Ogunquit Sewer District

WWTF and Pump Station No. 1
Adaptation Upgrade Facilities Plan

October 2014

Prepared
by

WRIGHT-PIERCE
Engineering a Better Environment

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OGUNQUIT SEWER DISTRICT

WWTF AND PUMP STATION NO. 1 ADAPTATION UPGRADE FACILITIES PLAN

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SECTION 1

INTRODUCTION

1.1 BACKGROUND

The Ogunquit Sewer District (OSD) owns and operates over 20 miles of wastewater collection sewers, 12 pumping stations and a 1.28 million gallon per day (mgd) wastewater treatment facility (WWTF). The facility receives wastewater from the Town of Ogunquit as well as small portions of Town of York. The WWTF is a conventional activated sludge secondary treatment plant with screening, grit removal, effluent disinfection and dechlorination, and effluent pumping (tide dependent). Treated effluent is disposed of via an ocean outfall discharging approximately 2,200 feet offshore. Excess biosolids are aerobically digested, dewatered (using a belt filter press), and composted off-site. The WWTF has on-site, dedicated standby power provisions to allow for operation of the facility under loss of utility power. The WWTF was originally constructed as a 0.75 mgd secondary treatment plant in the 1960s and was upgraded and expanded to 1.28 mgd including solids handling and diffused aeration in 1991.

The WWTF is bounded by the Ogunquit River (to the west), the Ogunquit Beach (to the east), the Footbridge Beach (to the south) and Moody Beach (to the north). The area immediately surrounding the plant is owned by the Town and is classified by the Maine Geological Survey as a Coastal Barrier Resource. The WWTF site has not had any flood events which have damaged equipment or which have impacted the ability of the operators to access the plant.

Pump Station No. 1 (one of the two major pump stations) is located in the Footbridge Beach parking lot off Ocean Street; it was originally constructed in the early 1960s and was last upgraded in 1984. Pump Station No. 1 is a wetpit/drypit style pump station with all its electrical gear located in the below-grade drypit. Pump Station No. 1 does not have a permanent standby generator; however, the station does have a quick-connection to allow for a portable generator to run the station during loss of utility power. This low-lying area routinely floods during moon

tides and storm events. While access to the site is sometimes constrained, the pump station itself has not been damaged by flood events.

Pump Station No. 2 (the other major pump station) is located off Shore Road, near the intersection with Cottage Street; it was originally constructed in the early 1960s and was last upgrade in the 2009. Pump Station No. 2 is a self-priming, above-grade style pump station with a below-grade wetwell. All of its electrical gear, including dedicated standby generator, are located above-grade. Pump Station No. 2 is above the flood elevation and is protected by a concrete seawall. The Pump Station No. 2 site has not had any flood events which have damaged equipment or which have impacted the ability of the operators to access the station.

1.3 PREVIOUS STUDIES

Through a grant from the Southern Maine Regional Planning Commission, the District commissioned a study to assess the implications of floods, storm surges and sea level rise on its existing infrastructure. The results of this study were documented in a report entitled "Adaptation Options to Protect the Ogunquit Sewage Treatment Plant against Floods, Storm Surges and Sea Level Rise" (Woodard & Curran, August 2012). The recommendations contained in this report indicate that "there appears to be no practical long-term solution that would feasibly allow the Town to continue utilizing the existing treatment site without mitigation measures that would involve major permitting, funding, and construction efforts, such as elevating site assets and/or dune nourishment (rehabilitating a man-made dune retention system) in the frontal dune, and salt marsh enhancement in the back dune". The recommended long-term strategy was to relocate the WWTF and to develop a 20 year to 50 year strategic plan, including a financial plan, to determine the most cost-effective transition approach.

The District retained Wright-Pierce to perform a review of the 2012 Adaptation Options Report recommendations. This review was documented in a letter dated March 28, 2013. A copy of this letter is included in **Appendix A**.

1.3 PURPOSE AND ORGANIZATION OF REPORT

In July 2013, the District retained Wright-Pierce to evaluate adaptation options for the WWTF as well as Pump Station No. 1, Pump Station No. 2 and Pump Station No. 4. The scope of this analysis was to:

- Review existing wastewater flows and loads and future NPDES permit conditions;
- Identify potential sites for relocation of the WWTF and Pump Station No. 1;
- Develop two alternatives for WWTF relocation – 1) closer to shore; and 2) further "upland";
- Develop three alternatives for Pump Station No. 1 adaptation – 1) current location with flood proofing; 2) relocated further inland on the "land side" of the Ogunquit River; and 3) relocated to the "beach side" of the Ogunquit River.
- Develop adaptation upgrade alternatives for the Ogunquit WWTF
- Develop adaptation upgrade alternatives for regionalization with the Wells Sanitary District at their WWTF
- Prepare estimates of capital cost, annual operating costs and total annual costs for each alternative; and
- Develop a preliminary implementation plan.

This report is divided into the following sections:

- Section 1: Executive Summary
- Section 2: Wastewater Flows, Loads and Effluent Standards
- Section 3: Evaluation of Existing Facilities
- Section 4: Town-Wide Nitrogen Management
- Section 5: Evaluation of Alternatives
- Section 6: Recommended Plan
- Section 7: Project Costs and Financing

The purpose of this report is to provide a technical basis upon which to make long-term wastewater management decisions. This report uses a variety of technical terms, abbreviations and acronyms. **Table 1-1** identifies the most commonly used abbreviations and acronyms.

TABLE 1-1
LIST OF COMMONLY USED ACRONYMS AND ABBREVIATIONS

BOD	Biochemical oxygen demand
CEC	Compounds of emerging concern
Current	Covering the dates 2010 to 2013, applied to population, wastewater flow or nitrogen load conditions
DEP	Department of Environmental Protection
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FM	Forcemain (wastewater)
Future	Referring to future population, wastewater flows or nitrogen loads
GIS	Geographic Information System
gpd	Gallons per day
HDD	Horizontal directional drilling
I/I	Infiltration and Inflow
lb/day	Pounds per day
MEPDES	Maine Pollutant Discharge Elimination System (permit for effluent discharge)
mgd	Million gallons per day
mg/l	Milligrams Per Liter
O&M	Operations and maintenance
OSD	Ogunquit Sewer District
PS1	Pump Station No. 1
PS2	Pump Station No. 2
PS12	Pump Station No. 12
SRF	State Revolving Fund (administered by Maine Department of Environmental Protection)
TSS	Total Suspended Solids
WSD	Wells Sanitary District
WWTF	Wastewater Treatment Facility

Section 2

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SECTION 2

WASTEWATER FLOWS, LOADS AND PERMIT LIMITS

This section summarizes current land use, population trends, and current and future flow and loadings to the WWTF. This section also contains a discussion of current effluent limits, anticipated future effluent limits, an evaluation of relocation sites, and an analysis of adaptation alternatives.

