Town of East Greenwich
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125 Main Street
Town Council
Town Manager
(401)886-8665

Town Clerk
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Canvassers
(401)886-8603

Probate
(401)886-8607

Finance
(401)886-8612

Tax Assessor
(401)886-8614

Municipal Court
(401)886-3212

Planning
(401)886-8645

Human Resources
(401)234-9462

111 Peirce Street
Public Works
(401)886-8618

Building Official
(401)886-8617

121 Peirce Street
Swift Community Center
Senior & Human Svcs
(401)886-8669

176 First Avenue
Police Department
Dispatch
(401)884-2244
Administration
(401)886-8640

Information Technology
(401)886-8670

284 Main Street
Fire Department
Dispatch
(401)884-4211

1127 Frenchtown Road
Parks & Recreation
(401)886-8626

RI Relay #711
800-745-5555

Memorandum

To: The Honorable Town Council

From: Joseph C. Duarte P.E., Director of Public Works

CC: Gayle Corrigan, Town Manager

Lisa Bourbonnais, Town Planner

Shawn O'Neil, Waste Water Superintendent

Mark Conboy, Assistant Town Engineer

Date: July 31, 2018

Subject: Waste Water Treatment Facility Capacity

As you are aware, the developers for The Commons on Frenchtown Rd. requested additional sanitary sewer flow capacity to be increased to 90,000 gallons per day (GPD). The Town Council originally granted 25,000 GPD in 2014. The capacity granted in 2014 required Town Council approval due to the development being mainly out of town (North Kingstown). A flow capacity of 25,000 GPD is a sizable amount for most developments. A request of 90,000 GPD for any development is very significant, requiring careful attention to the capacity that may be available.

To understand the present capacity at the Waste Water Treatment Facility (WWTF), James J. Geremia & Associates (Geremia) was hired to perform a capacity analysis. Geremia was also used in 2014 for the developer's initial request. Please refer to Appendix A for the Geremia capacity assessment analysis.

Please note that the Geremia capacity assessment report (refer to table 3 of the Geremia report) concluded that the WWTF has an additional capacity of 268,000 GPD. The assessment report included two (2) sizable projects in which capacity has been granted (Commons on Frenchtown Rd. and New England Institute of Technology (NEIT)).

The report mainly considered existing flows, inflow and infiltration, and future residential connections that were provided but have not been connected. The report did not consider future development of vacant land, especially along Route 2 and the associated zoning. An analysis of all the vacant land available for development that could connect to the sewer system will require a more in-depth study. Such a study can be very involved, requiring a greater amount of time and expense.

The following is a brief highlight of the sanitary sewer capacity needs for future developments in East Greenwich. It involves adding pending projects before the Planning Board and the potential development of vacant land that can arise along Route 2 (refer to Appendix B).

The East Greenwich sanitary sewer system encompasses most of the land along Route 2, from Division Road to approximately Route 4 and most of the properties east of Route 2. As you are aware, there are very few vacant lots east of Route 2. Recent developments for said lots are being proposed to be high density residential developments. Although this has not been concerning with regard to sewer capacity, the continuation of this trend will require careful analysis of the available sewer capacity. Please refer to Table 1 for pending high density residential developments and the mixed use re-developments along Main Street.

Route 2 has the potential (with current zoning) of producing an additional 178,761 GPD (refer to Appendix B). This takes into consideration the remaining usage that has been granted but not used and potential developments of vacant land. This also considers the vacant lots to be developed conventionally with a single family household per one acre lots. The report is using 300 GPD for each single family household as a minimum criteria established by RIDEM.

It appears from Table 1, that there will be a remaining capacity of 112,604 GPD. However, the analysis does not consider NEIT future addition of dormitories or academic facilities (beyond the ten year plan). Also, it does not consider future industrial or commercial high sewer flow users. Additionally, Camp Fogarty has added significant facilities on their grounds. Future growth and uses are not being considered in the analysis for Camp Fogarty as their long range plans are not known to the town at this point.

Finally, for purposes of this analysis, the two farms along Route 2 (the Bailey Farms) are being considered to be developed with single family one acre lots, which is consistent by-right with current zoning. Should the vacant lots (including the farms) along Route 2 be developed with high density residential units, the remaining capacity noted above will be reduced substantially.

Table 1

	Average Daily Flow (gallons per day)
Permitted Capacity	**1,700,000**
Present Flow*	650,000
Inflow/Infiltration*	490,000
Potential Residential Services**	124,200
Future Town Reserves*	100,000
Future Route 2 development***	178,761
Proposed developments	
Commons at Frenchtown Rd.	25,000
The Imperial (Greenwich Blvd.) - 40 units (1&2 bedrooms)@	6,900
981 Main St. re-development 4 condos (2 bedrooms)	920
695 Main St. re-develop. 8 residential units (1&2 bedrooms)	1,380
461 Main St. re-develop. 15 residential units (1&2 bedrooms)	2,645
15 Castle St. 9 condos (1&2 berooms)	1,610
62 South Peirce St. 13 condos (1&2 bedrooms)	2,530
Recently completed developments	
The Terrace (Main St.) completed - 20 units (1 &2 bedrooms)@	3,450
Remaining Capacity	112,604

