURCE SURVEY AND ASSESSMENT LIMITATIONS



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USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) has prepared this report on behalf of, and for the exclusive use of Gale Associates, Inc. and the Town of Allenstown ("Client") for the stated purpose(s) and location(s) identified in the report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's risk, and without any liability to GZA.

STANDARD OF CARE

- 2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the data gathered and observations made during the course of our work. Conditions other than described in this report may be found at the subject location(s).
- 3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

LIMITS TO OBSERVATIONS

- 4. Natural resource characteristics are inherently variable. Biological community composition and diversity can be affected by seasonal, annual or anthropogenic influences. In addition, soil conditions are reflective of subsurface geologic materials, the composition and distribution of which vary spatially.
- 5. The observations described in this report were made on the dates referenced and under the conditions stated therein. Conditions observed and reported by GZA reflect the conditions that could be reasonably observed based upon the visual observations of surface conditions and/or a limited observation of subsurface conditions at the specific time of observation. Such conditions are subject to environmental and circumstantial alteration and may not reflect conditions observable at another time.
- 6. The conclusions and recommendations contained in this report are based upon the data obtained from a limited number of surveys performed during the course of our work on the site, as described in the Report. There may be variations between these surveys and other past or future surveys due to inherent environmental and circumstantial variability.

RELIANCE ON INFORMATION FROM OTHERS

7. Preparation of this Report may have relied upon information made available by Federal, state and local authorities; and/or work products prepared by other professionals as specified in the report. Unless specifically stated, GZA did not attempt to independently verify the accuracy or completeness of that information.

COMPLIANCE WITH REGULATIONS AND CODES

8. GZA's services were performed to render an opinion on the presence and/or condition of natural resources as described in the Report. Standards used to identify or assess these resources as well as regulatory jurisdiction, if any, are stated in the Report. Standards for identification of jurisdictional resources and regulatory control over them may vary between governmental agencies at Federal, state and local levels and are subject to change over time which may affect the conclusions and findings of this report.

NATURAL RESOURCE SURVEY AND ASSESSMENT LIMITATIONS

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NEW INFORMATION

9. In the event that the Client or others authorized to use this report obtain information on environmental regulatory compliance issues at the site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this work, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

10. GZA recommends that we be retained to provide further investigation, if necessary, which would allow GZA to (1) observe compliance with the concepts and recommendations contained herein; (2) evaluate whether the manner of implementation creates a potential new finding; and (3) evaluate whether the manner of implementation affects or changes the conditions on which our opinions were made.



Appendix B – Analytical Laboratory Results



professional laboratory and drilling services

Aimee Mountain
GZA GeoEnvironmental, Inc. (ME)
707 Sable Oaks Drive, Suite 150
South Portland . ME 04106



Laboratory Report for:

Eastern Analytical, Inc. ID: 261578

Client Identification: Allenstown, NH | Allenstown MS4 - 09.0026194.00

Date Received: 6/8/2023

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

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

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

< : "less than" followed by the reporting limit

> : "greater than" followed by the reporting limit

%R: % Recovery

Certifications:

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

References:

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

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

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

Sincerely,

Lorraine Olashaw, Lab Director

6.16.23



SAMPLE CONDITIONS PAGE

EAI ID#: 261578

Client: GZA GeoEnvironmental, Inc. (ME)

Client Designation: Allenstown, NH | Allenstown MS4 - 09.0026194.00

Outfall 24 (ADM 8/17/2023)