2.1 POPULATION AND LAND USE TRENDS

According to the U.S. Census Bureau (2010), Ogunquit has a population of approximately 1,174 residents with municipal bounds encompassing 4.2 square miles. **Appendix B** shows population trends from 1980 to 2010. **Appendix B** also shows the breakdown of parcels by size and ownership. The Town has a total of 1,632 parcels, 95% of which are privately owned. Between 1,100 and 1,300 parcels are currently connected to public sewer (including some in York) with 1,806 District customers.

The original facility plan assumed a steady population growth from 1980 through 2010; however, population data shows that the population declined and has only recently returned to what it was in 1980. During the same period of time, the number of hotel rooms has greatly increased. The District does not expect land use trends to drastically change, since many parcels are already fully developed.

2.2 CURRENT WASTEWATER FLOWS AND LOADINGS

Ogunquit's wastewater is generated from two general sources: *sewage flow* from residential and commercial sources; and *infiltration and inflow (I/I)*, which is water from extraneous sources such as storm drains, floor drains, and roof leaders and is generally associated with rainfall or ground water. The District does not generally receive septage. Given the nature of development in town, the vast majority of the wastewater flow comes from residential and small commercial sources.

A review of current flows and loadings for the WWTF was conducted by analyzing data from 2001 through 2002 and from 2010 through 2013. The facility is currently designed for an average daily flow of 1.28 million gallons per day (mgd). Influent flow data is measured from a magnetic flow metering system located in a manhole ahead of the plant headworks. Influent loading data was calculated based on samples collected from a flow paced, automatic composite sampler collected from the head end of the grit chamber. Current flow and loadings information is summarized in **Table 2-1** and shown in **Figure 2-1.** Historical data from 1991 through 2013 is depicted on **Figure 2-2**.

TABLE 2-1
SUMMARY OF INFLUENT FLOWS AND LOADS

	Flow (MGD)	BOD (lbs/day)	TSS (lbs/day)
Design Basis (Maximum Month)	1.282	3,333	3,700
Approx. Design Basis with BNR (70%)	1.282	2,333	2,590
2001 to 2002			
Annual Average	0.579	1,190	1,590
Spring/Fall Average	0.589	1,190	1,625
Summer Average	0.758	1,970	2,370
Spring/Fall Maximum 7-Day	0.963	2,180	3,640
Summer Maximum 7-Day	0.887	3,450	4,370
2010 to 2013 (August)			
Annual Average	0.578	995	1,037
Spring/Fall Average	0.579	1,036	1,033
Summer Average	0.785	2,144	1,893
Spring/Fall Maximum 7-Day	1.069	2,204	3,147
Summer Maximum 7-Day	1.085	5,619	4,233
Summer Maximum 30-Day	0.953	5,363	4,108

Notes:

1. Design Basis is based on the Preliminary Design Report for the WWTF Upgrade (W-P, Oct 1989).
2. The original design was based on a complete-mix, extended aeration activated sludge process for BOD removal. The district modified this for a modified Ludzack-Ettinger process configuration to better control seasonal nitrification/denitrification which was occurring. This resulted in a reduction in oxic tank volume thereby decreasing the available treatment volume. The current design capacity does not account for this, but effluent data from 2013 suggests that the plant is operating within capacity.
3. Spring and Fall data is from May 1 to June 14 and from September 16 to October 31.
4. Summer data is from June 15 to September 15.
5. Non-Summer data is from November 1 to April 30.

Figure 2-1: Ogunquit Sewer District WWTF
30 Day Running Averages (for 2010 to 2013)