* Per James J. Geremia 2018 Capacity Assessment of the Wastewater Treatment Facility and the Hunt's River Interceptor

** Does not include Route 2 Services

*** Refer to Appendix B

@ 115 gallons per day per bedroom

Appendix A

JGA 18-003

2018 CAPACITY ASSESSMENT

of the Wastewater Treatment Facility and the Hunt's River Interceptor

for the

TOWN OF EAST GREENWICH

125 Main Street

East Greenwich, Rhode Island 02818

Prepared by:

JAMES J. GEREMIA & ASSOCIATES, INC.
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APRIL 2018

2018 CAPACITY ASSESSMENT OF THE WASTEWATER TREATMENT FACILITY AND THE HUNT'S RIVER INTERCEPTOR

The purpose of this study is to determine the availability of the capacity of the Hunt's River Interceptor and of the East Greenwich Wastewater Treatment Facility.

The Town of East Greenwich has committed, to the Commons at Frenchtown Road, a maximum daily average flow of 25,000 gallons per day (gpd). The Town has also committed, to the New England Institute of Technology, a maximum daily average flow of 37,700 gallons per day (gpd).

The Wastewater Treatment Facility has been designed to handle 1.7 MGD of average daily flow, 2.6 MGD maximum daily flow, and 3.0 MGD of peak flow. The average daily flow to the plant from July 2013 through March 2018 is summarized in Table 1 (see Appendix A).

The infiltration/inflow (I/I) rate was determined based on flow data during the wet season months of March through May 2017 and the dry season months of August through October 2018. Based on this data, the I/I was determined to be 0.490 MGD (1.14 MGD – 0.65 MGD).

Table 2 (see Appendix A) presents the areas that have been sewered as well as the total number of connected units and the potential number of units that can be connected to the system. Based upon this data, there is a potential of an additional 416 residential units that can tie into the wastewater collection system at this time. This represents a potential of 129,000 GPD (430 units x 300 gallons per day) of additional residential flow to the facility.

Table 3 (see Appendix A) presents the summary of the existing, as well as the potential future flows.

Based on the capacity assessment of the Wastewater Treatment Facility, the plant has an additional reserve of 268,300 gpd. It is to be noted that when the effluent discharged for a period of ninety (90) consecutive dry weather days exceeds 80% of the designed flow (1.36 MGD), the East Greenwich Wastewater Treatment Facility shall submit to RIDEM authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

The Hunt's River Interceptor was evaluated from the East Greenwich Wastewater Treatment Facility to Jefferson Drive. This segment of the interceptor consists of 27-inch, 24-inch, and 21-inch precast concrete pipes. The capacity of the 27-inch sewer pipe is 17.85 MGD; the capacity of the 24-inch sewer pipe is 4.93 MGD, and the capacity of the 21-inch sewer pipe varies between 5.28 MGD and 4.37 MGD. Based on the treatment facility, the Hunt's River Interceptor transports 50 percent of the total flow that is treated at the plant.

The Hunt's River Interceptor was divided into four segments. The first segment is from the treatment facility to Post Road; the second segment is from Post Road to Woodland Road; the third segment is from Woodland Road to Eugene Street; and the fourth segment is from Eugene Street to Jefferson Drive (See Figure 1).

Table 4 (see Appendix A) summarizes the adequacy of the Hunt's River Interceptor.

Table 5 (see Appendix A) summarizes the future flows to Segments 1 and 2 Hunt's River Interceptor without the Commons at Frenchtown Road.

LEGEND

- SEGMENT 1
- SEGMENT 2
- SEGMENT 3
- SEGMENT 4

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FIGURE 1:
HUNT'S RIVER
INTERCEPTOR

NOT TO SCALE

APPENDIX A

TABLE 1 – AVERAGE DAILY FLOWS

(JULY 2013 – MARCH 2018)