Temperature upon receipt (°C): 5.3

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

Acceptable t	emperature range (°C): 0-6		utfall 1	9 (ADM	8/17/20)23)			
Lab ID	Sample ID	Date Received	Date/ ⁻ Sam _i		Sample Matrix		Exceptions/Comments (other than thermal preservation)		
261578.01	Outfall 17	6/8/23	6/8/23	12:40	aqueous		Adheres to Sample Acceptance Policy		
261578.02	Outfall 20	6/8/23	6/8/23	11:35	aqueous		Adheres to Sample Acceptance Policy		
261578.03	Outfall 20-DUP	6/8/23	6/8/23	11:35	aqueous		Adheres to Sample Acceptance Policy		
261578.04	Outfall 10	6/8/23	6/8/23	10:26	aqueous		Adheres to Sample Acceptance Policy		
261578.05	Outfall 2	6/8/23	6/8/23	09:48	aqueous		Adheres to Sample Acceptance Policy		
261578.06	Outfall 8	6/8/23	6/8/23	09:24	aqueous		Adheres to Sample Acceptance Policy		
261578.07	Outfall 1	6/8/23	6/8/23	08:28	aqueous		Adheres to Sample Acceptance Policy		
	Outfall 19 DUP (ADM 8/17/2023)								

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

Unless otherwise noted:

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



LABORATORY REPORT

EAI ID#: 261578

Client: GZA GeoEnvironmental, Inc. (ME)

Client Designation: Allenstown, NH | Allenstown MS4 - 09.0026194.00

Outfall 17	Outfall 10	Outfall 2						
			—Ou	tfall 24 (AD	OM 8/1	7/2023	3)	
261578.01	261578.04	261578.05						
aqueous	aqueous	aqueous						
6/8/23	6/8/23	6/8/23			Ana	lysis		
6/8/23	6/8/23	6/8/23	RL	Units	Date	Time	Method	Analyst
1.0	5.2	3.1	.1	MPN/100ml	6/08/23	13:30	9223B-04	SEL
	261578.01 aqueous 6/8/23 6/8/23	261578.01 261578.04 aqueous aqueous 6/8/23 6/8/23 6/8/23 6/8/23	261578.01 261578.04 261578.05 aqueous aqueous aqueous 6/8/23 6/8/23 6/8/23 6/8/23 6/8/23	Out 261578.01 261578.04 261578.05 aqueous aqueous 6/8/23 6/8/23 6/8/23 6/8/23 6/8/23 RL	Outfall 24 (AE 261578.01 261578.04 261578.05 aqueous aqueous aqueous 6/8/23 6/8/23 6/8/23 6/8/23 6/8/23 RL Units	Outfall 24 (ADM 8/1) 261578.01	Outfall 24 (ADM 8/17/2023 261578.01	Outfall 24 (ADM 8/17/2023) 261578.01

Sample ID:	Outfall 8	Outfall 1							
Lab Sample ID:	261578.06	261578.07							
Matrix:	aqueous	aqueous							
Date Sampled:	6/8/23	6/8/23				Anal	ysis		
Date Received:	6/8/23	6/8/23	Ri	-	Units I	Date	Time	Method	Analyst
E.coli	1.0	50.4	1	MF	PN/100ml	6/08/23	13:30	9223B-04	SEL



LABORATORY REPORT

EAI ID#: 261578

Client: GZA GeoEnvironmental, Inc. (ME)

Client Designation: Allenstown, NH | Allenstown MS4 - 09.0026194.00

Outfall 19 (ADM 8/17/2023)

Sample ID:	Outfall 20	Outfall 20-DUP	_			
			Outfall 19 DUP	(ADM 8/	17/2023)	
Lab Sample ID:	261578.02	261578.03		•	•	
Matrix:	aqueous	aqueous				
Date Sampled:	6/8/23	6/8/23		Analys	is	
Date Received:	6/8/23	6/8/23	Units	Date Tir		Analyst
Ammonia-N	0.92	0.53	mg/L	06/12/23 12	:55 TM NH3-00	1 PEN
E.coli	1046.2	770.1	MPN/100ml	06/08/23 13	:30 9223B-04	SEL



EAI ID#: 261578

Client: GZA GeoEnvironmental, Inc. (ME)

Client Designation: Allenstown, NH | Allenstown MS4 - 09.0026194.00

Parameter Name	Blank	LCS	LCSD	Date of Units Analysis	Limits RPD	Method
Ammonia-N	< 0.05	2.1 (103 %R)	2.0 (102 %R) (1 RPD)	mg/L 6/12/23	87 - 104 20	TM NH3-001

