

BRISTOL, VERMONT

2018-2019

ANNUAL CORE AREA WASTEWATER SYSTEM
EVALUATION

JUNE 2019

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SECTION I

INTRODUCTION

SECTION I

INTRODUCTION

This 2019 Annual Report on the inspection and evaluation of the Bristol Core Area Wastewater System has been prepared to fulfill the conditions of Bristol's Discharge Permit No. ID-9-0208-1A.

The system has been operating since September 1, 1993 and consists of collection sewers, septic tank, and disposal fields.

Inspection of the sewage collection, treatment and disposal systems was performed on April 19, 2019 by Alan Huizenga of Green Mountain Engineering, Inc. with the assistance of Mr. Cyrus Marsano of Vermont Utility Management Services (VTUMS).

The Report shows a list of items inspected; the conditions encountered, and recommended repairs or changes in operation required. The Report is organized so each item is designated by the same letter as appears in Section D2, Annual Inspection, of Bristol's Discharge Permit. GME will be available to the Operator for review of the recommendations.

SECTION II

WASTEWATER SYSTEM INSPECTION

SECTION II

WASTEWATER SYSTEM INSPECTION

Item A: Collection System Inspection

MH#11 - Good flow/good condition
- Dirty shelves
- No evidence of back-up

MH#10A - Good flow / good condition
- Rim chipped in two places from traffic – no action required
- Frame has shifted – keep an eye on in future inspections

MH#10 - Excellent condition

Mary's Grease Trap

- Not in use

MH#9 - Good flow / good condition

MH#8 - Shallow manhole
- Very clean
- Excellent condition

MH#7 - Under stone drive - not inspected

Hendee's Grease Trap

- Presently in use
- Good Condition
- Quarterly Pumping Schedule – Next pumping 4/30/19

MH#6 - Under approx. 3-inch thick stone drive and large puddle due to overnight rains
- Not inspected
-

MH#5 - Good condition
- Dead end, low flow

MH#4 - inaccessible

MH#3 - Good flow / good condition

Snap's Grease Trap

- Quarterly Pumping Schedule - Next pumping 4/30/19

MH#2 - Not found
-Paved over by recent streetscape project

MH#1 - Not inspected – vehicle parked over manhole

Bakery Grease Trap

- Quarterly Pumping Schedule - Next pumping 4/30/19

Cubbers Grease Trap

- Quarterly Pumping Schedule - Next pumping 4/30/19

Treatment/Disposal System

-South wells (2) – Field #5 new caps have been installed.
-Operator has worked on clearing sumac growth near field edges and site looks very good...future clearing should focus on access SW well – Field #3
-some subsidence near SW well – Field #3 – no action at this time

Interior Grease Traps

-Not inspected

Viens Dosing Siphon

-Good Condition – appears operational

Item B: Septic Tank Inspection

- Sludge/Scum Depth measurements performed by Operator
- Pumping Cell #1 and #2 recommended at time of inspection. Heavy grease noted beneath MH access of Cell #1. **Based on this recommendation, the Town and Operator have scheduled pumping of contents of Cell #1 on June 24, 2019 and Cell #2 on July 30, 2019, concurrent with the quarterly pumping of grease traps.**

Cell #1

Compartment #1 – Sludge 24” – Scum 24”

Compartment #2 – Sludge 15” – Scum 24”

Cell #2

Compartment #1 – Sludge 18” – Scum 12”

Compartment #2 – Sludge 12+” – Scum 6”

- Pistons – inoperable – have been removed
- Slide gates repaired last year.
- Interior handles rusted, close to inoperable
- Locks and hasps on hatches, for safety, in good operable condition

Item C: Grease Interceptor Inspection

- Part of Item A. above

Item D: Splitter Box Inspection

- Fields #3, #5, #7 and #8 in operation at time of inspection. Fields were switched by Operator during inspection.
- good flow
- Periodic skimming every other week ongoing by Operator

Item E: Dosing Siphon Inspection

- Siphons appeared to be operating properly at time of inspection.
- Counters not operational

Item F: Field Rotation

- Fields currently in operation (#3, #5, #7 and #8). Fields were switched to Fields #1, #2, #4 and #6 during inspection.

Item G: Shallow In-field Observation Wells

- In-ground observation wells opened up for observation.
- All observation wells found, except Fields Nos. 1, NW corner well
- Field #1 – dry
- Field #2 – dry
- Field #3 – dry
- Field #4 – dry
- Field #5 – dry
- Field #6 – dry
- Field #7 – dry
- Field #8 – dry

Item H: Groundwater Level Measurements

- Table 3 summarizes groundwater levels for June 2018 and September 2018, showing values of groundwater depths ranging from 17 ft 6 1/2 inches to 43 ft 8 inches below ground surface.

SECTION III

WASTEWATER SYSTEM EVALUATION AND RECOMMENDATIONS

SECTION III

WASTEWATER SYSTEM EVALUATION AND RECOMMENDATIONS

A. Collection System

1. Evaluation / Recommendations

a. Review Table 4

B. Treatment / Disposal System

1. Evaluation

The system is in good working condition and is in its 26th year of operation. The site is in good condition. Effluent testing has been performed as per Permit conditions. The siphon counters are not working at this point. The Operator should consider replacing the counters with mechanical counters when the siphons are repaired. GME recommends pumping of Cell #1 and Cell #2 at this time. **Based on this recommendation, the Town and Operator have scheduled pumping of contents of Cell #1 on June 24, 2019 and Cell #2 on July 30, 2019, concurrent with the quarterly pumping of grease traps.**

The fields show no signs of effluent surfacing. The groundwater monitor wells show the natural groundwater level to be well below the trench bottoms. Sumac and other vegetation that was encroaching onto the fields on the north and west sides has been cut back.

Recent improvements noted include replacement of slide gates.

Nitrate levels appear to be varying substantially in recent years. Monitoring Well No. 3 results were 3.5 and 3.8 mg/l last year and 4.5 and <0.2 in 2018. Monitoring Well No. 4 were <0.20 and 0.12 mg/l last year and 1.5 and 17 in 2018. It is unclear if this September 2018 result is an outlier or if higher levels will remain the norm.

Wastewater quality results for the system are shown in Table 2. These results indicate the wastewater is of relatively high strength as might be expected for a small municipal system lacking industrial type users.

Treatment Facility flow data is presented in Appendix D. Average Daily Flow (ADF) was 9,283 gpd, based on water meter readings from May 7, 2018 to April 8, 2019.

2. Recommendations

a. Review Table 4,

- b. Make sure checklists are utilized as shown in the O & M Manual,
- c. Monitor split closely, which will be easier as checklists are followed and as a consistent number of fields are used. Clean v-notches with a toilet brush on a rod, kept at the facility. This task should be performed bi-weekly. This will help maintain more consistent split. Maintain splitter box on regular pumping schedule (with grease traps),
- d. Maintain grounds by mowing, trimming, repairing road, etc., as needed. (Presently mowing is subcontracted and performed weekly).
- e. Inventory interior grease traps and require reporting of maintenance and pumping. (ie. Wokkies, Bobcat, & former Corner Store)
- f. Pump Cell #1 and Cell #2 septic tank contents, as planned.

APPENDIX A

TABLES

TABLE 1
FIELD USAGE AND FLOW SUMMARY *
BRISTOL, VT (April 1, 2018 - March 31, 2019)

FIELD	1	2	3	4	5	6	7	8
DAYS IN SERVICE	---	---	---	---	---	---	---	---
TOTAL GALLONS	---	---	---	---	---	---	---	---
ADF	---	---	---	---	---	---	---	---

* Siphon counters are not operational.