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

SHEET 1

2013

July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.88	1	0.62	1	0.75	1	0.59	1	0.60	1	0.72
2	0.89	2	0.64	2	0.85	2	0.60	2	0.57	2	0.68
3	0.86	3	0.64	3	0.87	3	0.59	3	0.56	3	0.69
4	0.79	4	0.60	4	0.82	4	0.58	4	0.57	4	0.68
5	0.81	5	0.61	5	0.78	5	0.61	5	0.60	5	0.67
6	0.80	6	0.61	6	0.74	6	0.60	6	0.55	6	0.68
7	0.77	7	0.62	7	0.73	7	0.59	7	0.62	7	0.73
8	0.75	8	0.61	8	0.73	8	0.59	8	0.58	8	0.67
9	0.78	9	0.78	9	0.69	9	0.60	9	0.58	9	0.70
10	0.75	10	0.65	10	0.68	10	0.59	10	0.56	10	0.71
11	0.82	11	0.60	11	0.69	11	0.60	11	0.55	11	0.69
12	0.76	12	0.61	12	0.68	12	0.62	12	0.58	12	0.67
13	0.78	13	0.62	13	0.73	13	0.54	13	0.57	13	0.66
14	0.76	14	0.62	14	0.68	14	0.57	14	0.57	14	0.65
15	0.63	15	0.61	15	0.67	15	0.58	15	0.55	15	0.82
16	0.65	16	0.60	16	0.65	16	0.59	16	0.58	16	0.72
17	0.66	17	0.60	17	0.67	17	0.61	17	0.58	17	0.69
18	0.65	18	0.60	18	0.64	18	0.57	18	0.60	18	0.69
19	0.66	19	0.59	19	0.64	19	0.58	19	0.58	19	0.71
20	0.67	20	0.60	20	0.63	20	0.57	20	0.57	20	0.71
21	0.66	21	0.62	21	0.62	21	0.56	21	0.56	21	0.74
22	0.66	22	0.69	22	0.65	22	0.56	22	0.58	22	0.72
23	0.70	23	0.59	23	0.58	23	0.58	23	0.59	23	0.79
24	0.64	24	0.61	24	0.57	24	0.58	24	0.58	24	0.80
25	0.70	25	0.59	25	0.61	25	0.60	25	0.56	25	0.72
26	0.69	26	0.63	26	0.51	26	0.58	26	0.59	26	0.75
27	0.67	27	0.77	27	0.67	27	0.59	27	0.98	27	0.75
28	0.64	28	0.65	28	0.66	28	0.58	28	0.72	28	0.74
29	0.64	29	0.63	29	0.62	29	0.57	29	0.67	29	0.84
30	0.63	30	0.63	30	0.59	30	0.57	30	0.68	30	0.82
31	0.62	31	0.63			31	0.57			31	0.81
TOTALS	22.36		19.47		20.40		18.11		18.01		22.42

AVERAGE DAILY FLOW (July - December 2013) **0.678782**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

2014

January		February		March		April		May		June		July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.78	1	0.81	1	1.00	1	1.85	1	1.53	1	0.85	1	0.70	1	0.63	1	0.60	1	0.60	1	0.69	1	0.79
2	0.77	2	0.79	2	0.98	2	1.70	2	1.42	2	0.85	2	0.70	2	0.65	2	0.62	2	0.63	2	0.69	2	0.80
3	0.91	3	0.75	3	0.92	3	1.59	3	1.38	3	0.85	3	0.71	3	0.61	3	0.59	3	0.58	3	0.68	3	0.82
4	0.78	4	0.75	4	0.93	4	1.51	4	1.35	4	0.83	4	0.91	4	0.61	4	0.60	4	0.63	4	0.68	4	0.81
5	0.78	5	0.77	5	0.91	5	1.54	5	1.29	5	0.92	5	0.76	5	0.63	5	0.59	5	0.61	5	0.64	5	0.80
6	0.92	6	0.77	6	0.91	6	1.42	6	1.27	6	0.87	6	0.72	6	0.60	6	0.60	6	0.59	6	0.71	6	0.85
7	0.82	7	0.73	7	0.88	7	1.37	7	1.24	7	0.84	7	0.71	7	0.62	7	0.60	7	0.59	7	0.68	7	0.71