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



Tuesday, June 13, 2023

Attn: Front Office Eastern Analytical 51 Antrim Ave Concord, NH 03301

Project ID:

261578

SDG ID:

GCO23749

Sample ID#s: CO23749 - CO23755

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Laboratory Director

NELAC - #NY11301

CT Lab Registration #PH-0618

MA Lab Registration #M-CT007

ME Lab Registration #CT-007

NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003 NY Lab Registration #11301 PA Lab Registration #68-03530 RI Lab Registration #63 VT Lab Registration #VT11301



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Sample Id Cross Reference

June 13, 2023

SDG I.D.: GCO23749

OUTFALL 24 Project ID: 261578 (ADM 8/17/2023)	SDG I.D.: GCO23749	
(, 12111 2, 11, 12020)		
OUTFALL 19	,	
Client Id (ADM 8/17/2023)	Lab Id Matrix	
OUTFALL 17	CO23749 WATER	
OUTFALL 20	CO23750 WATER	
OUTFALL 20-DUP	CO23751 WATER	
OUTFALL 10	CO23752 WATER	
OUTFALL 2	CO23753 WATER	
OUTFALL 8	CO23754 WATER	
OUTFALL 1	CO23755 WATER	

OUTFALL 19 DUP (ADM 8/17/2023)





587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 13, 2023

FOR:

Attn: Front Office

Eastern Analytical 51 Antrim Ave

Concord, NH 03301

Sample Information

Matrix:

WATER

Location Code:

EASTANAL-NH

Rush Request:

Standard

P.O.#:

60041

Custody Information

Collected by:

Received by:

Analyzed by:

SR1

see "By" below

1

.aboratory Data

SDG ID: GCO23749

Phoenix ID: CO23749

Date

06/08/23

06/09/23

Time

12:40

11:11

Project ID: Client ID:

261578

OUTFALL 17

OUTFALL 24 (ADM 8/17/2023)

RL/

Parameter Result **MBAS** < 0.05

PQL 0.05

Units

mg/L

Dilution

Date/Time

06/09/23 22:29

Reference By

SM5540 C-11 MW

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext,200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

June 13, 2023





587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 13, 2023

FOR:

Attn: Front Office

Eastern Analytical

51 Antrim Ave

Concord, NH 03301

Samp	le	Inf	orn	nation
------	----	-----	-----	--------

Matrix:

WATER

Location Code: EASTANAL-NH

Rush Request:

P.O.#:

Standard

60041

Custody Information

Collected by:

Received by:

Analyzed by:

SR1

see "By" below

Laboratory Data

SDG ID: GCO23749

<u>Time</u>

11:35

11:11

Phoenix ID: CO23750

Project ID:

261578

Client ID:

OUTFALL 20 <

(ADM 8/17/2023)

OUTFALL 19

RL/

Units

Dilution

Date/Time

Ву

<u>Date</u>

06/08/23

06/09/23

Reference

Parameter **MBAS**

Result < 0.05

PQL 0.05

mg/L

1

06/09/23 22:30

MW

SM5540 C-11

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

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Phyllis Shiller, Laboratory Director

June 13, 2023



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Time

11:35

11:11

Analysis Report

June 13, 2023

FOR: Attn: Front Office

> Eastern Analytical 51 Antrim Ave

Concord, NH 03301

Sample Information

Matrix: WATER

EASTANAL-NH

Location Code: Rush Request:

Standard

P.O.#:

60041

Custody Information

Collected by:

Received by:

SR1

Analyzed by:

aboratory Data.