TABLE 2
TOWN OF BRISTOL WASTEWATER QUALITY RESULTS
2006 - 2018

PARAMETER	June 2008	Sept. 2008	June 2009	Oct. 2009	June 2010	Sept. 2010	Sept. 2011	Oct. 2011	June 2012	Sept. 2012	June 2013	Sept. 2013	June 2014	Sept. 2014	June 2015	Sept. 2015	June 2016	Sept. 2016	June 2017	Sept. 2017	June 2018	Sept. 2018
Chloride	75	62	64	59	59	57	72	72	74	54	56	52	71	83	110	100	98	110	100	99	99	62
Nitrogen, Ammonia	65	63	27	46	44	49	66	63	64	53*	67*	48*	66	68	68*	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrite	<0.5	<0.2	<0.02	<0.2	<0.2	<0.2	<0.20	0.83	<0.20	<0.04	<0.04	<0.04	<0.2	<0.2	<0.2	<0.2	<0.2	<0.04	<0.02	<0.2	0.31	<0.2
Nitrogen, Nitrate	<0.5	<0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.020	<0.04	<0.04	<0.2	<0.02	<0.2	<0.02	<0.04	<0.02	<0.2	<0.02	<0.02	<0.2
Total Dissolved Phosphorus	10	12	11	<0.0005	9.5	9.3	11	10.0	12	7.7	8	6.2	9	8.9	7.3	8	8	8.7	8.4	8	8.9	6.5
Biochemical Oxygen Demand (5-day)	360	200	440	400	370	290	340	380	540	320	450	330	500	510	460	480	510	470	700	510	650	550
Total Suspended Solids	43	52	100	61	85	44	53	67	79	65	68	97	108	164	106	88	82	88	160	86	140	96
Oil and Grease	9.7	16.1	38.1	24.4	25.8	14.7	18.7	19	25.9	17.8	31.6	45.4	28.1	34.6	76.1	15.7	26	23.4	27.3	19.1	22.4	31.7

NOTES:

1. TESTED PARAMETERS ARE REPORTED IN MILLIGRAMS PER LITER (PPM)
2. WASTEWATER QUALITY RESULTS PRIOR TO 2008 ARE NOT DISPLAYED, BUT ARE AVAILABLE
3. WASTEWATER QUALITY RESULTS ARE FOR SAMPLES FROM THE SPLITTER BOX (AFTER THE SEPTIC TANK)
4. NR = NOT REPORTED

* Reported as TKN

**TABLE 3
GROUNDWATER LEVEL MEASUREMENTS
BRISTOL, VERMONT
#ID-9-0208-1A**

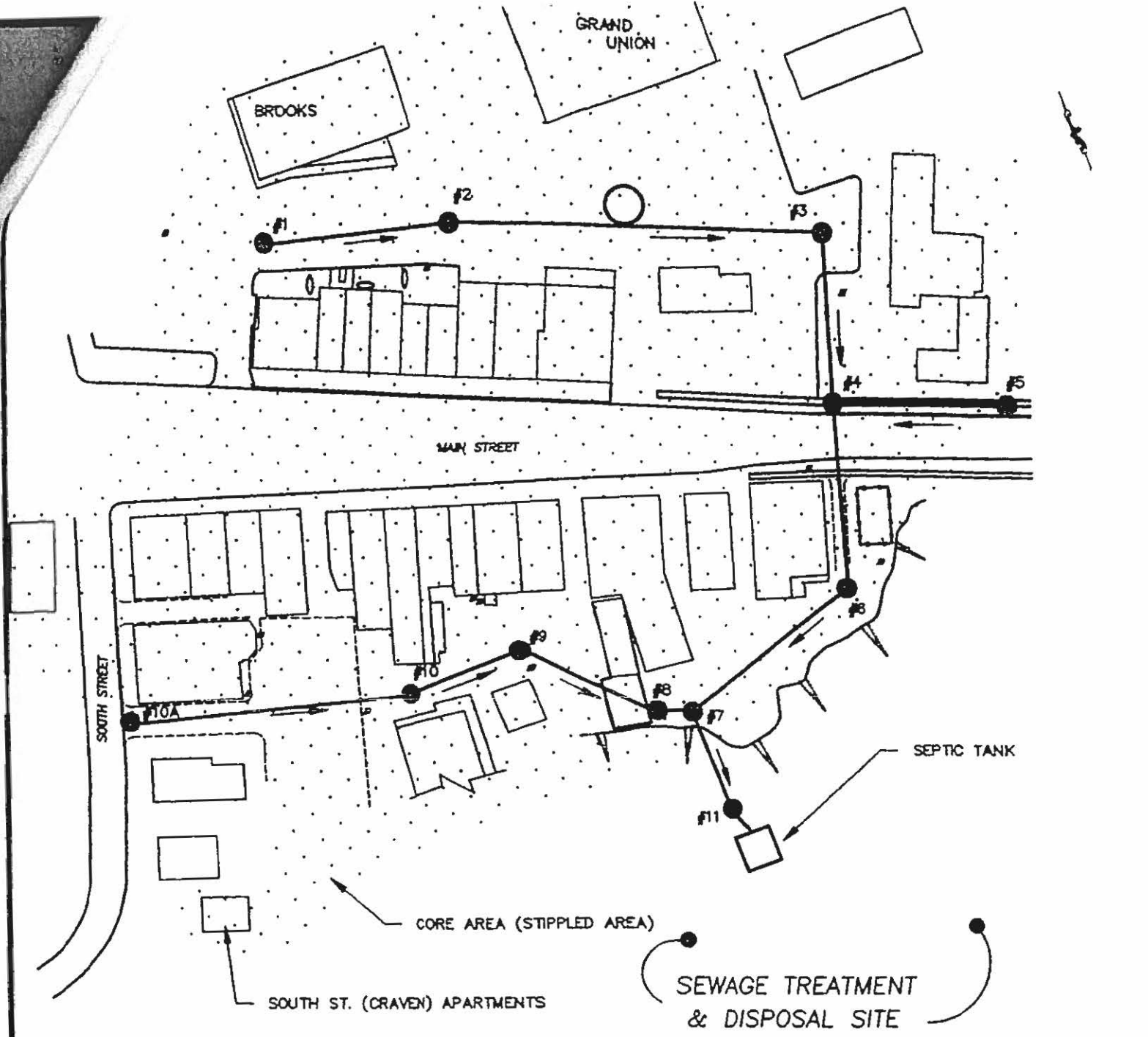
DATE	Well #	Well Depth (Feet)
6/4/18	2	17' 6.5"
	3	32' 6.5"
	4	43' 8"
6/11/18	2	17' 9.5"
	3	35' .5"
	4	41' 0"
6/18/18	2	18' .5"
	3	35' 2"
	4	40' 1"
6/25/18	2	18' 1"
	3	33' 4"
	4	40' 2"
9/3/18	2	18' 7"
	3	34' 2"
	4	40' 8"
9/10/18	2	18' 8"
	3	34' 4"
	4	40' 8"
9/17/18	2	18' 8"
	3	34' 3"
	4	40' 8"
9/24/18	2	18' 8"
	3	34' 5"
	4	41' 0"

**Table 4
Manhole Conditions - Bristol, Vermont - 2019
Required Repairs and Maintenance Actions - #ID-9-0208-1A**

Manhole Number	Frame and cover				Clean invert	Clean shelves	Repair infiltration	Comments / additional items to repair
	Replace	Mortar	Center	Raise				
S.T. Inlet								
S.T. Outlet								
Split box								Good condition - quarterly pumping
D.S.# 1								Out of service
D.S.# 2								Out of service
D.S.# 3								In service
D.S.# 4								Out of service
D.S.# 5								In service
D.S.# 6								Out of service
D.S.# 7								In service
D.S.# 8								In service
M.H.# 1								Not inspected
M.H.# 2								Not Found
M.H.# 3								Good condition
M.H.# 4								Not inspected
M.H.# 5								Good condition
M.H.# 6								Not inspected
M.H.# 7								Not inspected
M.H.# 8								Excellent condition
M.H.# 9								Good condition
M.H.# 10								Excellent condition
M.H.# 10A								Possible future centering required - watch
M.H.# 11							X	Good condition
Mary's GT								Inactive
Hendee GT								Good condition - quarterly pumping
Snap's GT								Good condition - quarterly pumping
Bakery GT								Good condition - quarterly pumping
Cubbers GT								Good condition - quarterly pumping
Viens D.S.								Good condition - appears operational