8	0.82	8	0.76	8	0.92	8	1.56	8	1.20	8	0.79	8	0.70	8	0.62	8	0.58	8	0.61	8	0.70	8	0.88
9	0.78	9	0.77	9	0.91	9	1.44	9	1.17	9	0.79	9	0.69	9	0.60	9	0.59	9	0.60	9	0.68	9	1.32
10	0.79	10	0.70	10	0.87	10	1.40	10	1.16	10	0.80	10	0.69	10	0.57	10	0.58	10	0.59	10	0.67	10	1.26
11	0.92	11	0.73	11	0.88	11	1.34	11	1.12	11	0.78	11	0.68	11	0.59	11	0.60	11	0.62	11	0.69	11	1.23
12	0.95	12	0.68	12	0.92	12	1.33	12	1.09	12	0.80	12	0.67	12	0.62	12	0.58	12	0.54	12	0.66	12	1.16
13	0.89	13	0.82	13	0.97	13	1.25	13	1.09	13	0.96	13	0.64	13	0.75	13	0.60	13	0.57	13	0.68	13	1.13
14	0.94	14	0.98	14	0.96	14	1.25	14	1.07	14	0.86	14	0.66	14	0.62	14	0.58	14	0.59	14	0.72	14	1.10
15	0.94	15	0.85	15	0.94	15	1.39	15	1.08	15	0.80	15	0.68	15	0.62	15	0.57	15	0.57	15	0.70	15	1.05
16	0.95	16	0.84	16	0.92	16	1.51	16	1.06	16	0.79	16	0.73	16	0.62	16	0.58	16	0.68	16	0.87	16	1.05
17	0.93	17	0.84	17	0.88	17	1.48	17	1.09	17	0.80	17	0.68	17	0.59	17	0.57	17	0.62	17	0.83	17	1.06
18	0.95	18	0.84	18	0.91	18	1.45	18	1.00	18	0.77	18	0.67	18	0.60	18	0.59	18	0.64	18	0.74	18	1.05
19	0.91	19	0.91	19	0.89	19	1.42	19	1.01	19	0.79	19	0.67	19	0.61	19	0.58	19	0.60	19	0.72	19	1.05
20	0.90	20	0.97	20	0.97	20	1.31	20	1.00	20	0.75	20	0.65	20	0.59	20	0.58	20	0.60	20	0.73	20	1.01
21	0.87	21	1.04	21	0.92	21	1.30	21	0.98	21	0.76	21	0.65	21	0.59	21	0.57	21	0.62	21	0.72	21	1.01
22	0.84	22	1.13	22	0.92	22	1.27	22	1.01	22	0.72	22	0.67	22	0.60	22	0.56	22	0.65	22	0.73	22	0.98
23	0.85	23	1.14	23	0.91	23	1.29	23	0.96	23	0.71	23	0.64	23	0.60	23	0.57	23	0.71	23	0.71	23	1.01
24	0.84	24	1.15	24	0.81	24	1.22	24	0.93	24	0.71	24	0.67	24	0.57	24	0.56	24	0.66	24	0.88	24	1.07
25	0.88	25	1.10	25	0.88	25	1.19	25	0.89	25	0.71	25	0.63	25	0.57	25	0.59	25	0.67	25	0.77	25	1.04
26	0.81	26	1.07	26	0.86	26	1.23	26	0.90	26	0.74	26	0.66	26	0.60	26	0.57	26	0.64	26	0.96	26	1.05
27	0.82	27	1.04	27	0.87	27	1.18	27	0.92	27	0.71	27	0.65	27	0.62	27	0.56	27	0.65	27	0.86	27	1.06
28	0.79	28	0.99	28	0.86	28	1.14	28	0.90	28	0.71	28	0.65	28	0.63	28	0.54	28	0.66	28	0.83	28	1.02
29	0.78			29	0.95	29	1.14	29	0.92	29	0.67	29	0.64	29	0.61	29	0.56	29	0.66	29	0.84	29	1.01
30	0.79			30	1.96	30	1.22	30	0.89	30	0.69	30	0.62	30	0.60	30	0.59	30	0.67	30	0.87	30	1.00
31	0.79			31	1.99			31	0.89			31	0.63	31	0.57			31	0.64			31	0.98
TOTALS	26.49		24.69		30.39		41.30		33.81		23.62		21.12		18.91		17.44		19.28		22.31		31.17