OUTFALL 19 DUP

see "By" below

SDG ID: GCO23749

Date

06/08/23

06/09/23

Phoenix ID: CO23751

Project ID: Client ID:

261578

OUTFALL 20-DUP

(ADM 8/17/2023)

RL/

Parameter Result PQL < 0.05 **MBAS** 0.05

Units mg/L

Dilution 1

Date/Time 06/09/23 22:30

Ву

MW

Reference SM5540 C-11

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

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Phyllis Shiller, Laboratory Director

June 13, 2023



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 13, 2023

FOR: Attn: Front Office

> Eastern Analytical 51 Antrim Ave

Concord, NH 03301

Sample Information

Matrix: WATER

Location Code: **EASTANAL-NH**

Rush Request:

Standard

P.O.#:

60041

Custody Information

Collected by:

Received by:

SR1

Analyzed by:

see "By" below

Laboratory Data

SDG ID: GCO23749

Time

10:26

11:11

Phoenix ID: CO23752

Project ID:

261578

Client ID:

OUTFALL 10

RL/

Parameter **PQL** Result **MBAS** < 0.05 0.05

Units

mg/L

Dilution 1

Date/Time 06/09/23 22:31

Date

06/08/23

06/09/23

By

MW

Reference SM5540 C-11

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

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Phyllis Shiller, Laboratory Director

June 13, 2023



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Analysis Report

June 13, 2023

60041

261578

FOR: Attn: Front Office

> Eastern Analytical 51 Antrim Ave Concord, NH 03301

Sample Information	<u>tion</u>	Custody Inform	<u>nation</u>	<u>Date</u>	<u>Time</u>
Matrix:	WATER	Collected by:		06/08/23	9:48
Location Code:	EASTANAL-NH	Received by:	SR1	06/09/23	11:11

Rush Request: Standard Analyzed by: see "By" below

> SDG ID: GCO23749 Laboratory Data Phoenix ID: CO23753

Project ID: Client ID: **OUTFALL 2** RL/ Parameter **PQL** Result Units Dilution Date/Time By Reference

MBAS < 0.05 mg/L 0.05 1 SM5540 C-11 06/09/23 22:32 MW

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

P.O.#:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

June 13, 2023



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 13, 2023

FOR: Attn: Front Office

Eastern Analytical 51 Antrim Ave

Concord, NH 03301

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Samni	e	nforma	เปิดก

Matrix:

WATER

Location Code:

EASTANAL-NH

Rush Request:

Standard

P.O.#:

60041

Custody Information

Collected by:

Received by:

Analyzed by:

SR1

see "By" below

Date 06/08/23 Time 9:24

06/09/23

11:11

Laboratory Data

SDG ID: GCO23749

Phoenix ID: CO23754

Project ID:

261578

BRL=Below Reporting Level L=Biased Low

Client ID:

OUTFALL 8

RL/

Parameter **PQL** Result **MBAS** < 0.05 0.05

Units mg/L

Dilution 1

Date/Time 06/09/23 22:34 Ву

MW

Reference SM5540 C-11

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL

Comments:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent,

Phyllis Shiller, Laboratory Director

June 13, 2023



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

June 13, 2023

FOR:

Attn: Front Office Eastern Analytical 51 Antrim Ave Concord, NH 03301

Sample Informa	<u>tion</u>	Custody Informa	ation	<u>Date</u>	<u>Time</u>
Matrix:	WATER	Collected by:		06/08/23	8:28
Location Code:	EASTANAL-NH	Received by:	SR1	06/09/23	11:11
Rush Request:	Standard	Analyzed by:	see "By" below		

Rush Request:

60041

aboratory Data

SDG ID: GCO23749

Phoenix ID: CO23755

Project ID:

P.O.#:

261578

Client ID:

OUTFALL 1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	Ву	Reference
MBAS	< 0.05	0.05	mg/L	1	06/09/23 22:34	MW	SM5540 C-11

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

Comments:

The LAS standard used for the MBAS analysis has a molecular weight of 342 g/mol.

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Phyllis Shiller, Laboratory Director

June 13, 2023









QA/QC Report

June 13, 2023

QA/QC Data

SDG I.D.: GCO23749

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 681659 (mg/L),	QC Samp	le No:	CO24827	(CO237	749, C0	023750,	CO237	51, CC	23752,	CO237	53, CC	23754,	CO23755)
MBAS	BRL	0.05	< 0.05	< 0.05	NC	103			102			85 - 115	20
Comment:													
Additional criteria matrix spike ac	ceptance	range is	s 75-125%.										