APPENDIX B

FIGURES



OPERATION AND MAINTENANCE MANUAL
 VILLAGE OF BRISTOL, VERMONT
 CORE AREA SEWER IMPROVEMENTS

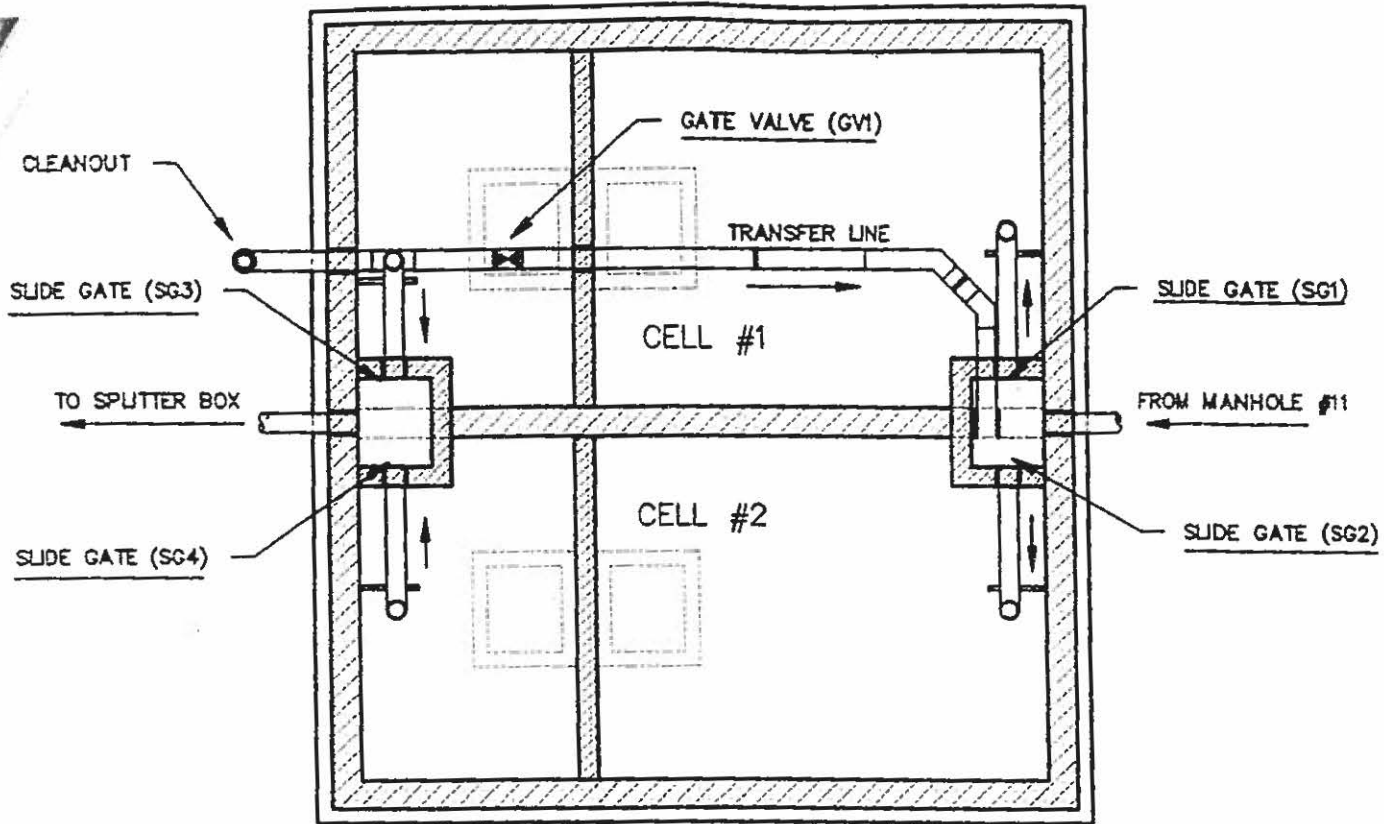
SEWER SYSTEM FLOW SCHEMATIC

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CML
 WATER
 WASTEWATER

DATE AUG. 1993	PROJECT NO. 2-009	FIGURE # 1
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SEPTIC TANK - PLAN VIEW
SCALE: NONE

OPERATION OF VALVES							
VALVE	NORMAL POSITION	O.O.	BY-PASS CELL #1	O.O.	BY-PASS CELL #2	O.O.	CLEAN TRANSFERLINE
SG1	OPEN	2	⊗ CLOSED ⊗		OPEN	2	⊗ CLOSED ⊗
SG2	CLOSED	1	⊗ OPEN ⊗		CLOSED	1	⊗ OPEN ⊗
SG3	CLOSED		CLOSED	1	⊗ OPEN ⊗		CLOSED
SG4	OPEN		OPEN	2	⊗ CLOSED ⊗		OPEN
GV1	OPEN	3	⊗ CLOSED ⊗	3	⊗ CLOSED ⊗		OPEN

⊗ ⊗ = DEVIATION FROM NORMAL POSITION
 o.o. = ORDER OF OPERATION - WHEN PLACING VALVES IN OTHER THAN NORMAL POSITION, CHANGE POSITIONS IN THIS ORDER.

OPERATION AND MAINTENANCE MANUAL
 VILLAGE OF BRISTOL, VERMONT
 CORE AREA SEWER IMPROVEMENTS

SEPTIC TANK FLOW SCHEMATIC

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CML
 WATER
 WASTEWATER

DATE AUG. 1993	PROJECT NO. 2-009	FIGURE # 2
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APPENDIX C

PART 1, SECTION D, ITEM #D2 OF DISCHARGE PERMIT

C2. Construction Inspection:

The construction of the sewage collection, treatment and disposal system was completed in accordance with the approved plans and under the inspection of a Vermont Registered Professional Engineer.

On September 3, 1993, Brent Whitney, P.E., of Green Mountain Engineering provided certification that the construction and inspection of the subsurface disposal system was completed in accordance with the approved plans and specifications.

SECTION D "SYSTEM OPERATION"

D1. General Operating Requirements:

The sewage treatment and disposal system shall be operated at all times in a manner that will: (1) not permit the discharge of sewage onto the surface of the ground; (2) not result in the surfacing of sewage; (3) not result in the direct discharge of sewage into the waters of the State; (4) not result in a violation of the Vermont Water Quality Standards, and (5) not cause a Significant Alteration of the Aquatic Biota in the receiving waters.

In accordance with accepted design practices, the effluent disposal rate to the disposal fields shall not exceed 20,000 gallons per day except as may occur on an occasional basis during normal operation.

D2. Annual Inspection, Report and Implementation Schedule:

(A) Annual Inspection

Annually during the month of April, the permittee shall engage a Vermont Registered Professional engineer to make a thorough inspection, evaluation, and report of the complete sewage collection, treatment and disposal system. The engineer's inspection shall include, but not be limited to the following:

- a. inspecting the entire collection system, removing manhole covers to observe the condition of the sewers, grease interceptors, septic tanks, and manholes, and noting any signs of inflow or excess infiltration;
- b. evaluating the accumulation of solids and scum in both compartments of the septic tank and verifying the pumping of the septic tank;
- c. evaluating the accumulation of grease in the grease interceptors and verifying cleaning of the interceptors, if necessary;
- d. inspecting the evenness of distribution through the flow splitter box and making required adjustments;

D2. Annual Inspection, Report and Implementation Schedule:

(A) Annual Inspection (continued):

- e. verification of the proper operation of the dosing siphons:
- f. verifying the alternation of the fields:
- g. checking the depth of ponding in all shallow in-field observation wells:
- h. tabulating the groundwater level measurements made for the months of March and April (current year) and June and September (previous year); and
- i. noting any necessary repairs or maintenance that needs to be performed on the sewage collection, treatment, and disposal system.

(B) Annual Inspection Report

Before July 1st each year the permittee shall have a professional engineer submit an annual report including the following items:

- a. a complete list of the items inspected and the results of the inspection;
- b. an evaluation of the degree of ponding observed in the shallow in-field observation wells:
- c. an evaluation of the seasonal high groundwater level below the disposal fields; and
- d. a discussion of the recommended repairs and maintenance required.

(C) Implementation Schedule

Before July 1st each year the permittee shall notify the Secretary in writing stating how the engineer's recommendations are to be implemented and including a schedule for the required repairs and maintenance.

D3. Septage Disposal:

During the system's annual inspection the depth of sludge and scum shall be measured in all septic tanks. The septic tanks shall be pumped if: 1) the sludge is closer than twelve (12) inches to the outlet baffle or: 2) the scum layer is closer than three (3) inches to the septic tank outlet baffle or: 3) if otherwise recommended by the inspecting engineer. As part of the annual inspection report, the permittee's engineer shall supply the Secretary with the name and address of the pumper and the municipal sewage treatment facility where the septage is to be disposed (or was) or other facility approved by the Secretary.