AVERAGE DAILY FLOW (2014) **0.850765**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

2015

January		February		March		April		May		June		July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.95	1	0.77	1	0.76	1	1.24	1	0.91	1	0.83	1	0.90	1	0.71	1	0.62	1	0.62	1	0.64	1	0.71
2	0.96	2	0.76	2	0.75	2	1.21	2	0.96	2	0.88	2	0.88	2	0.68	2	0.61	2	0.72	2	0.67	2	0.68
3	0.96	3	0.74	3	0.75	3	1.23	3	0.90	3	0.81	3	0.81	3	0.68	3	0.62	3	0.68	3	0.67	3	0.71
4	1.12	4	0.77	4	0.92	4	1.22	4	0.92	4	0.81	4	0.76	4	0.47	4	0.62	4	0.65	4	0.65	4	0.70
5	1.04	5	0.76	5	0.84	5	1.16	5	0.92	5	0.79	5	0.76	5	0.83	5	0.60	5	0.66	5	0.67	5	0.71
6	0.98	6	0.74	6	0.78	6	1.14	6	0.89	6	0.78	6	0.77	6	0.74	6	0.56	6	0.67	6	0.67	6	0.69
7	0.97	7	0.75	7	0.83	7	1.17	7	0.90	7	0.75	7	0.79	7	0.73	7	0.58	7	0.65	7	0.69	7	0.71
8	0.96	8	0.73	8	0.83	8	1.16	8	0.89	8	0.70	8	0.83	8	0.67	8	0.61	8	0.66	8	0.68	8	0.69
9	0.96	9	0.69	9	0.84	9	1.19	9	0.89	9	0.67	9	0.80	9	0.64	9	0.61	9	0.66	9	0.65	9	0.69
10	0.94	10	0.73	10	0.89	10	1.16	10	0.88	10	0.67	10	0.78	10	0.63	10	0.68	10	0.64	10	0.69	10	0.72
11	0.93	11	0.72	11	1.10	11	1.14	11	0.87	11	0.85	11	0.75	11	0.77	11	0.67	11	0.61	11	0.69	11	0.70
12	0.96	12	0.74	12	1.11	12	1.11	12	0.89	12	0.76	12	0.71	12	0.69	12	0.65	12	0.64	12	0.69	12	0.69
13	0.88	13	0.70	13	1.11	13	1.07	13	0.86	13	0.76	13	0.72	13	0.67	13	0.64	13	0.67	13	0.69	13	0.67
14	0.86	14	0.69	14	1.33	14	1.06	14	0.86	14	0.72	14	0.78	14	0.66	14	0.65	14	0.64	14	0.70	14	0.69
15	0.87	15	0.67	15	1.39	15	1.03	15	0.84	15	0.87	15	0.85	15	0.71	15	0.65	15	0.65	15	0.67	15	0.77
16	0.85	16	0.68	16	1.34	16	1.04	16	0.84	16	0.81	16	0.81	16	0.67	16	0.63	16	0.64	16	0.66	16	0.71
17	0.83	17	0.66	17	1.36	17	1.04	17	0.83	17	0.74	17	0.78	17	0.65	17	0.64	17	0.65	17	0.68	17	0.77
18	0.84	18	0.71	18	1.32	18	1.01	18	0.82	18	0.76	18	0.75	18	0.67	18	0.63	18	0.62	18	0.67	18	0.76
19	0.87	19	0.69	19	1.27	19	0.99	19	0.86	19	0.74	19	0.73	19	0.64	19	0.63	19	0.64	19	0.68	19	0.76
20	0.84	20	0.68	20	1.29	20	1.08	20	0.84	20	0.74	20	0.72	20	0.64	20	0.61	20	0.65	20	0.84	20	0.74
21	0.82	21	0.70	21	1.28	21	1.08	21	0.85	21	0.81	21	0.73	21	0.64	21	0.60	21	0.63	21	0.75	21	0.74
22	0.83	22	0.86	22	1.25	22	1.03	22	0.85	22	0.75	22	0.71	22	0.64	22	0.60	22	0.65	22	0.76	22	0.78
23	0.81	23	0.75	23	1.09	23	1.05	23	0.81	23	0.78	23	0.73	23	0.60	23	0.60	23	0.64	23	0.76	23	0.81
24	0.93	24	0.73	24	1.11	24	1.01	24	0.75	24	0.71	24	0.72	24	0.63	24	0.60	24	0.63	24	0.74	24	1.05
25	0.87	25	0.79	25	1.10	25	1.01	25	0.75	25	0.75	25	0.71	25	0.65	25	0.60	25	0.61	25	0.72	25	0.87
26	0.83	26	0.81	26	1.20	26	0.99	26	0.78	26	0.71	26	0.69	26	0.68	26	0.60	26	0.65	26	0.70	26	0.90
27	0.77	27	0.76	27	1.32	27	0.97	27	0.78	27	0.73	27	0.79	27	0.64	27	0.57	27	0.65	27	0.69	27	0.97
28	0.70	28	0.77	28	1.33	28	0.98	28	0.78	28	1.01	28	0.74	28	0.63	28	0.59	28	0.73	28	0.72	28	0.85
29	0.86			29	1.32	29	0.96	29	0.76	29	0.87	29	0.71	29	0.64	29	0.61	29	0.74	29	0.73	29	1.06
30	0.82			30	1.29	30	0.97	30	0.77	30	0.84	30	0.74	30	0.61	30	0.79	30	0.68	30	0.69	30	0.92
31	0.79			31	1.28			31	0.75			31	0.72	31	0.63			31	0.68			31	0.97
TOTALS	27.62		20.54		34.39		32.51		26.19		23.39		23.66		20.53		18.67		20.31		20.90		24.17

AVERAGE DAILY FLOW (2015) **0.802394**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