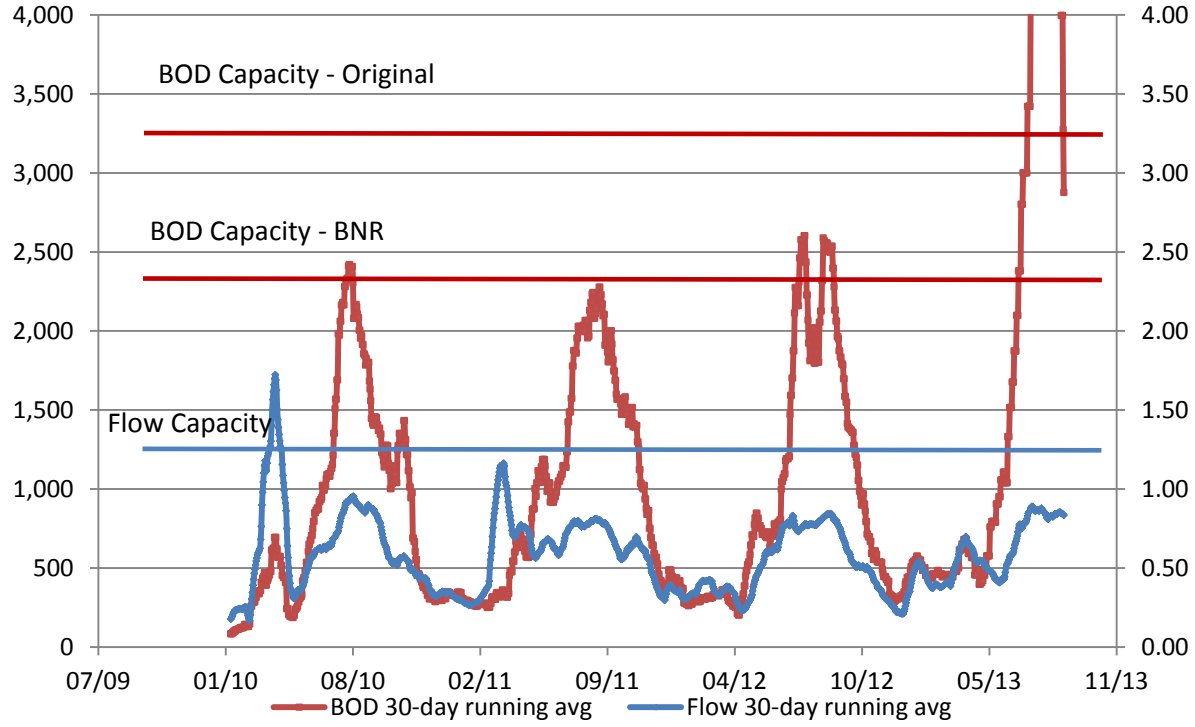
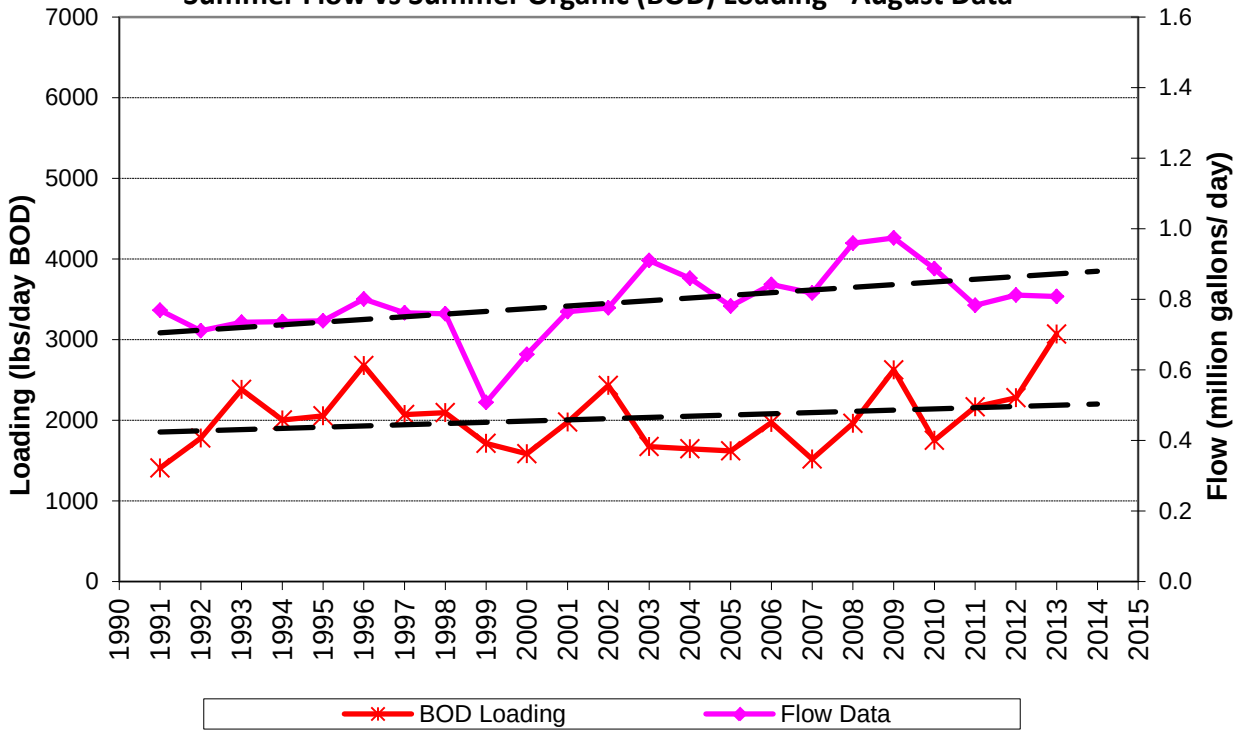


Figure 2-2: Ogunquit Sewer District
Summer Flow vs Summer Organic (BOD) Loading - August Data



2.3 FUTURE WASTEWATER FLOWS AND LOADINGS

Future flows and loadings are a function of projected sewered growth and development and changes to I/I flow to the facility. At this time, the District does not anticipate any major residential or commercial development nor does it expect to receive septage. Many zones within the Town have restricted use limiting development and expansion (see **Figure 2-3** for a map of Ogunquit's zoning and collection system); furthermore, the sewered portion of the Town is already highly developed. The District does not plan to extend sewer service to other areas, but will continue to accept developer-built sewer extensions on a case-by-case basis. For the purposes of this analysis, the existing design values for the facility will be maintained.

2.4 CURRENT EFFLUENT LIMITS

Maine is delegated by the USEPA to issue discharge permits. The Maine Pollutant Discharge Elimination System (MEPDES) permit is equivalent to a National Pollutant Discharge Elimination System (NPDES) permit that is issued by USEPA in non-delegated states. The effluent monitoring and quality standards that are set forth in the MEPDES Permit are established in accordance with applicable federal and state regulations. Maine state water quality criteria standards and administrative rules that provide the basis for MEPDES permits for WWTFs are included in Maine Law 38 M.R.S.A. and various Code of Maine Rules (CMR) administered by the Department of Environmental Protection (DEP). The Ogunquit Sewer District WWTF is authorized to discharge treated sanitary wastewater through an outfall located in the Atlantic Ocean. The Atlantic Ocean in the vicinity of the District's discharge is classified as a SB waterway by the MEDEP. Maine law describes the standard for Class SB, as follows: *Class SB waters must be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and estuarine and marine. The habitat must be characterized as unimpaired.*