APPENDIX D

TREATMENT FACILITY FLOW DATA

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	36	33	3	6/4/2018	5/7/2018	28	107	799	no
BROWN-M	17	17	0	6/4/2018	5/7/2018	28	0	393	no
THREE MA	78	74	4	6/4/2018	5/7/2018	28	143	458	no
WILLIAM &	357	338	19	6/4/2018	5/7/2018	28	679	824	no
RITE AID	29	27	2	6/4/2018	5/7/2018	28	71	100	no
WELLS MO	31	30	1	6/4/2018	5/7/2018	28	36	100	no
IVAN HEND	628	595	33	6/4/2018	5/7/2018	28	1179	2440	no
H & M MO	123	121	2	6/4/2018	5/7/2018	28	71	1180	no
FORAND, B	150	148	2	6/4/2018	5/7/2018	28	71	271	no
ASA LIMIT	27	25	2	6/4/2018	5/7/2018	28	71	119	no
TREEFORT	23	22	1	6/4/2018	5/7/2018	28	36	100	no
CUBBER'S/	496	471	25	6/4/2018	5/7/2018	28	893	1025	no
SHEUN LAI	136	129	7	6/4/2018	5/7/2018	28	250	241	yes
WELLS MO	120	113	7	6/4/2018	5/7/2018	28	250	769	no
VILLAGE C	32	31	1	6/4/2018	5/7/2018	28	36	519	no
TREEFORT	423	396	27	6/4/2018	5/7/2018	28	964	829	yes
WADE PRO	91	87	4	6/4/2018	5/7/2018	28	143	174	no
FIVE MAIN	504	482	22	6/4/2018	5/7/2018	28	786	1492	no
JAMES T. H	45	42	3	6/4/2018	5/7/2018	28	107	302	no
JOHN MOY	93	87	6	6/4/2018	5/7/2018	28	214	732	no
ARTHUR C	166	152	14	6/4/2018	5/7/2018	28	500	384	yes
FOLKHEAR	7	5	2	6/4/2018	5/7/2018	28	71	240	no
SHAWS	426	406	20	6/4/2018	5/7/2018	28	714	488	yes
JOHN MOY	23	22	1	6/4/2018	5/7/2018	28	36	183	no
ASMG/ 30	305	292	13	6/4/2018	5/7/2018	28	464	1199	no
ASMG/34	143	135	8	6/4/2018	5/7/2018	28	286	549	no
HART & W	7	7	0	6/4/2018	5/7/2018	28	0	100	no
NATIONAL	20	20	0	6/4/2018	5/7/2018	28	0	149	no
SNAP'S RES	317	302	15	6/4/2018	5/7/2018	28	536	1503	no
TYLER WES	25	24	1	6/4/2018	5/7/2018	28	36	159	no
TOWN OF	34	32	2	6/4/2018	5/7/2018	28	71	100	no
BRISTOL R	38	37	1	6/4/2018	5/7/2018	28	36	241	no
JOHN MOY	129	122	7	6/4/2018	5/7/2018	28	250	604	no
FREDDIE B	20	19	1	6/4/2018	5/7/2018	28	36	113	no
Total Gallo	5099	4843	256000	6/4/2018	5/7/2018				
Total ADF: (gallons/day)			9143						

April 2018 System Data

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	38	36	2	7/6/2018	6/4/2018	30	67	799	no
BROWN-M	18	17	1	7/6/2018	6/4/2018	30	33	393	no
THREE MA	84	78	6	7/6/2018	6/4/2018	30	200	458	no
WILLIAM &	378	357	21	7/6/2018	6/4/2018	30	700	824	no
RITE AID	30	29	1	7/6/2018	6/4/2018	30	33	100	no
WELLS MO	33	31	2	7/6/2018	6/4/2018	30	67	100	no
IVAN HEND	661	628	33	7/6/2018	6/4/2018	30	1100	2440	no
H & M MO	124	123	1	7/6/2018	6/4/2018	30	33	1180	no
FORAND, B	151	150	1	7/6/2018	6/4/2018	30	33	271	no
ASA LIMIT	28	27	1	7/6/2018	6/4/2018	30	33	119	no
TREEFORT	24	23	1	7/6/2018	6/4/2018	30	33	100	no
CUBBER'S/	525	496	29	7/6/2018	6/4/2018	30	967	1025	no
SHEUN LAI	144	136	8	7/6/2018	6/4/2018	30	267	241	yes
WELLS MO	127	120	7	7/6/2018	6/4/2018	30	233	769	no
VILLAGE C	35	32	3	7/6/2018	6/4/2018	30	100	519	no
TREEFORT	446	423	23	7/6/2018	6/4/2018	30	767	829	no
WADE PRO	96	91	5	7/6/2018	6/4/2018	30	167	174	no
FIVE MAIN	533	504	29	7/6/2018	6/4/2018	30	967	1492	no
JAMES T. H	49	45	4	7/6/2018	6/4/2018	30	133	302	no
JOHN MOY	98	93	5	7/6/2018	6/4/2018	30	167	732	no
ARTHUR C	177	166	11	7/6/2018	6/4/2018	30	367	384	no
FOLKHEAR	14	7	7	7/6/2018	6/4/2018	30	233	240	no
SHAWS	458	426	32	7/6/2018	6/4/2018	30	1067	488	yes
JOHN MOY	24	23	1	7/6/2018	6/4/2018	30	33	183	no
ASMG/ 30	320	305	15	7/6/2018	6/4/2018	30	500	1199	no
ASMG/34	152	143	9	7/6/2018	6/4/2018	30	300	549	no
HART & W	7	7	0	7/6/2018	6/4/2018	30	0	100	no
NATIONAL	22	20	2	7/6/2018	6/4/2018	30	67	149	no
SNAP'S RES	339	317	22	7/6/2018	6/4/2018	30	733	1503	no
TYLER WES	26	25	1	7/6/2018	6/4/2018	30	33	159	no
TOWN OF	36	34	2	7/6/2018	6/4/2018	30	67	100	no
BRISTOL R	42	38	4	7/6/2018	6/4/2018	30	133	241	no
JOHN MOY	136	129	7	7/6/2018	6/4/2018	30	233	604	no
FREDDIE B	22	20	2	7/6/2018	6/4/2018	30	67	113	no
Total Gallo	5397	5099	298000	7/6/2018	6/4/2018				

Total ADF: (gallons/day) 9933

May 2018 System Data

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	41	38	3	8/6/2018	7/6/2018	30	100	799	no
BROWN-M	18	18	0	8/6/2018	7/6/2018	30	0	393	no
THREE MA	90	84	6	8/6/2018	7/6/2018	30	200	458	no
WILLIAM &	399	378	21	8/6/2018	7/6/2018	30	700	824	no
RITE AID	32	30	2	8/6/2018	7/6/2018	30	67	100	no
WELLS MO	34	33	1	8/6/2018	7/6/2018	30	33	100	no
IVAN HEND	691	661	30	8/6/2018	7/6/2018	30	1000	2440	no
H & M MO	126	124	2	8/6/2018	7/6/2018	30	67	1180	no
FORAND, B	151	151	0	8/6/2018	7/6/2018	30	0	271	no
ASA LIMIT	29	28	1	8/6/2018	7/6/2018	30	33	119	no
TREEFORT	28	24	4	8/6/2018	7/6/2018	30	133	100	yes
CUBBER'S/	553	525	28	8/6/2018	7/6/2018	30	933	1025	no
SHEUN LAI	151	144	7	8/6/2018	7/6/2018	30	233	241	no
WELLS MO	133	127	6	8/6/2018	7/6/2018	30	200	769	no
VILLAGE CO	37	35	2	8/6/2018	7/6/2018	30	67	519	no
TREEFORT	407	396	11	8/6/2018	7/6/2018	30	367	829	no
WADE PRO	101	96	5	8/6/2018	7/6/2018	30	167	174	no
FIVE MAIN	566	533	33	8/6/2018	7/6/2018	30	1100	1492	no
JAMES T. H	52	49	3	8/6/2018	7/6/2018	30	100	302	no
JOHN MOY	103	98	5	8/6/2018	7/6/2018	30	167	732	no
ARTHUR C	189	177	12	8/6/2018	7/6/2018	30	400	384	yes
FOLKHEAR	14	14	0	8/6/2018	7/6/2018	30	0	240	no
SHAWS	496	458	38	8/6/2018	7/6/2018	30	1267	488	yes
JOHN MOY	25	24	1	8/6/2018	7/6/2018	30	33	183	no
ASMG/ 30	338	320	18	8/6/2018	7/6/2018	30	600	1199	no
ASMG/34	160	152	8	8/6/2018	7/6/2018	30	267	549	no
HART & W	8	7	1	8/6/2018	7/6/2018	30	33	100	no
NATIONAL	22	22	0	8/6/2018	7/6/2018	30	0	149	no
SNAP'S RES	357	339	18	8/6/2018	7/6/2018	30	600	1503	no
TYLER WES	27	26	1	8/6/2018	7/6/2018	30	33	159	no
TOWN OF	37	36	1	8/6/2018	7/6/2018	30	33	100	no
BRISTOL R	45	42	3	8/6/2018	7/6/2018	30	100	241	no
JOHN MOY	143	136	7	8/6/2018	7/6/2018	30	233	604	no
FREDDIE B	22	22	0	8/6/2018	7/6/2018	30	0	113	no
Total Gallo	5625	5347	278000	8/6/2018	7/6/2018				
Total ADF: (gallons/day)			9267						