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis Shiller, Laboratory Director

June 13, 2023

Sample Criteria Exceedances Report

GCO23749 - EASTANAL-NH

*** No Data to Display *** SampNo Acode Phoenix Analyte Criteria Result 꼰 Criteria Criteria Analysis Units

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Comments

June 13, 2023

SDG I.D.: GCO23749

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

CHAIN-OF-CUSTODY RECORD

M Eastern Analytical, Inc. professional laboratory and drilling services

Sample	
ample ID Date Sampled Matrix	
aParameters	
\$	EAI
	EAI ID# 2
Sample Notes	261578
	Page 1

			1 1 1	
	Outfall 10	Outfall 20 DUP—	Outfall 20	Outfall 17
Outfa	II 19 (ADM	8/17/2023)]_/	
	6/8/2023	6/8/2023	6/8/2023	6/8/2023
	aqueous Subcontract - Surfactants / MBAS Method SM5540C	aqueous Subcontract - Surfactants / MBAS Method SM5540C	aqueous Subcontract - Surfactants / MBAS Method SM5540C	aqueous Subcontract - Surfactants / MBAS Method SM5540C
	25128	15255	0522C	23749

Account # Address Address Phone # (860) 645-1102 Manchester, CT 06040 587 East Middle Turnpike

Outfall 19 DUP

Company

Phoenix Environmental Labs

Results Needed: Preferred Date: Standard QC Deliverables **RUSH Due Date:**

(ADM 8/17/20

EAI ID# 261578

Project State: NH Project ID:

□A □A+ 図B □B+ □C □MAMCP

invoice to customerservice@easternanalytical.com. Email login confirmation, pdf of results and Notes about project:

> PO #:60041 EAI ID# 261578

Data Deliverable (circle)

Excel NH EMD EQuIS ME EGAD

Call prior to analyzing, if RUSH charges will be applied.

Relinguished by UPSSamples Collected by 18/23 Date/Time

1600 UPS

Relinquished by

69123

Date/Time

Received by

Received by

Eastern Analytical, Inc. 51 Antrim Ave Concord, NH 03301

Phone: (603)228-0525 1-800-287-0525

customerservice@easternanalytical.com

arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages acts or omissions of you as a subcontract lab, your officers, agents or employees

CHAIN-OF-CUSTODY RECORD

	S
professional laboratory and drilling service	Eastern Analytical,
ervices	Inc.

EAI ID# 261578

Page 2

Sample ID	Date Sampled Matrix aParameters	Sample Notes
Outfall 2	6/8/2023 aqueous Subcontract - Surfactants / MBAS Method SM5540C	23726
Outfall 8	6/8/2023 aqueous Subcontract - Surfactants / MBAS Method SM5540C	h5228
Outfall 1	6/8/2023 aqueous Subcontract - Surfactants / MBAS Method SM5540C	23755

6/6/72 11:11 6			Phone # (860) 645-1102	Phone # (
Date/Time Re	Relinquished by			Account #
1000 EE1310	the When			
1	Samples Collected by:		Manchester . CT 06040	Address 1
•		invoice to customerservice@easternanalvical com	or East Middle Lamburg	
Call prior to analyzing, if RUSH charges will	Call prior to analy	Email login confirmation, pdf of results and	587 Fact Middle Turnnike	Addross F
		Notes about project:	Company Phoenix Environmental Labs	Company F
Excel NH EMD EQuIS ME EGAD	Excel NH EMD	LA LA+ MB LB+ LC LMAMCP		ı
(circle)	Data Deliverable (circle)	WC Deliverables	Project ID:	
		RUSH Due Date:	Project State: NM	EALID# 701210
EAI ID# 261578	IPO #-60041	Results Needed: Preferred Date: Standard		50 m

Relinquished by Date/Time charges will be applied. 1600 UPS Received by Received by

Eastern Analytical, Inc. 51 Antrim Ave Concord, NH 03301

Phone: (603)228-0525

1-800-287-0525

customerservice@easternanalytical.com

arising out of the performance against this chain of custody but only in proportion to and to the extent such liability, loss, expense, or claims for injury or damages are caused by or result from the negligent or intentional As a subcontract lab to EAI, you will defend, indemnify and hold Eastern Analytical, Inc., its officers, employees, and agents harmless from and against any and all liability, loss, expense or claims for injury or damages acts or omissions of you as a subcontract lab, your officers, agents or employees

Page 19 of 20

professional laboratory and drilling services Eastern Analytical, Inc.