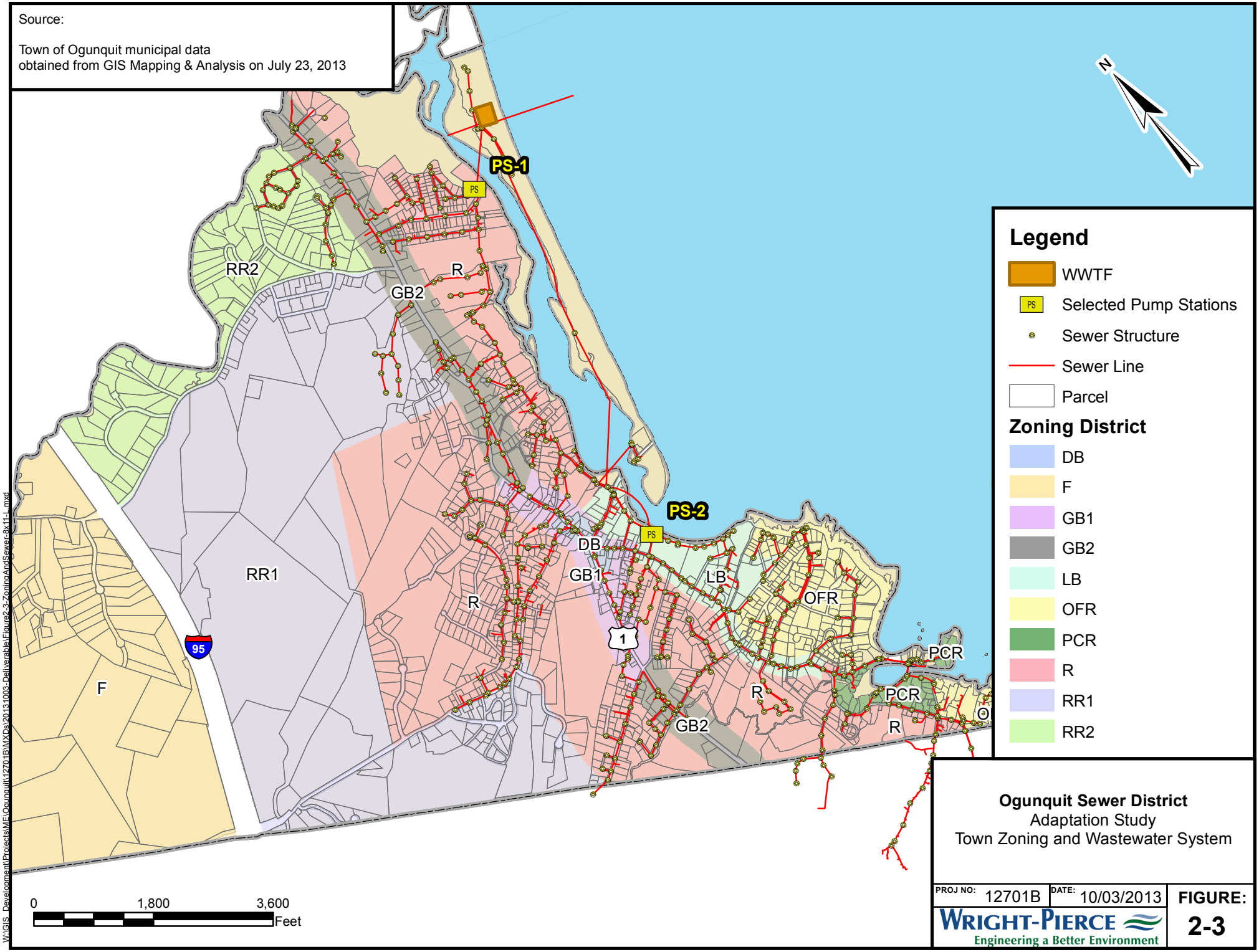

Source:
Town of Ogunquit municipal data
obtained from GIS Mapping & Analysis on July 23, 2013
N
PS-1
PS-2
PS
RR2
RR1
R
GB2
DB
GB1
LB
OFR
PCR
F
95
1
Legend
WWTF
Selected Pump Stations
Sewer Structure
Sewer Line
Parcel
Zoning District
DB
F
GB1
GB2
LB
OFR
PCR
R
RR1
RR2
0
1,800
3,600
Feet
Ogunquit Sewer District
Adaptation Study
Town Zoning and Wastewater System
PROJ NO: 12701B
DATE: 10/03/2013
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FIGURE:
2-3
W:\GIS_Development\Projects\ME\Ogunquit\12701B\MXDs\20131003-Deliverable\Figure2-3-ZoningAndSewer-8x11-L.mxd

The current MEPDES permit (No. ME0100986) was issued February 20, 2013 and will expire February 20, 2018. A modification was issued on September 11, 2013 which removed inorganic arsenic and total arsenic from the permit. Copies of the current MEPDES permit and modification are included in **Appendix C**. Current effluent discharge limits per the MEPDES permit and subsequent minor revision are summarized in **Table 2-2.** Mass limits in the permit are calculated based on a monthly average flow of 1.28 mgd.

TABLE 2-2
SUMMARY OF CURRENT MEPDES PERMIT LIMITS

Parameter	**Monthly Average**	**Weekly Average**	**Daily Maximum**
Flow, mgd	1.28	-	Report
BOD_5, mg/l	30	45	50
BOD_5, % Removal	85%	-	-
TSS, mg/l	30	45	50
TSS, % Removal	85%	-	-
Settleable Solids, ml/L	-	-	0.3
Fecal Coliform, #/100 mL	15	-	50
Total Residual Chorine, mg/L (April-Sept.)	0.1	-	0.3
Total Residual Chorine, mg/L (Oct.-March)	-	-	0.65
pH, Std. Units	6.0-9.0	6.0-9.0	6.0-9.0
Total Mercury, ng/l	19.3	-	29.0

2.5 ANTICIPATED FUTURE EFFLUENT LIMITS

The WWTF should expect to meet more stringent effluent limitations in the future due to regulatory requirements. The pollutants of concern are identified below.

- **Nitrogen** - DEP has stated that Maine communities with POTW discharges to coastal waters should expect total nitrogen effluent limits in the future. The anticipated effluent limit depends on the location of each community and its influence on local water quality. It is not yet known when Maine communities are expected to limit Total Nitrogen, but a limit of 8-mg/l on a monthly average basis is anticipated. Currently, the WWTF includes nitrogen

removal with a Modified Ludzack-Ettinger process configuration during secondary treatment with effluent nitrogen concentrations below 8 mg/l.

- **Phosphorus** - Given the location of the facility discharge, phosphorus limits are not anticipated.

- **Ammonia and Metals ("toxics")** - Given the facility dilution factor, ammonia and metals limits are not anticipated.

- **Bacteria** - Given the location of the facility discharge, changes in bacteria limits are not anticipated.

- **Compounds of Emerging Concern (CECs)** – CECs encompass a wide variety of compounds including endocrine disrupting compounds, pharmaceuticals, flame retardants, hormones, industrial solvents and surfactants, metals, pesticides, and personal care products. CECs have been found in wastewater for decades; however, they have recently reached the forefront of regulatory and public concern, and there is currently a great deal of research on CECs. One of the difficulties associated with addressing this topic is the large number and wide array of substances that can be classified as CECs. EPA and MEDEP have not established effluent standards for CECs to date, and has not indicated any intention to regulate CECs in the near term.

Section 3

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SECTION 3

ALTERNATIVES FOR RELOCATION OF THE OGUNQUIT WWTF

The District is considering the following adaptation strategies to address the implications of climate change: 1) relocation of the WWTF to a new location; 2) upgrading at the current location; or, 3) regionalization with the Wells Sanitary District. These strategies will likely be implemented in a combination of near-term and long-term upgrades. This section of the report will address alternative for relocation of the Ogunquit WWTF

3.1 IDENTIFICATION OF SUITABLE SITES

Initial stages of planning have primarily focused on finding suitable sites for the WWTF and Pump Station 1 relocations. Preliminary discussions with OSD and a "windshield survey" have narrowed the selections to two locations for the WWTF and three locations for Pump Station 1.