June 2018 System Data

User Description	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days
CHEERS	45	41	4	9/6/2018	8/6/2018	32
BROWN-MCCLAY FUNERAL HOME	19	18	1	9/6/2018	8/6/2018	32
THREE MAIN LLC /(SIP N' SUDS)	97	90	7	9/6/2018	8/6/2018	32
WILLIAM & BERNADETTE VIENS	418	399	19	9/6/2018	8/6/2018	32
RITE AID	33	32	1	9/6/2018	8/6/2018	32
WELLS MOUNTAIN LLC	37	34	3	9/6/2018	8/6/2018	32
IVAN HENDEE	722	691	31	9/6/2018	8/6/2018	32
H & M MOUNTAIN ENTERPRISES	127	126	1	9/6/2018	8/6/2018	32
FORAND, ERIC	152	151	1	9/6/2018	8/6/2018	32
ASA LIMITED/AARON THOMAS	30	29	1	9/6/2018	8/6/2018	32
TREEFORT LLC	29	28	1	9/6/2018	8/6/2018	32
CUBBER'S/ BEN & DREW	585	553	32	9/6/2018	8/6/2018	32
SHEUN LAI POON	159	151	8	9/6/2018	8/6/2018	32
WELLS MOUNTAIN LLC	147	133	14	9/6/2018	8/6/2018	32
VILLAGE CORNER STORE, LLC	40	37	3	9/6/2018	8/6/2018	32
TREEFORT LLC/BRISTOL BAKERY	495	407	88	9/6/2018	8/6/2018	32
WADE PROPERTIES LLC	107	101	6	9/6/2018	8/6/2018	32
FIVE MAIN VT. LLC/Bobcat	594	566	28	9/6/2018	8/6/2018	32
JAMES T. HOWE	56	52	4	9/6/2018	8/6/2018	32
JOHN MOYERS/GRISTMILL	107	103	4	9/6/2018	8/6/2018	32
ARTHUR CURCILLO	199	189	10	9/6/2018	8/6/2018	32
FOLKHEART/ PICKENS & SMITH	15	14	1	9/6/2018	8/6/2018	32
SHAWS	529	496	33	9/6/2018	8/6/2018	32
JOHN MOYERS/(mazer)	26	25	1	9/6/2018	8/6/2018	32
ASMG/ 30 MAIN ST 7 UNITS	355	338	17	9/6/2018	8/6/2018	32
ASMG/34 MAIN ST 3 UNITS	168	160	8	9/6/2018	8/6/2018	32
HART & WALKOVER	8	8	0	9/6/2018	8/6/2018	32
NATIONAL BANK OF MIDDLEBURY	24	22	2	9/6/2018	8/6/2018	32
SNAP'S RESTAURANT	372	357	15	9/6/2018	8/6/2018	32
TYLER WESTBROOK	28	27	1	9/6/2018	8/6/2018	32
TOWN OF BRISTOL/HOLLEY HALL	38	37	1	9/6/2018	8/6/2018	32
BRISTOL REDEMPTION	48	45	3	9/6/2018	8/6/2018	32
JOHN MOYERS/ TRADING POST	150	143	7	9/6/2018	8/6/2018	32
FREDDIE B'S LLC	24	22	2	9/6/2018	8/6/2018	32
Total Gallons:	5983	5625	358000	9/6/2018	8/6/2018	
Total ADF: (gallons/day)			11188			
July 2018 System Data						

ADF	Limit	Exc?
125	799	no
31	393	no
219	458	no
594	824	no
31	100	no
94	100	no
969	2440	no
31	1180	no
31	271	no
31	119	no
31	100	no
1000	1025	no
250	241	yes
438	769	no
94	519	no
2750	829	yes
188	174	yes
875	1492	no
125	302	no
125	732	no
313	384	no
31	240	no
1031	488	yes
31	183	no
531	1199	no
250	549	no
0	100	no
63	149	no
469	1503	no
31	159	no
31	100	no
94	241	no
219	604	no
63	113	no

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	52	45	7	#####	9/6/2018	33	212	799	no
BROWN-M	19	19	0	#####	9/6/2018	33	0	393	no
THREE MA	105	97	8	#####	9/6/2018	33	242	458	no
WILLIAM &	443	418	25	#####	9/6/2018	33	758	824	no
RITE AID	35	33	2	#####	9/6/2018	33	61	100	no
WELLS MO	38	37	1	#####	9/6/2018	33	30	100	no
IVAN HEND	768	722	46	#####	9/6/2018	33	1394	2440	no
H & M MO	128	127	1	#####	9/6/2018	33	30	1180	no
FORAND, B	152	152	0	#####	9/6/2018	33	0	271	no
ASA LIMITE	32	30	2	#####	9/6/2018	33	61	119	no
TREEFORT	31	29	2	#####	9/6/2018	33	61	100	no
CUBBER'S/	616	585	31	#####	9/6/2018	33	939	1025	no
SHEUN LAI	166	159	7	#####	9/6/2018	33	212	241	no
WELLS MO	161	147	14	#####	9/6/2018	33	424	769	no
VILLAGE CO	43	40	3	#####	9/6/2018	33	91	519	no
TREEFORT	514	495	19	#####	9/6/2018	33	576	829	no
WADE PRO	114	107	7	#####	9/6/2018	33	212	174	yes
FIVE MAIN	625	594	31	#####	9/6/2018	33	939	1492	no
JAMES T. H	59	56	3	#####	9/6/2018	33	91	302	no
JOHN MOY	113	107	6	#####	9/6/2018	33	182	732	no
ARTHUR C	211	199	12	#####	9/6/2018	33	364	384	no
FOLKHEAR	15	15	0	#####	9/6/2018	33	0	240	no
SHAWS	558	529	29	#####	9/6/2018	33	879	488	yes
JOHN MOY	27	26	1	#####	9/6/2018	33	30	183	no
ASMG/ 30	375	355	20	#####	9/6/2018	33	606	1199	no
ASMG/34	176	168	8	#####	9/6/2018	33	242	549	no
HART & W	8	8	0	#####	9/6/2018	33	0	100	no
NATIONAL	25	24	1	#####	9/6/2018	33	30	149	no
SNAP'S RES	389	372	17	#####	9/6/2018	33	515	1503	no
TYLER WES	29	28	1	#####	9/6/2018	33	30	159	no
TOWN OF	39	38	1	#####	9/6/2018	33	30	100	no
BRISTOL RI	50	48	2	#####	9/6/2018	33	61	241	no
JOHN MOY	159	150	9	#####	9/6/2018	33	273	604	no
FREDDIE B	27	24	3	#####	9/6/2018	33	91	113	no
Total Gallo	6302	5983	319000	#####	9/6/2018				
Total ADF: (gallons/day)			9667						

August 2018 System Data

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Data	Days	ADF	Limit	Exc?
CHEERS	68	52	16	#####	#####	57	281	799	no
BROWN-M	20	19	1	#####	#####	57	18	393	no
THREE MA	117	105	12	#####	#####	57	211	458	no
WILLIAM &	487	443	44	#####	#####	57	772	824	no
RITE AID	38	35	3	#####	#####	57	53	100	no
WELLS MO	41	38	3	#####	#####	57	53	100	no
IVAN HEND	860	768	92	#####	#####	57	1614	2440	no
H & M MO	128	128	0	#####	#####	57	0	1180	no
FORAND, B	157	152	5	#####	#####	57	88	271	no
ASA LIMIT	34	32	2	#####	#####	57	35	119	no
TREEFORT	39	31	8	#####	#####	57	140	100	yes
CUBBER'S/	661	616	45	#####	#####	57	789	1025	no
SHEUN LAI	178	166	12	#####	#####	57	211	241	no
WELLS MO	174	161	13	#####	#####	57	228	769	no
VILLAGE CO	49	43	6	#####	#####	57	105	519	no
TREEFORT	543	514	29	#####	#####	57	509	829	no
WADE PRO	123	114	9	#####	#####	57	158	174	no
FIVE MAIN	669	625	44	#####	#####	57	772	1492	no
JAMES T. H	64	59	5	#####	#####	57	88	302	no
JOHN MOY	123	113	10	#####	#####	57	175	732	no
ARTHUR C	231	211	20	#####	#####	57	351	384	no
FOLKHEAR	16	15	1	#####	#####	57	18	240	no
SHAWS	591	558	33	#####	#####	57	579	488	yes
JOHN MOY	28	27	1	#####	#####	57	18	183	no
ASMG/ 30	412	375	37	#####	#####	57	649	1199	no
ASMG/34	190	176	14	#####	#####	57	246	549	no
HART & W	9	8	1	#####	#####	57	18	100	no
NATIONAL	27	25	2	#####	#####	57	35	149	no
SNAP'S RES	417	389	28	#####	#####	57	491	1503	no
TYLER WES	30	29	1	#####	#####	57	18	159	no
TOWN OF	41	39	2	#####	#####	57	35	100	no
BRISTOL R	53	50	3	#####	#####	57	53	241	no
JOHN MOY	182	159	23	#####	#####	57	404	604	no
FREDDIE B	30	27	3	#####	#####	57	53	113	no
Total Gallo	6830	6302	528000	#####	#####				