2016

January		February		March		April		May		June		July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.85	1	0.82	1	1.08	1	0.90	1	0.91	1	0.75	1	0.67	1	0.59	1	0.58	1	0.63	1	0.67	1	0.79
2	0.90	2	0.84	2	1.09	2	0.99	2	0.92	2	0.76	2	0.66	2	0.63	2	0.54	2	0.53	2	0.64	2	0.76
3	0.89	3	0.93	3	1.06	3	1.03	3	0.97	3	0.78	3	0.60	3	0.58	3	0.53	3	0.55	3	0.64	3	0.76
4	0.85	4	0.96	4	1.03	4	0.96	4	0.95	4	0.78	4	0.58	4	0.53	4	0.49	4	0.55	4	0.64	4	0.72
5	0.84	5	1.00	5	1.03	5	1.00	5	0.96	5	0.82	5	0.67	5	0.54	5	0.52	5	0.55	5	0.64	5	0.72
6	0.85	6	1.03	6	1.00	6	1.04	6	0.95	6	0.75	6	0.62	6	0.57	6	0.60	6	0.57	6	0.63	6	0.74
7	0.84	7	1.02	7	0.99	7	1.31	7	0.93	7	0.74	7	0.65	7	0.51	7	0.56	7	0.60	7	0.62	7	0.74
8	0.83	8	1.00	8	0.99	8	1.25	8	0.91	8	0.79	8	0.64	8	0.54	8	0.55	8	0.52	8	0.63	8	0.72
9	0.83	9	1.04	9	0.96	9	1.23	9	0.88	9	0.81	9	0.64	9	0.53	9	0.53	9	0.69	9	0.62	9	0.73
10	1.01	10	0.99	10	0.94	10	1.20	10	0.87	10	0.79	10	0.62	10	0.54	10	0.54	10	0.59	10	0.62	10	0.71
11	0.93	11	0.99	11	0.98	11	1.14	11	0.87	11	0.74	11	0.63	11	0.46	11	0.52	11	0.66	11	0.62	11	0.69
12	0.94	12	0.95	12	0.95	12	1.17	12	0.87	12	0.70	12	0.60	12	0.72	12	0.50	12	0.63	12	0.63	12	0.76
13	0.91	13	0.94	13	0.92	13	1.13	13	0.90	13	0.71	13	0.59	13	0.67	13	0.53	13	0.59	13	0.60	13	0.74
14	0.91	14	0.92	14	0.94	14	1.12	14	0.89	14	0.72	14	0.64	14	0.59	14	0.56	14	0.59	14	0.60	14	0.73
15	0.90	15	0.89	15	1.22	15	1.09	15	0.85	15	0.71	15	0.64	15	0.58	15	0.52	15	0.60	15	0.76	15	0.71
16	1.02	16	1.19	16	1.10	16	1.08	16	0.85	16	0.71	16	0.58	16	0.64	16	0.51	16	0.58	16	0.67	16	0.68
17	0.91	17	1.11	17	1.09	17	1.02	17	0.85	17	0.71	17	0.58	17	0.66	17	0.53	17	0.58	17	0.65	17	0.76
18	0.94	18	1.08	18	1.07	18	1.00	18	0.85	18	0.71	18	0.58	18	0.60	18	0.51	18	0.60	18	0.64	18	0.79
19	0.92	19	1.06	19	1.06	19	1.00	19	0.86	19	0.68	19	0.59	19	0.61	19	0.59	19	0.57	19	0.65	19	0.73
20	0.92	20	1.07	20	1.03	20	0.98	20	0.84	20	0.70	20	0.57	20	0.58	20	0.61	20	0.56	20	0.67	20	0.75
21	0.92	21	1.05	21	1.04	21	0.97	21	0.82	21	0.77	21	0.58	21	0.54	21	0.55	21	0.60	21	0.66	21	0.78
22	0.89	22	1.02	22	1.08	22	0.96	22	0.77	22	0.71	22	0.59	22	0.62	22	0.53	22	0.65	22	0.65	22	0.79
23	0.86	23	1.01	23	0.96	23	0.99	23	0.72	23	0.69	23	0.65	23	0.57	23	0.52	23	0.60	23	0.68	23	0.79
24	0.88	24	1.11	24	0.98	24	0.96	24	0.76	24	0.67	24	0.56	24	0.56	24	0.55	24	0.60	24	0.64	24	0.81
25	0.86	25	1.22	25	0.97	25	0.95	25	0.73	25	0.66	25	0.57	25	0.55	25	0.52	25	0.61	25	0.63	25	0.72
26	0.93	26	1.18	26	0.96	26	0.98	26	0.74	26	0.65	26	0.58	26	0.57	26	0.53	26	0.60	26	0.66	26	0.74
27	0.89	27	1.15	27	0.93	27	0.94	27	0.73	27	0.65	27	0.57	27	0.55	27	0.57	27	0.67	27	0.64	27	0.76
28	0.86	28	1.12	28	0.97	28	0.94	28	0.71	28	0.65	28	0.58	28	0.53	28	0.53	28	0.69	28	0.63	28	0.76
29	0.88	29	1.10	29	0.94	29	0.93	29	0.67	29	0.66	29	0.61	29	0.55	29	0.52	29	0.64	29	0.79	29	0.84
30	0.88			30	0.93	30	0.92	30	0.86	30	0.66	30	0.57	30	0.56	30	0.53	30	0.65	30	0.76	30	0.84
31	0.82			31	0.92			31	0.77			31	0.54	31	0.56			31	0.65			31	0.83
TOTALS	27.63		29.79		31.21		31.16		26.16		21.61		18.74		17.84		16.17		18.71		19.59		23.38

AVERAGE DAILY FLOW (2016) **0.770445**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