3.1.1 WWTF Site Location Options

Possible site locations were selected based on three criteria: lot size; degree of development on and around the site; and risk for flooding due to storm surge and sea level rise. In order to maximize flexibility with respect to future wastewater needs, OSD would need sufficient land space for modifications and upgrades. The existing unit processes include preliminary treatment, secondary treatment with nitrogen removal, and disinfection. The WWTF also includes administration functions, garage space, biosolids digestion, and storage tanks. For reference, the area within the fenceline at the existing site is 1.75 acres in size.

As noted in **Section 2**, we will assume a future design average capacity of 1.28 mgd. Land area requirements for treatment plants of this size fall in the size range of 1 acre/mgd to 4.5 acres/mgd (WEF Design of Municipal Wastewater Treatment Plants – MOP 8, 1998) are 1.3 acres to 5.8 acres in total. Other considerations include odor control, chemical storage, zoning concerns, and distance from public water sources. For the purposes of this report, we have set the minimum parcel size at 5 acres.

Using information from the Town and GIS databases, 17 possible sites greater than 5 acres met the criteria as a possible WWTF site. A summary of the key information for each of the identified properties is provided in **Table 3-1**. After discussions with OSD and a windshield survey, two sites were chosen for further evaluation—one upland and one coastal. The sites chosen for comparison are Site A and Site C shown in **Figure 3-1**.

1. **Site A** (10.1 acres) is privately owned and undeveloped, but has residential neighbors to consider. Generally, the coastal site will have higher land costs and require more capital investment to manage odors and other neighbor issues. Site A may require more site work if drainage issues such as seasonal wetness or drainage swales are present.
2. **Site C** (34.9 acres) is owned by the Town of Ogunquit and has very little development in the immediate area. Upland locations have higher costs associated with transport of wastewater for treatment and disposal.

3.1.2 Pump Station 1 Site Location Options

Criteria for a possible Pump Station 1 (PS1) site include proximity to existing site, degree of development, and a parcel size greater than 0.1 acres. Based on these criteria, 7 possible sites were identified (refer to **Table 3-1**). After discussions with OSD, the list was narrowed to three sites. The three suitable locations for PS1 include its existing position, an upland location, and relocation to the existing WWTF. **Figure 3-2** depicts the locations of potential PS1 sites.

1. **Site W** (0.1 acres) is privately owned and undeveloped; however, there are numerous neighbors in the immediate area. This scenario requires PS1 be moved offsite to a higher elevation.
2. **WWTF Site:** PS1 could be abandoned and a new Pump Station constructed on the existing WWTF site for conveyance to Site A or C when the WWTF is relocated. A siphon would need to be constructed to convey wastewater from the existing Pump Station 1 site to the existing WWTF site.
3. **Existing Site:** PS1 could remain in its current position. For this to be a feasible option, it would need to be converted to a submersible pump station and have all electrical components relocated offsite. Two parcels were identified for possible electrical relocation: Site P and Site Q, both privately owned with neighbors in the immediate area.

TABLE 3-1
POTENTIAL SITES FOR WWTF AND PUMP STATION NO. 1

Location	Key	Parcel ID	Current Owner	Acreage	Assessed Land Value	Developed	Outside of Flood Zone
WWTF	A	13-7	Joseph Littlefield	10.1	$212,000	N	Y
	B	20-31	Robert Morgan	20.7	$320,000	N	Y
	C	19-5-A	Town of Ogunquit	34.9	T	Y	Y
	D	19-10	Marjorie Littlefield	56.9	$277,000	N	Y
	E	19-8	Gary Littlefield	20.7	$70,000	N	Y
	F	19-7	Barbara Kirpatrick	24.9	$235,000	N	Y
	G	19-6	Woodpecker Highway LLC	19.8	$7,000	N	Y
	H	19-6-1	Kenney Basset/ Clare Lavoie	18.8	$7,000	N	Y
	I	6-65	Town of Ogunquit	7.6	T	Y	Y
	J	16-81-1	David/Roberta Walker	11.9	$359,000	N	Y
	K	18-7	Troika Holdings LLC	35.1	$283,000	N	Y
	L	18-15-B	Town of Ogunquit	19.9	T	Y	Y
	M	18-17-1	Town of Ogunquit	10.7	T	Y	Y
	N	9-83	Great Works Regional Land Trust	18.9	$117,000	Y	P
	T	11-6	Ogunquit Motel Corp.	3.4	$1,166,000	Y	Y
	U	11-4-6/7/8	Ogunquit Properties LLC	3.3	$1,020,000	N	Y
	V	20-26	Town of Ogunquit	0.99	T	Y	Y
PS#1	N	9-83	Great Works Regional Land Trust	18.9	$117,000	Y	P
	O	10-51-A	Great Works Regional Land Trust	0.3	$15,000	N	N
	P	9-25	Joseph Littlefield	0.3	$293,000	N	P
	Q	9-64	Joseph Littlefield	2.2	$128,000	Y	N
	R	9-71-A	Joseph Littlefield	0.6	$380,000	Y	P
	S	9-72	Barbara Evan Murphy Rev. Trust	0.2	$290,400	N	Y
	W	10-35	Faye Irene Fitzgerald	0.1	$12,600	N	Y

Source: Town of Ogunquit GIS (on-line, 2013)