Total ADF: (gallons/day) 9263

September, October, November 2018 System Data

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit
CHEERS	77	68	9	1/7/2019	12/5/2018	33	273	799
BROWN-M	20	20	0	1/7/2019	12/5/2018	33	0	393
THREE MA	123	117	6	1/7/2019	12/5/2018	33	182	458
WILLIAM B	510	487	23	1/7/2019	12/5/2018	33	697	824
RITE AID	39	38	1	1/7/2019	12/5/2018	33	30	100
WELLS MO	43	41	2	1/7/2019	12/5/2018	33	61	100
IVAN HENI	900	860	40	1/7/2019	12/5/2018	33	1212	2440
H & M MO	133	128	5	1/7/2019	12/5/2018	33	152	1180
FORAND, B	157	157	0	1/7/2019	12/5/2018	33	0	271
ASA LIMIT	35	34	1	1/7/2019	12/5/2018	33	30	119
TREEFORT	40	39	1	1/7/2019	12/5/2018	33	30	100
CUBBER'S/	684	661	23	1/7/2019	12/5/2018	33	697	1025
SHEUN LAI	186	178	8	1/7/2019	12/5/2018	33	242	241
WELLS MO	179	174	5	1/7/2019	12/5/2018	33	152	769
VILLAGE C	50	49	1	1/7/2019	12/5/2018	33	30	519
TREEFORT	566	543	23	1/7/2019	12/5/2018	33	697	829
WADE PRO	128	123	5	1/7/2019	12/5/2018	33	152	174
FIVE MAIN	695	669	26	1/7/2019	12/5/2018	33	788	1492
JAMES T. H	68	64	4	1/7/2019	12/5/2018	33	121	302
JOHN MOY	128	123	5	1/7/2019	12/5/2018	33	152	732
ARTHUR C	242	231	11	1/7/2019	12/5/2018	33	333	384
FOLKHEAR	16	16	0	1/7/2019	12/5/2018	33	0	240
SHAWS	611	591	20	1/7/2019	12/5/2018	33	606	488
JOHN MOY	29	28	1	1/7/2019	12/5/2018	33	30	183
ASMG/ 30	432	412	20	1/7/2019	12/5/2018	33	606	1199
ASMG/34	197	190	7	1/7/2019	12/5/2018	33	212	549
HART & W	10	9	1	1/7/2019	12/5/2018	33	30	100
NATIONAL	28	27	1	1/7/2019	12/5/2018	33	30	149
SNAP'S RES	431	417	14	1/7/2019	12/5/2018	33	424	1503
TYLER WES	32	30	2	1/7/2019	12/5/2018	33	61	159
TOWN OF	43	41	2	1/7/2019	12/5/2018	33	61	100
BRISTOL R	54	53	1	1/7/2019	12/5/2018	33	30	241
JOHN MOY	195	182	13	1/7/2019	12/5/2018	33	394	604
FREDDIE B	31	30	1	1/7/2019	12/5/2018	33	30	113
Total Gallo	7112	6830	282000	1/7/2019	12/5/2018			

Total ADF: (gallons/day) 8545

December 2018 System Data

Exc?

no
no
no
no
no
no
no
no
no
no
no
no
yes
no
no
no
no
no
no
no
no
no
yes
no
no
no
no
no
no
no
no
no
no
no
no

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	86	77	9	2/7/2019	1/7/2019	31	290	799	no
BROWN-M	20	20	0	2/7/2019	1/7/2019	31	0	393	no
THREE MA	130	123	7	2/7/2019	1/7/2019	31	226	458	no
WILLIAM &	531	510	21	2/7/2019	1/7/2019	31	677	824	no
RITE AID	40	39	1	2/7/2019	1/7/2019	31	32	100	no
WELLS MO	44	43	1	2/7/2019	1/7/2019	31	32	100	no
IVAN HEND	948	900	48	2/7/2019	1/7/2019	31	1548	2440	no
H & M MO	134	133	1	2/7/2019	1/7/2019	31	32	1180	no
FORAND, B	157	157	0	2/7/2019	1/7/2019	31	0	271	no
ASA LIMIT	38	35	3	2/7/2019	1/7/2019	31	97	119	no
TREEFORT	42	40	2	2/7/2019	1/7/2019	31	65	100	no
CUBBER'S/	704	684	20	2/7/2019	1/7/2019	31	645	1025	no
SHEUN LAI	192	186	6	2/7/2019	1/7/2019	31	194	241	no
WELLS MO	186	179	7	2/7/2019	1/7/2019	31	226	769	no
VILLAGE CO	51	50	1	2/7/2019	1/7/2019	31	32	519	no
TREEFORT	590	566	24	2/7/2019	1/7/2019	31	774	829	no
WADE PRO	133	128	5	2/7/2019	1/7/2019	31	161	174	no
FIVE MAIN	718	695	23	2/7/2019	1/7/2019	31	742	1492	no
JAMES T. H	71	68	3	2/7/2019	1/7/2019	31	97	302	no
JOHN MOY	133	128	5	2/7/2019	1/7/2019	31	161	732	no
ARTHUR C	251	242	9	2/7/2019	1/7/2019	31	290	384	no
FOLKHEAR	16	16	0	2/7/2019	1/7/2019	31	0	240	no
SHAWS	629	611	18	2/7/2019	1/7/2019	31	581	488	yes
JOHN MOY	29	29	0	2/7/2019	1/7/2019	31	0	183	no
ASMG/ 30	454	432	22	2/7/2019	1/7/2019	31	710	1199	no
ASMG/34	203	197	6	2/7/2019	1/7/2019	31	194	549	no
HART & W	10	10	0	2/7/2019	1/7/2019	31	0	100	no
NATIONAL	29	28	1	2/7/2019	1/7/2019	31	32	149	no
SNAP'S RES	444	431	13	2/7/2019	1/7/2019	31	419	1503	no
TYLER WES	32	32	0	2/7/2019	1/7/2019	31	0	159	no
TOWN OF	44	43	1	2/7/2019	1/7/2019	31	32	100	no
BRISTOL R	55	54	1	2/7/2019	1/7/2019	31	32	241	no
JOHN MOY	209	195	14	2/7/2019	1/7/2019	31	452	604	no
FREDDIE B	33	31	2	2/7/2019	1/7/2019	31	65	113	no
Total Gallo	7386	7112	274000	2/7/2019	1/7/2019				
Total ADF: (gallons/day)			8839						