51 Antrim Avenue | Concord, NH 03301 | Tel: 603.228.0525 | 1.800.287.0525 | E-Mail: CustomerService@EasternAnalytical.com | www.EasternAnalytical.com

(WHITE: Lab Copy **GREEN: Customer Copy)**



Appendix C – Photographic Log



Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 1

Description: OF-1 on June 8, 2023

Active flow observed. Sample collected.



Photo 2

Description: OF-2 on June 8, 2023

Outfall pipe completely submerged. Sample taken from flowing upstream drain manhole shown in photo.



Photo 3

Description: OF-3 on June 8, 2023

No active flow observed.



Photo 4

Description: OF-4 on June 8, 2023

No active flow observed.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 5

Description: OF-5 on June 8, 2023

No pipe outlet located. Catch basin removed. No longer an outfall. Photo is taken at the location of the removed catch basin.



Photo 6

Description: OF-6 on June 8, 2023

Catch basin removed, pipe abandoned in place. No longer an outfall. Photo of abandoned pipe outlet.



Photo 7

Description: OF-7 on June 8, 2023

No active flow observed.



Photo 8

Description: OF-8 on June 8, 2023

Pipe is broken. Active flow observed. Sample collected.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 9

Description: OF-9 on June 8, 2023

No active flow observed.



Photo 10

Description: OF-10 on June 8, 2023

Outfall partially submerged. Sample taken from flowing upstream catch basin shown in photo.



Photo 11

Description: OF-11 on June 8, 2023

No active flow observed. Outfall pipe partially filled with leaves.



Photo 12

Description:

OF-12 on June 8, 2023

No active flow observed.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 13

Description: OF-13 on June 8, 2023

No active flow observed. Outfall pipe is broken.



Photo 14

Description: OF-14 on June 8, 2023

No active flow observed.



Photo 15

Description: OF-15 on June 8, 2023

Outfall partially submerged. Upstream catch basin not flowing.



Photo 16

Description: OF-16 on June 12, 2023

No active flow observed. Pipe outlet is covered with rip rap.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 17

Description:

OF-17 on June 12, 2023

No active flow observed. Outfall partially submerged.



Photo 18

Description:

OF-18 on June 8, 2023

No outfall pipe outlet observed. No active flow in upstream catch basin shown in photo.



Photo 19

Description:

OF-19 on June 8, 2023

Active flow observed. Sample collected.



Photo 20

Description: OF-20 on June 8

OF-20 on June 8, 2023

No active flow observed. Outfall pipe partially filled with soil/sediment.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 21

Description: OF-21 on June 8, 2023

No active flow observed. Outfall pipe partially filled with leaves.



Photo 22

Description: OF-23 on June 8, 2023

No active flow observed.



Photo 23

Description: OF-23 on June 8, 2023

Outfall partially submerged. No active flow observed. Outfall appears to be private drainage infrastructure.



Photo 24

Description: OF-24 on June 8, 2023

Outfall to be included in next MS4 permit. Active flow observed. Sample collected.





Client Name:

Gale Associates, Inc.

Project Name:

2023 Allenstown, NH MS4 Assistance

Project No.:

09.0026194.00 REV1

Photo 25

Description: OF-25 on June 8, 2023

Outfall to be included in next MS4 permit. No active flow observed.



Photo 26

Description: OF-26 on June 8, 2023

Outfall to be included in next MS4 permit. No active flow observed.



Photo 27

Description: OF-27 on June 8, 2023

Outfall to be included in next MS4 permit. Pipe outlet located in broken head wall. No active flow observed.



Photo 28

Description: OF-28 on June 8, 2023

Outfall to be included in next MS4 permit. No active flow observed.





GZA GeoEnvironmental, Inc.