FIGURE 3-1
POTENTIAL WWTF LOCATIONS

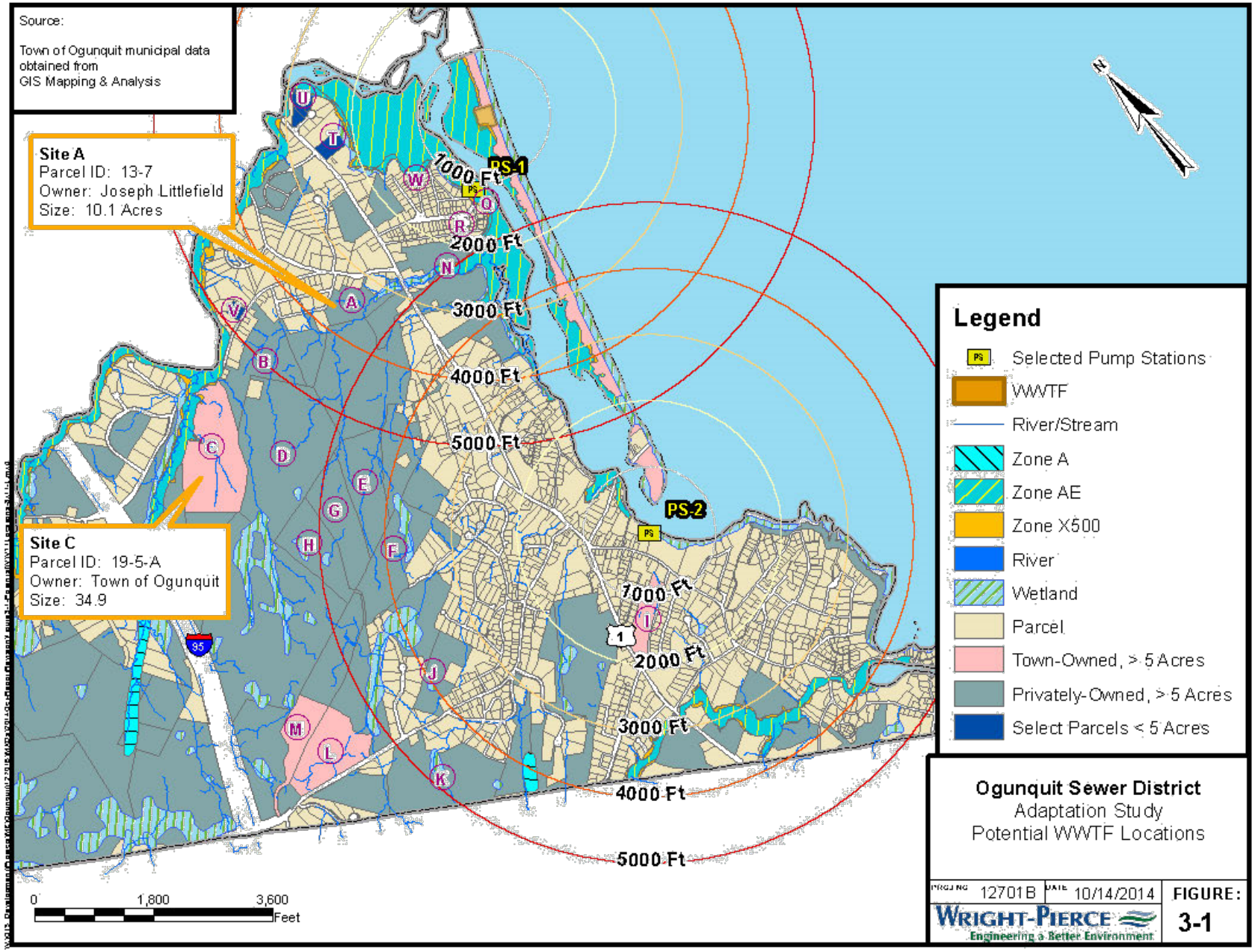
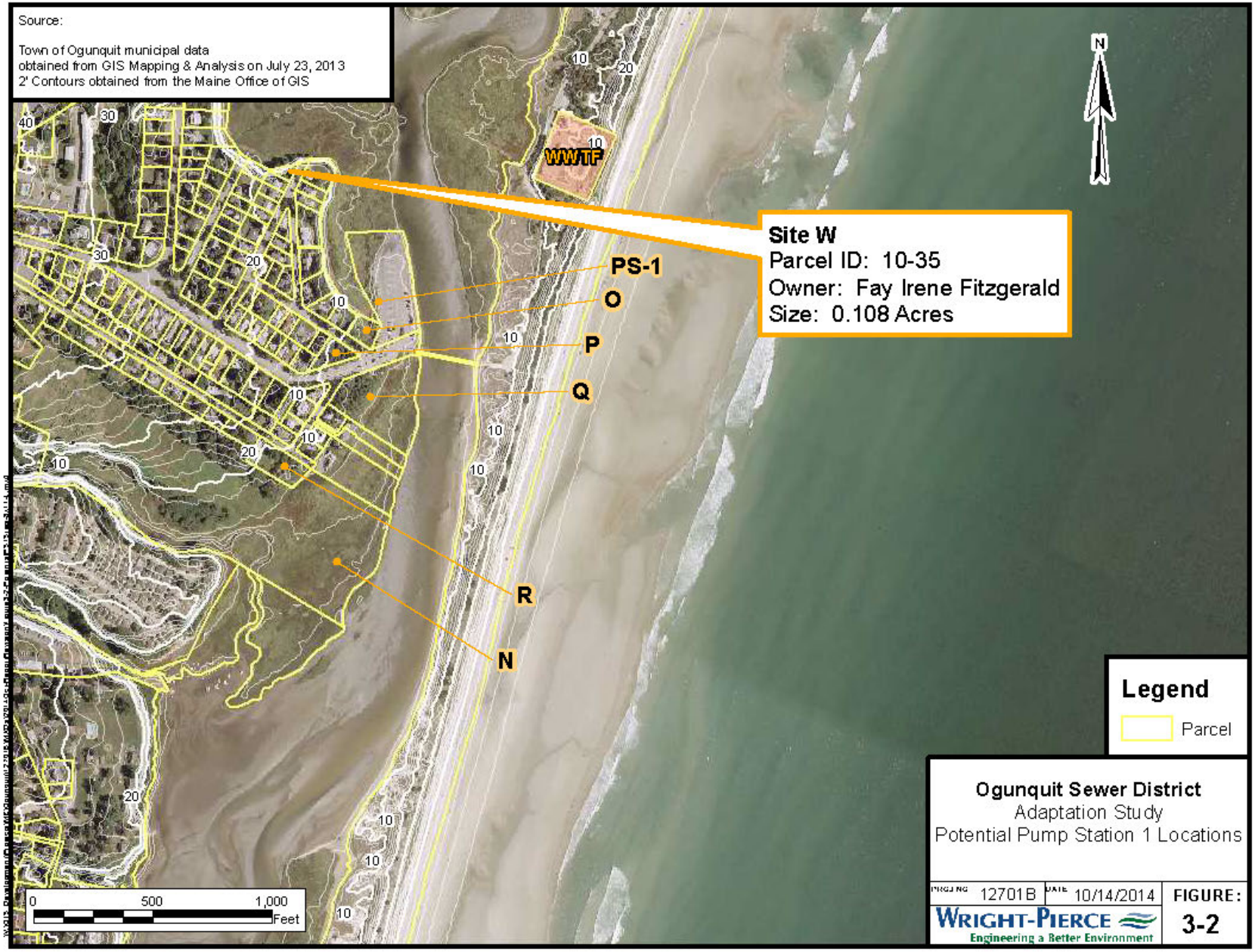


FIGURE 3-2
POTENTIAL PUMP STATION 1 LOCATIONS



3.2 IDENTIFICATION OF ALTERNATIVES FOR WWTF AND PUMP STATION 1

3.2.1 WWTF - Long Term Alternatives

As noted in Section 3.1.1, two locations were considered for the WWTF relocation: Site A and Site C. For comparative purposes, the WWTF sites were analyzed assuming PS1 was moved to Site W, as this is considered the most conservative option with regard to adaptation for that station. The forcemain for PS1 travels along Ocean Street and Route 1 to the WWTF site. The forcemain for PS2 travels from the valve vault on River Road across an existing parking lot near Dunelawn Drive and to Route 1.The new WWTF will have preliminary, primary, advanced secondary treatment (including a Modified Ludzack-Ettinger process configuration), biosolids storage, biosolids dewatering and disinfection processes. The new WWTF site will also house the existing administrative, garage, and maintenance functions.