January 2019 System Data

er Descript	Pres #	Prev #	Total Gal.	Current D	Prev. Date	Days	ADF	Limit	Exc?
CHEERS	93	88	5	4/8/2019	3/7/2019	32	156	799	no
BROWN-M	20	20	0	4/8/2019	3/7/2019	32	0	393	no
THREE MA	143	136	7	4/8/2019	3/7/2019	32	219	458	no
WILLIAM &	566	547	19	4/8/2019	3/7/2019	32	594	824	no
RITE AID	43	42	1	4/8/2019	3/7/2019	32	31	100	no
WELLS MO	47	46	1	4/8/2019	3/7/2019	32	31	100	no
IVAN HEND	1018	985	33	4/8/2019	3/7/2019	32	1031	2440	no
H & M MO	136	135	1	4/8/2019	3/7/2019	32	31	1180	no
FORAND, B	165	158	7	4/8/2019	3/7/2019	32	219	271	no
ASA LIMIT	41	39	2	4/8/2019	3/7/2019	32	63	119	no
TREEFORT	47	42	5	4/8/2019	3/7/2019	32	156	100	yes
CUBBER'S/	750	725	25	4/8/2019	3/7/2019	32	781	1025	no
SHEUN LAI	205	198	7	4/8/2019	3/7/2019	32	219	241	no
WELLS MO	197	192	5	4/8/2019	3/7/2019	32	156	769	no
VILLAGE C	55	53	2	4/8/2019	3/7/2019	32	63	519	no
TREEFORT	647	619	28	4/8/2019	3/7/2019	32	875	829	yes
WADE PRO	142	137	5	4/8/2019	3/7/2019	32	156	174	no
FIVE MAIN	763	739	24	4/8/2019	3/7/2019	32	750	1492	no
JAMES T. H	76	74	2	4/8/2019	3/7/2019	32	63	302	no
JOHN MOY	144	138	6	4/8/2019	3/7/2019	32	188	732	no
ARTHUR C	267	259	8	4/8/2019	3/7/2019	32	250	384	no
FOLKHEAR	16	16	0	4/8/2019	3/7/2019	32	0	240	no
SHAWS	665	645	20	4/8/2019	3/7/2019	32	625	488	yes
JOHN MOY	31	30	1	4/8/2019	3/7/2019	32	31	183	no
ASMG/ 30	494	472	22	4/8/2019	3/7/2019	32	688	1199	no
ASMG/34	217	209	8	4/8/2019	3/7/2019	32	250	549	no
HART & W	11	11	0	4/8/2019	3/7/2019	32	0	100	no
NATIONAL	31	30	1	4/8/2019	3/7/2019	32	31	149	no
SNAP'S RES	474	458	16	4/8/2019	3/7/2019	32	500	1503	no
TYLER WES	32	32	0	4/8/2019	3/7/2019	32	0	159	no
TOWN OF	47	45	2	4/8/2019	3/7/2019	32	63	100	no
BRISTOL R	58	57	1	4/8/2019	3/7/2019	32	31	241	no
JOHN MOY	235	222	13	4/8/2019	3/7/2019	32	406	604	no
FREDDIE B	36	34	2	4/8/2019	3/7/2019	32	63	113	no
Total Gallo	7912	7633	279000	4/8/2019	3/7/2019				
Total ADF: (gallons/day)			8719						

March 2019 System Data

APPENDIX E

DISCHARGE MONITORING RESULTS



Bristol, Town of
PO Box 249 070294
Bristol, VT 05443
Atten: Rick Chaput

PROJECT: Bristol Core Area Sewer
WORK ORDER: 1806-14368
DATE RECEIVED: June 19, 2018
DATE REPORTED: June 29, 2018
SAMPLER: Jill Marsano

Laboratory Report

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

www.endynelabs.com



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56 Etna Road, Lebanon, NH 03766
Ph 603-678-4891 Fax 603-678-4893



Laboratory Report

DATE REPORTED: 06/29/2018

CLIENT: Bristol, Town of
PROJECT: Bristol Core Area SewerWORK ORDER: 1806-14368
DATE RECEIVED: 06/19/2018

001		Site: Splitter Box			Date Sampled: 6/19/18		Time: 10:00	
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual.	
pH per Client	6.18	SU at _C	Client Data	6/19/18 10:00	W CLI	N		
Temperature per Client	19.7	Celsius	Client Data	6/19/18 10:00	W CLI	N		
BOD-5day	650	mg/L	SM 5210B(11)	6/20/18 15:18	W JSS	A		
Chloride	99	mg/L	EPA 300.0	6/19/18	W AKJ	A		
Nitrate as N	< 0.20	mg/L	EPA 300.0	6/19/18 22:33	W AKJ	A		
Nitrite as N	0.31	mg/L	EPA 300.0	6/19/18 22:33	W AKJ	A		
TKN	88	mg/L	EPA 351.2, R.2	6/27/18	N JGM	A		
Phosphorus, Total Dissolved	8.9	mg/L	SM20 4500 P-F	6/25/18 10:53	R SMY	A		
Solids, Total Suspended	140	mg/L	SM 2540 D-97	6/21/18	W JSS	A		
Oil & Grease	22.4	mg/L	EPA 1664A	6/26/18	W ITR	A	MOD	

002		Site: MW #3			Date Sampled: 6/19/18		Time: 9:50	
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual.	
pH per Client	6.50	SU at _C	Client Data	6/19/18 9:50	W CLI	N		
Temperature per Client	11.5	Celsius	Client Data	6/19/18 9:50	W CLI	N		
e. coli	1.0	MPN/100ml	SM20 9223B(04)	6/19/18 15:42	W AKJ	A	CL2A	
Chloride	13	mg/L	EPA 300.0	6/19/18	W AKJ	A		
Nitrate as N	4.5	mg/L	EPA 300.0	6/19/18 22:54	W AKJ	A		
Phosphorus, Total Dissolved	0.025	mg/L	SM20 4500 P-F	6/25/18 10:55	R SMY	A		

003		Site: MW #4			Date Sampled: 6/19/18		Time: 9:50	
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual.	
pH per Client	6.50	SU at _C	Client Data	6/19/18 9:50	W CLI	N		
Temperature per Client	11.5	Celsius	Client Data	6/19/18 9:50	W CLI	N		
e. coli	< 1.0	MPN/100ml	SM20 9223B(04)	6/19/18 15:42	W AKJ	A	CL2A	
Chloride	54	mg/L	EPA 300.0	6/19/18	W AKJ	A		
Nitrate as N	1.5	mg/L	EPA 300.0	6/19/18 23:15	W AKJ	A		
Phosphorus, Total Dissolved	0.019	mg/L	SM20 4500 P-F	6/25/18 10:56	R SMY	A		

Report Summary of Qualifiers and Notes

CL2A: Sample was identified and submitted as non-chlorinated water. The DPD Chlorine Check indicated that chlorine or other oxidizer was present. The sample did not smell of Chlorine, so analysis was performed. The DPD analysis is a more sensitive screen, but is susceptible to interference. The presence of Chlorine will kill bacteria and bias the results low. Please contact the laboratory with questions.

MOD: Method Modification: The entire content of the sample container was not analyzed due to the nature of the sample matrix.

Bristol Core Area Sewer

Endyne Inc. C

Prepared: 5/31

1806-14368



1806-14368

Bill to:
Pam Correia
Bristol, Town of
PO Box 249
Bristol VT 05443
Ph: (802)453-2410

Report to:
Rick Chaput
Bristol, Town of
PO Box 249
Bristol VT 05443
bristoladmin@gmavt.net; vrchapt

Customer #

CORE/

Bristol, Town of
Bristol Core Area Sewer

1 of 2

Splitter Box

Sampled Date/Time:

6/19/18 @ 10:00am
per bottle
ET

Sampler: J. Marsano

pH Client Data	6.18 su	19.7°C		
Oil & Grease	2 - 1L Amber Glass		<6C, HCl	
BOD-5day	1 - 1/2 gal Plastic		<6C	
Chloride				
Nitrate as N				
Nitrite as N				
Solids, Total Suspended				
TKN	1 - 16 oz plastic		<6C, NY Phos, H2SO4	
Phosphorus, Total Dissolved	1 - 4 oz Glass		<6C, Filter then preserve	

MW #3

Sampled Date/Time:

6/19/18 @ 9:50am

Sampler: J. Marsano

pH Client Data	6.50 su	11.5°C		
E. coli	1 - 150ml Sterile Plastic		<10C, Na2S2O3	
Chloride	1 - 2 oz Plastic		<6C	
Nitrate as N				
Phosphorus, Total Dissolved	1 - 4 oz Glass		<6C, Filter then preserve	

MW #4

Sampled Date/Time:

6/19/18 @ 9:30am

Sampler: J. Marsano

pH Client Data	6.50 su	11.5°C		
E. coli	1 - 150ml Sterile Plastic		<10C, Na2S2O3	
Chloride	1 - 2 oz Plastic		<6C	
Nitrate as N				
Phosphorus, Total Dissolved	1 - 4 oz Glass		<6C, Filter then preserve	

Downstream Bridge #31

Sampled Date/Time:

/ / @

Sampler:

pH Client Data				
Chloride	1 - 8 oz Plastic		<6C	
Nitrate as N				
Turbidity				
Phosphorus, Total Dissolved	1 - 8 oz Glass		<6C, Filter then preserve	
Phosphorus, Total	To be taken from 8 oz as above		<6C, H2SO4	

Downstream Duplicate

Sampled Date/Time:

/ / @

Sampler:

Phosphorus, Total Dissolved	1 - 8 oz Glass		<6C, Filter then preserve	
Phosphorus, Total	To be taken from 8 oz as above		<6C, H2SO4	

Upstream Core Area Disposal Fields

Sampled Date/Time:

/ / @

Sampler:

pH Client Data				
Chloride	1 - 8 oz Plastic		<6C	
Nitrate as N				
Turbidity				
Phosphorus, Total Dissolved	1 - 8 oz Glass		<6C, Filter then preserve	
Phosphorus, Total	To be taken from 8 oz as above		<6C, H2SO4	

Upstream Duplicate

Sampled Date/Time:

/ / @

Sampler:

Phosphorus, Total Dissolved	1 - 8 oz Glass		<6C, Filter then preserve	
Phosphorus, Total	To be taken from 8 oz as above		<6C, H2SO4	

The Total Phosphorus is collected in an 8 oz unpreserved glass jar. Once delivered to the laboratory it will be filtered for the Dissolved Phosphorus then both containers will be preserved.