2017

January		February		March		April		May		June		July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.80	1	0.98	1	0.96	1	1.33	1	1.16	1	1.13	1	0.83	1	0.70	1	0.64	1	0.63	1	0.85	1	0.85
2	0.82	2	0.97	2	0.94	2	1.20	2	1.22	2	1.10	2	0.76	2	0.70	2	0.61	2	0.64	2	0.81	2	0.82
3	0.93	3	0.95	3	0.90	3	1.17	3	1.14	3	1.07	3	0.76	3	0.69	3	0.63	3	0.64	3	0.80	3	0.82
4	0.94	4	0.94	4	0.89	4	1.44	4	1.11	4	1.04	4	0.71	4	0.70	4	0.64	4	0.64	4	0.80	4	0.80
5	0.89	5	0.91	5	0.86	5	1.38	5	1.29	5	1.09	5	0.74	5	0.75	5	0.64	5	0.64	5	0.78	5	0.85
6	0.87	6	0.91	6	0.86	6	1.50	6	1.37	6	1.09	6	0.75	6	0.66	6	0.66	6	0.63	6	0.77	6	0.90
7	0.85	7	0.91	7	0.87	7	1.53	7	1.32	7	1.08	7	0.96	7	0.68	7	0.34	7	0.62	7	0.76	7	0.86
8	0.84	8	0.90	8	0.88	8	1.50	8	1.29	8	1.05	8	0.84	8	0.70	8	0.65	8	0.64	8	0.78	8	0.83
9	0.79	9	0.87	9	0.87	9	1.43	9	1.27	9	1.02	9	0.78	9	0.67	9	0.65	9	0.69	9	0.75	9	0.83
10	0.84	10	0.88	10	0.87	10	1.37	10	1.23	10	1.00	10	0.78	10	0.68	10	0.64	10	0.64	10	0.75	10	0.84
11	0.96	11	0.88	11	0.85	11	1.32	11	1.18	11	0.96	11	0.82	11	0.68	11	0.63	11	0.63	11	0.74	11	0.82
12	0.99	12	0.86	12	0.83	12	1.25	12	1.17	12	0.95	12	0.86	12	0.70	12	0.64	12	0.65	12	0.73	12	0.85
13	0.96	13	0.88	13	0.80	13	1.17	13	1.16	13	0.98	13	0.91	13	0.64	13	0.65	13	0.62	13	0.75	13	0.86
14	0.94	14	0.89	14	1.06	14	1.14	14	1.35	14	0.94	14	0.87	14	0.66	14	0.64	14	0.64	14	0.76	14	0.88
15	0.91	15	0.91	15	1.06	15	1.13	15	1.25	15	0.88	15	0.87	15	0.68	15	0.65	15	0.62	15	0.72	15	0.84
16	0.91	16	0.91	16	1.02	16	1.08	16	1.21	16	0.98	16	0.82	16	0.64	16	0.63	16	0.61	16	0.78	16	0.83
17	0.93	17	0.88	17	1.02	17	1.07	17	1.16	17	0.96	17	0.82	17	0.65	17	0.61	17	0.65	17	0.76	17	0.80
18	0.94	18	0.92	18	1.01	18	1.02	18	0.95	18	0.92	18	0.82	18	0.69	18	0.61	18	0.61	18	0.77	18	0.80
19	0.90	19	0.91	19	1.01	19	1.02	19	1.23	19	0.92	19	0.80	19	0.68	19	0.63	19	0.63	19	0.83	19	0.83
20	0.89	20	0.94	20	1.01	20	1.00	20	1.14	20	0.93	20	0.78	20	0.63	20	0.62	20	0.61	20	0.78	20	0.82
21	0.88	21	0.95	21	1.02	21	1.08	21	1.03	21	0.87	21	0.77	21	0.64	21	0.62	21	0.62	21	0.79	21	0.81
22	0.86	22	0.96	22	0.98	22	1.05	22	1.12	22	0.86	22	0.76	22	0.66	22	0.65	22	0.60	22	0.98	22	0.81
23	0.87	23	0.96	23	0.96	23	1.00	23	1.10	23	0.88	23	0.74	23	0.64	23	0.64	23	0.60	23	0.90	23	0.88
24	1.19	24	0.96	24	0.96	24	0.99	24	1.04	24	0.93	24	0.79	24	0.64	24	0.60	24	0.67	24	0.88	24	0.85
25	1.16	25	0.96	25	0.95	25	1.12	25	1.08	25	0.82	25	0.74	25	0.64	25	0.60	25	0.73	25	0.90	25	0.84
26	1.11	26	0.96	26	0.95	26	1.44	26	1.22	26	0.81	26	0.72	26	0.62	26	0.61	26	0.79	26	0.88	26	0.84
27	1.09	27	0.92	27	0.97	27	1.31	27	1.10	27	0.84	27	0.75	27	0.60	27	0.60	27	0.70	27	0.86	27	0.82
28	1.07	28	0.93	28	0.97	28	1.31	28	1.02	28	0.80	28	0.74	28	0.61	28	0.61	28	0.69	28	0.86	28	0.80
29	1.03			29	0.98	29	1.24	29	1.06	29	0.81	29	0.74	29	0.63	29	0.60	29	0.71	29	0.84	29	0.79
30	1.01			30	0.95	30	1.18	30	1.06	30	0.82	30	0.69	30	0.67	30	0.62	30	1.06	30	0.83	30	0.79
31	0.99			31	1.01			31	1.14			31	0.75	31	0.64			31	0.84			31	0.76
TOTALS	29.17		25.81		29.27		36.76		36.18		28.52		24.46		20.56		18.53		20.68		24.18		25.74

AVERAGE DAILY FLOW (2017) **0.881110**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

TABLE 1
EAST GREENWICH WASTEWATER TREATMENT FACILITY
AVERAGE DAILY FLOWS (JULY 2013 - MARCH 2018)