WWTF – Alternative 1; Site A (Coastal Location)

Under this alternative, the WWTF would be relocated to **Site A** and retain some or all of the existing WWTF site for connection to the existing outfall pipe. Site A will also have significant landscaping/screening and odor control requirements. To deliver wastewater to the treatment plant, this alternative will require the following collection system modifications or additions.

- 940 linear feet (lf) of interceptor sewer to send sewage from MH 1-2 to PS1, with possible excavation depths exceeding 20 feet;
- 3,100 lf of forcemain to deliver flow from PS1 Site W to WWTF Site A;
- 5,800 lf of forcemain to deliver flow from the PS2 valve vault on River Road to WWTF Site A; and
- 4,200 lf of forcemain to connect the WWTF effluent line to the existing outfall.

WWTF – Alternative 2; Site C (Upland Location)

Under this alternative, the WWTF would be relocated to **Site C** (owned by the Town of Ogunquit) and retain some or all of existing WWTF site for connection to the existing outfall pipe. Due to its distance, Site C will require longer forcemains, as shown below.

- 940 lf of interceptor sewer to send sewage from MH 1-2 to PS1, with possible excavation depths exceeding 20 feet;
- 6,900 lf of forcemain to deliver flow from PS1 Site W to WWTF Site C;
- 10,000 lf of forcemain to deliver flow from PS2 to WWTF Site C; and
- 8,100 lf of forcemain to connect the WWTF effluent line to the existing outfall.

3.2.2 Pump Station 1 - Long Term Alternatives

As noted in Section 3.1.2, three locations were considered for Pump Station 1: Site W, the existing WWTF site, and its existing site. This section analyzes the long term alternatives for the three PS1 alternatives.

PS 1 -- Alternative 1, Site W

PS1 would be constructed on **Site W**, requiring an interceptor sewer and new forcemain. The new pump station would be in a wet pit/dry pit configuration. PS2 would remain at the existing site and reuse the existing dual forcemain from PS2 to River Road where new forcemain will be required. PS12, currently located at the existing WWTF, would need to be upgraded and pump to PS1. Below is a summary of the required collection system modifications.

- 940 lf of interceptor sewer to send sewage from MH 1-2 to PS1, with possible excavation depths exceeding 20 feet (along Thither St.)
- 3,100 lf of forcemain to deliver flow from PS1 Site W to WWTF Site A (along Ocean St. and Rt. 1)
- 5,800 lf of forcemain to deliver flow from the PS2 valve vault on River Road to WWTF Site A, potentially requiring an easement to cross the existing parking lot near Dunelawn Drive (along Rt. 1)

PS 1 -- Alternative 2, Existing WWTF Site

PS1 would be eliminated and a new siphon installed from MH 1-0 to the WWTF site where a new pump station would be constructed. The new pump station would be in a wet pit/dry pit configuration. PS2 would remain at the existing site and continue to use

the existing forcemain to the existing WWTF site. PS12, currently located at the existing WWTF, would need to be demolished. Below is a summary of the required collection system modifications.

- 940 lf siphon from MH 1-0 to new PS1 site, converted from the existing forcemain (under the Ogunquit River)
- 4,500 lf of forcemain to deliver flow from PS1 to WWTF Site A (along Ocean St. and Rt. 1)
- No PS2 upgrades or modifications required

PS 1 -- Alternative 3, Existing Site

PS1 would be converted to a submersible pump station and a new Electrical/Generator Building constructed on **Site Q** (or fed from the WWTF). Feeding power to PS1 from the WWTF is feasible but will result in more cost due to the distance from the WWTF. The incremental cost associated with feeding from the WWTF could be more than the land cost associated with Site Q. PS2 would remain at the existing site and reuse the existing dual forcemain from PS2 to River Road where new forcemain will be required. PS12, currently located at the existing WWTF, would need to be upgraded and pump to PS1 using existing forcemain. No required modifications to the collection system that delivers sewage to PS1. Below is a summary of the required collection system modifications.

- 3,400 lf of forcemain to deliver flow from PS1 to WWTF Site A (along Ocean St. and Rt. 1)
- 5,800 lf of forcemain to deliver flow from the PS2 valve vault on River Road to WWTF Site A, potentially requiring an easement to cross the existing parking lot near Dunelawn Drive (along Rt. 1)

3.2.3 Pump Station 1 - Near Term Alternatives

OSD has indicated that it would like to identify the short term alternatives for Pump Station 1 as well. As a result, this section compares the three alternatives with the WWTF remaining at its current location. For these alternatives, neither PS2 nor PS12 would require any modifications.

PS 1 -- Alternative 1, Site W

A new pump station would be constructed on **Site W**, requiring an interceptor sewer to the station and a new forcemain back to the existing PS1 forcemain. The new pump station would be in a wet pit/dry pit configuration. Below is a summary of the required collection system modifications.

- 940 lf of interceptor sewer to send sewage from MH 1-2 to PS1, with possible excavation depths exceeding 20 feet
- 990 lf of forcemain to deliver flow from Site W to the existing forcemain at the existing PS1 site

PS 1 -- Alternative 2, Existing WWTF Site

PS1 would be eliminated and the existing PS1 forcemain would be converted to a siphon delivering sewage from MH 1-0 to the WWTF site. Below is a summary of the required collection system modifications.

- No required modifications to the collection system that delivers sewage to PS1
- 940 lf siphon from MH 1-0 to new PS1 site, plus converting the existing forcemain to a second siphon

PS 1 -- Alternative 3, Existing Site

PS1 would be converted to a submersible pump station and a new Electrical/Generator Building constructed on **Site Q**. Below is a summary of the required collection system modifications.