One or more sample bottles in this project must be kept refrigerated or on ice until delivery at the laboratory.

Your initials will allow Endyne to proceed with analysis if the temperature preservation requirement is not satisfied.



Relinquished by: Guimmaud 6/19/18 12:48 Date Time pm Accepted by: Eileen Torrey 6/19/18@ 12:45 Date Time

Relinquished by: _____ Date Time Received by: _____ Date Time

Sites/Parameters correct as listed. Client Initials _____

Client Authorization to use Subcontract lab Client Initials _____

Sample origin: VT NH NY Other

Special reporting instructions: (PO#) _____

Requested Turnaround Time: Routine: Rush Due Date _____

Delv: <u>Client</u>	Tmpl Ck	<u>Lab use Only</u>
Temp C: <u>17.6</u>	Log by	
Comment:		



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315 New York Rd.
Plattsburgh, NY 12903
Ph 518-563-1720
Fax 518-563-0052



Bristol, Town of
PO Box 249 070294
Bristol, VT 05443
Atten: Rick Chaput

PROJECT: Bristol Core Area Sewer
WORK ORDER: 1809-23945
DATE RECEIVED: September 18, 2018
DATE REPORTED: October 10, 2018
SAMPLER: Jill Marsano

Laboratory Report

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:

Harry B. Locker, Ph.D.
Laboratory Director

www.endynelabs.com



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Laboratory Report

DATE REPORTED: 10/10/2018

CLIENT: Bristol, Town of
PROJECT: Bristol Core Area Sewer

WORK ORDER: 1809-23945
DATE RECEIVED: 09/18/2018

001	Site: Splitter Box	Date Sampled: 9/18/18		Time: 10:53			
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual
pH per Client	6.01	SU at __C	Client Data	9/18/18 10:53	W CLI	N	
BOD-5day	550	mg/L	SM 5210B(11)	9/19/18 13:52	W JSS	A	
Chloride	62	mg/L	EPA 300.0	9/19/18	W AKJ	A	
Nitrate as N	< 0.20	mg/L	EPA 300.0	9/19/18 3:46	W AKJ	A	
Nitrite as N	< 0.20	mg/L	EPA 300.0	9/19/18 3:46	W AKJ	A	
TKN	0.30	mg/L	EPA 351.2, R.2	9/28/18	N JGM	A	
Phosphorus, Total Dissolved	6.5	mg/L	SM20 4500 P-F	9/24/18 20:24	R AJR	A	
Solids, Total Suspended	96	mg/L	SM 2540 D-97	9/20/18	W JSS	A	
Oil & Grease	31.7	mg/L	EPA 1664A	10/8/18	W ITR	A	MOD

002	Site: MW #3	Date Sampled: 9/18/18		Time: 10:23			
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual
pH per Client	6.59	SU at __C	Client Data	9/18/18 10:23	W CLI	N	
e. coli	< 1.0	MPN/100ml	SM20 9223B(04)	9/18/18 16:18	W AKJ	A	
Chloride	10	mg/L	EPA 300.0	9/19/18	W AKJ	A	
Nitrate as N	< 0.20	mg/L	EPA 300.0	9/19/18 4:07	W AKJ	A	
Phosphorus, Total Dissolved	0.014	mg/L	SM20 4500 P-F	9/24/18 18:08	R AJR	A	

003	Site: MW #4	Date Sampled: 9/18/18		Time: 10:34			
Parameter	Result	Units	Method	Analysis Date/Time	Lab/Tech	NELAC	Qual
pH per Client	6.65	SU at __C	Client Data	9/18/18 10:34	W CLI	N	
e. coli	< 1.0	MPN/100ml	SM20 9223B(04)	9/18/18 16:18	W AKJ	A	CL2A
Chloride	52	mg/L	EPA 300.0	9/19/18	W AKJ	A	
Nitrate as N	17	mg/L	EPA 300.0	9/19/18 4:28	W AKJ	A	
Phosphorus, Total Dissolved	0.021	mg/L	SM20 4500 P-F	9/24/18 18:10	R AJR	A	

Report Summary of Qualifiers and Notes

CL2A: Sample was identified and submitted as non-chlorinated water. The DPD Chlorine Check indicated that chlorine or other oxidizer was present. The sample did not smell of Chlorine, so analysis was performed. The DPD analysis is a more sensitive screen, but is susceptible to interference. The presence of Chlorine will kill bacteria and bias the results low. Please contact the laboratory with questions.

MOD: Method Modification: The entire content of the sample container was not analyzed due to the nature of the sample matrix.

Bristol Core Area Sewer

Endyne Inc. COC

1809-23945

Prepared: 5/31/17



1809-23945

Bill to: Pam Correia, Bristol, Town of, PO Box 249, Bristol VT 05443, Ph: (802)453-2410

Report to: Rick Chaput, Bristol, Town of, PO Box 249, Bristol VT 05443, bristoladmin@gmavt.net;vrchapi

Customer # 070, COREAREASEV

Bristol, Town of, Bristol Core Area Sewer

W-702

Splitter Box

6.01 su @ 22.5°C Sampled Date/Time: 9/18/18 @ 10:53 am Sampler: Jill Marsano

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes pH Client Data (6.01 su @ 22.5°C), Oil & Grease (2 - 1L Amber Glass), BOD-5day Chloride (1 - 1/2 gal Plastic), Nitrate as N, Nitrite as N, Solids, Total Suspended, TKN (1 - 16 oz plastic), and Phosphorus, Total Dissolved (1 - 4 oz Glass).

MW #3

Sampled Date/Time: 9/18/18 @ 10:23 am Sampler: Jill Marsano

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes pH Client Data (6.59 su @ 14.3°C), E. coli (1 - 150ml Sterile Plastic), Chloride (1 - 2 oz Plastic), Nitrate as N, and Phosphorus, Total Dissolved (1 - 4 oz Glass).

MW #4

Sampled Date/Time: 9/18/18 @ 10:34 am Sampler: Jill Marsano

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes pH Client Data (6.65 su @ 13.3°C), E. coli (1 - 150ml Sterile Plastic), Chloride (1 - 2 oz Plastic), Nitrate as N, and Phosphorus, Total Dissolved (1 - 4 oz Glass).

Downstream Bridge #31

Sampled Date/Time: / / @ Sampler:

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes pH Client Data, Chloride (1 - 8 oz Plastic), Nitrate as N, Turbidity, Phosphorus, Total Dissolved (1 - 8 oz Glass), and Phosphorus, Total (To be taken from 8 oz as above). A large 'N/A' is written across the table.

Downstream Duplicate

Sampled Date/Time: / / @ Sampler:

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes Phosphorus, Total Dissolved (1 - 8 oz Glass) and Phosphorus, Total (To be taken from 8 oz as above).

Upstream Core Area Disposal Fields

Sampled Date/Time: / / @ Sampler:

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes pH Client Data, Chloride (1 - 8 oz Plastic), Nitrate as N, Turbidity, Phosphorus, Total Dissolved (1 - 8 oz Glass), and Phosphorus, Total (To be taken from 8 oz as above).

Upstream Duplicate

Sampled Date/Time: / / @ Sampler:

Table with 3 columns: Parameter, Container/Volume, and Notes. Includes Phosphorus, Total Dissolved (1 - 8 oz Glass) and Phosphorus, Total (To be taken from 8 oz as above).

The Total Phosphorus is collected in an 8 oz unpreserved glass jar. Once delivered to the laboratory it will be filtered for the Dissolved Phosphorus then both containers will be preserved.

One or more sample bottles in this project must be kept refrigerated or on ice until delivery at the laboratory.

Your initials will allow Endyne to proceed with analysis if the temperature preservation requirement is not satisfied.

INITIAL HERE

Relinquished by: J. Gammard 9/18/18 12:59pm Date Time Accepted by: _____ Date Time
Relinquished by: _____ Date Time Received by: K. White 9/18/18 12:59 Date Time

Sites/Parameters correct as listed Client Initials _____
Client Authorization to use Subcontract lab Client Initials _____
Sample origin: VT NH NY Other
Special reporting instructions: (PO#) _____
Requested Turnaround Time: Routine: Rush Due Date _____

Delv: <u>Client</u>	Trmpl Ck	Lab use Only
Temp C: <u>15.8</u>	Log by	
Comment:		



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