2018

January		February		March		April		May		June		July		August		September		October		November		December	
Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow	Date	Flow
1	0.76	1	1.05	1	1.24	1		1		1		1		1		1		1		1		1	
2	0.77	2	1.05	2	1.67	2		2		2		2		2		2		2		2		2	
3	0.77	3	1.01	3	1.82	3		3		3		3		3		3		3		3		3	
4	0.75	4	1.03	4	1.65	4		4		4		4		4		4		4		4		4	
5	0.76	5	1.19	5	1.71	5		5		5		5		5		5		5		5		5	
6	0.78	6	1.10	6	1.62	6		6		6		6		6		6		6		6		6	
7	0.76	7	1.16	7	1.60	7		7		7		7		7		7		7		7		7	
8	0.78	8	1.15	8	1.67	8		8		8		8		8		8		8		8		8	
9	0.79	9	1.12	9	1.63	9		9		9		9		9		9		9		9		9	
10	0.74	10	1.12	10	1.60	10		10		10		10		10		10		10		10		10	
11	0.76	11	1.30	11	1.50	11		11		11		11		11		11		11		11		11	
12	1.01	12	1.37	12	1.45	12		12		12		12		12		12		12		12		12	
13	1.55	13	1.27	13	1.41	13		13		13		13		13		13		13		13		13	
14	1.21	14	1.29	14	1.48	14		14		14		14		14		14		14		14		14	
15	1.17	15	1.27	15	1.45	15		15		15		15		15		15		15		15		15	
16	1.18	16	1.30	16	1.42	16		16		16		16		16		16		16		16		16	
17	1.13	17	1.20	17	1.39	17		17		17		17		17		17		17		17		17	
18	1.10	18	1.21	18	1.34	18		18		18		18		18		18		18		18		18	
19	1.08	19	1.20	19	1.30	19		19		19		19		19		19		19		19		19	
20	1.07	20	1.22	20	1.27	20		20		20		20		20		20		20		20		20	
21	1.01	21	1.13	21	1.27	21		21		21		21		21		21		21		21		21	
22	0.94	22	1.17	22	1.26	22		22		22		22		22		22		22		22		22	
23	1.21	23	1.19	23	1.23	23		23		23		23		23		23		23		23		23	
24	1.19	24	1.22	24	1.21	24		24		24		24		24		24		24		24		24	
25	1.14	25	1.35	25	1.18	25		25		25		25		25		25		25		25		25	
26	1.11	26	1.34	26	0.89	26		26		26		26		26		26		26		26		26	
27	1.11	27	1.31	27	1.34	27		27		27		27		27		27		27		27		27	
28	1.10	28	1.27	28	1.23	28		28		28		28		28		28		28		28		28	
29	1.08			29	1.10	29		29		29		29		29		29		29		29		29	
30	1.06			30	1.11	30		30		30		30		30		30		30		30		30	
31	1.05			31	1.12			31				31		31				31				31	
TOTALS	30.9128		33.5989		43.1809		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00

AVERAGE DAILY FLOW (January - March 2018) **1.196584**

Average Daily Flow data provided by the East Greenwich Wastewater Treatment Facility

APPENDIX A

TABLES 2, 3, 4 AND 5

TABLE 2
CONNECTIONS FOR NEWLY SEWERED AREAS

Area	Total Connections to Date	Total Potential Connections	Balance To Connect
Meadowbroook	68	110	42
Lillibridge	96	132	36
Lower Cindy Ann	81	87	6
Maplewood	54	63	9
Upper Cindy Ann	69	81	12
Tanglewood	47	59	12
Knollwood	29	35	6
Phase 3A	41	90	49
Malm	34	34	0
Numbered Streets & Avenues	36	50	14
Grand View	22	22	0
River Farm Drive	20	25	5
Kent Drive	10	11	1
Edward and Clemente	15	18	3
H&H, Brisas and Dedford	77	78	1
Kenyon Avenue	8	18	10
South Pierce	17	17	0
Route 2	14	30	16
Cindy Ann Phase 2a	8	8	0
Misty Oak	5	9	4
Atherton Road Phase 2a	3	4	1
Cedar	27	27	0
Gaps & Queens Grant	125	164	39
Sun Valley	126	201	75
Cedar Heights	91	140	49
Pinewood	29	69	40
Total	**1,152**	**1,582**	**430**

Note: Table 2 provided by the East Greenwich Wastewater Treatment Facility.

TABLE 3
SUMMARY OF FUTURE FLOWS

	Average Daily Flow (GPD)
Present Flow [1]	650,000
Infiltration/Inflow	490,000
Potential Future Flow	129,000
Commons at Frenchtown Rd.	25,000[1]
New England Institute of Technology	37,700[1]
Future Town Reserve	100,000
Total	**1,431,700**
The Town has an additional reserve of 268,300 gallons per day (1,700,000 – 1,431,700)	

[1] Committed flows by the Town

TABLE 4
ADEQUACY OF HUNT'S RIVER INTERCEPTOR

Segment	Capacity (MGD)	Future Peak Flow (MGD)	Comments
Segment 1	17.85	2.90	Adequate
Segment 2	4.93	2.90	Adequate
Segment 3	5.28	1.28	Adequate
Segment 4	4.37	1.02	Adequate

TABLE 5
FUTURE FLOWS TO SEGMENTS 1 AND 2 OF HUNT'S RIVER INTERCEPTOR

	Average Daily Flow (MGD)	Peak Daily Flow (MGD)
Existing	325,000	975,000
I/I	245,000	245,000
Potential Future Flow	129,000	387,000
Commons at Frenchtown Rd.	25,000	75,000
N.E. Institute of Technology	37,700	113,100
Future Town Reserve	100,000	300,000
Reserve Capacity	268,300	804,900
Total	**1,130,000**	**2,900,000**

Appendix B