- No required modifications to the collection system that delivers sewage to PS1
- No required modifications to the forcemain from PS1 to the WWTF

3.3 COST ESTIMATES

The District will be faced with costs in two categories for modifications to the Pump Stations and the WWTF. The first category is "capital cost," including the cost to plan, permit, design, and build the needed facilities. The second category is "operation and maintenance (O&M) costs"

which include the ongoing annual expenses to run the facilities (e.g., labor, electrical energy, fuel, chemicals, biosolids disposal, laboratory testing, equipment maintenance, etc.).

We have applied the cost model and the cost curves presented in the Barnstable County Cost Report ("*Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod*", April 2010). This report was generated to allow for communities on Cape Cod to assess costs associated with siting new wastewater treatment plants. The cost model includes the following key components:

- wastewater collection,
- transport-to-treatment,
- wastewater treatment,
- transport-to-disposal,
- effluent disposal,
- sludge/septage handling, and
- land acquisition.

The cost model was populated with key technical data on each of the alternatives (e.g., linear feet of pipe, number and size of pump stations, size of treatment facility, etc.). Once basic construction costs were estimated, allowances were added for: contingencies; technical services and legal expenses; site investigation costs; and land costs. The Ogunquit WWTF capital costs and annual operating costs were determined using the cost curves generated from the model (refer to **Appendix D**). The following sections present a summary of the capital costs, annual operating cost and total annual cost estimates for the various alternatives. For the purposes of this study, the debt service on the capital costs has been computed assuming a 2% interest rate and a 20-year term. All costs presented herein are expressed in 2013 dollars (August 2013, Engineering News Record Construction Cost Index 9545).

Estimated costs were developed for each alternative are summarized in **Tables 3-2, 3-3 and 3-4**. Each table depicts the total and annual costs of the various alternatives. Annual costs are comprised of operation and maintenance (O&M) costs and total debt service associated with a SRF loan. **Table 3-2** compares the long-term alternatives for the WWTF. **Table 3-3** compares

the long-term alternatives for the pump stations. **Table 3-4** compares the near-term alternatives for PS1. **Figure 2-6** depicts the locations of the various sites and forcemain alignments.

TABLE 3-2
COMPARISON OF OPTIONS FOR WWTF
(PUMP STATION 1, ALTERNATIVE 1)

WWTF SITE		**SITE A**	**SITE C**
COLLECTION			
	PS 1 Interceptor	$220,000	$220,000
	PS1 Replacement/Upgrades	$1,250,000	$1,250,000
	PS 2 Upgrades	$250,000	$250,000
	PS 12 Upgrades, incl. FM	$250,000	$250,000
TRANSPORT & TREATMENT			
	FM to WWTF	$1,340,000	$2,540,000
	WWTF Replacement	$15,800,000	$15,400,000
	FM from WWTF to Exist. Outfall	$620,000	$1,210,000
LAND COSTS			
	PS 1 Site	$100,000	$100,000
	PS 2 FM Easement for Dunelawn Drive	$100,000	$100,000
	WWTF Site	$250,000	$0
TOTAL CAPITAL COST		**$20,180,000**	**$21,320,000**
	Technical Services & Contingency (40%)	$8,072,000	$8,528,000
PROJECT TOTAL		**$28,252,000**	**$29,848,000**
ANNUAL COSTS			
	Annual Electrical Cost--Collection	$24,000	$35,000
	Annual Electrical Cost--Disposal	$15,000	$27,000
	Annual O&M Costs--WWTF	$2,200,000	$2,200,000
	Annual Debt Service	$1,728,000	$1,825,000
TOTAL ANNUAL COST		**$3,967,000**	**$4,087,000**

NOTES:
Capital costs were estimated at $12/gpd of design capacity
Site A capital costs include $400,000 for neighbor issues and additional odor controls
Annual O&M costs were estimated at $1.7/gpd/yr of design capacity for Site A and C
Land Costs were based on tax assessor valuation for sites and were assumed for easements
Annual debt service costs were estimated assuming a 2% interest rate over 20 years

TABLE 3-3
COMPARISON OF OPTIONS FOR PUMPS STATIONS - LONG TERM

	ALTERNATIVE 1		ALTERNATIVE 2			ALTERNATIVE 3	
PS 1 SITE; FM ROUTE	Site W; Ocean St. to Rt. 1		Relocate to WWTF; Ocean St. to Rt. 1			Exist; Ocean St. to Rt. 1	
PS 2 SITE; FM ROUTE	Exist; Exist to River Road to Rt. 1		Exist; Exist			Exist; Exist to River Road to Rt. 1	
WWTF SITE	Site A		Site A			Site A	
	PS No. 1	PS No. 2	PS No. 1	PS No. 2	New PS at Exist WWTF	PS No. 1	PS No. 2
Pump Station 1 Interceptor Replacement	$220,000	$0	$0	$0	$0	$0	$0
Siphon	$0	$0	$400,000	$0	$0	$0	$0
Land Cost	$100,000	$100,000	$0	$0	$0	$100,000	$100,000
Pump Station Upgrades or Replacement	$1,250,000	$250,000	$100,000	$0	$1,500,000	$650,000	$250,000
Forcemain to WWTF	$460,000	$880,000	$0	$0	$820,000	$510,000	$880,000
Pump Station 12 Upgrades	$100,000	$0	$10,000	$0	$0	$100,000	$0
Pump Station 12 Forcemain to PS 1	$150,000	$0	$0	$0	$0	$150,000	$0
Subtotal--Each Station	**$2,280,000**	**$1,230,000**	**$510,000**	**$0**	**$2,320,000**	**$1,510,000**	**$1,230,000**
Subtotal--Combined	**$3,510,000**		**$2,830,000**			**$2,740,000**	
Technical Services and Contingency (40%)	$1,400,000		$1,130,000			$1,100,000	

TOTAL CAPITAL COST	**$4,910,000**	**$3,960,000**	**$3,840,000**
TOTAL ANNUAL ELECTRIC COST	$24,000	$24,000	$24,000
ANNUAL DEBT SERVICE	$300,000	$242,000	$235,000
TOTAL ANNUAL COST	**$324,000**	**$266,000**	**$259,000**

NOTES: Alternative 1 will require land purchase for PS1, assumed to cost $100,000
Alternative 1 and 3 may require an easement for PS2 forcemain at Dunelawn Drive, assumed to cost $100,000
Alternative 2 will require a siphon from MH 1-0 to existing WWTF
Alternative 3 will require property purchase or easement for new electrical building, assumed to cost $100,000
Annual debt service costs are the expected costs from a state revolving loan fund loan at 2% interest

TABLE 3-4
COMPARISON OF NEAR TERM ALTERNATIVE FOR PUMP STATOIN 1
NEAR TERM

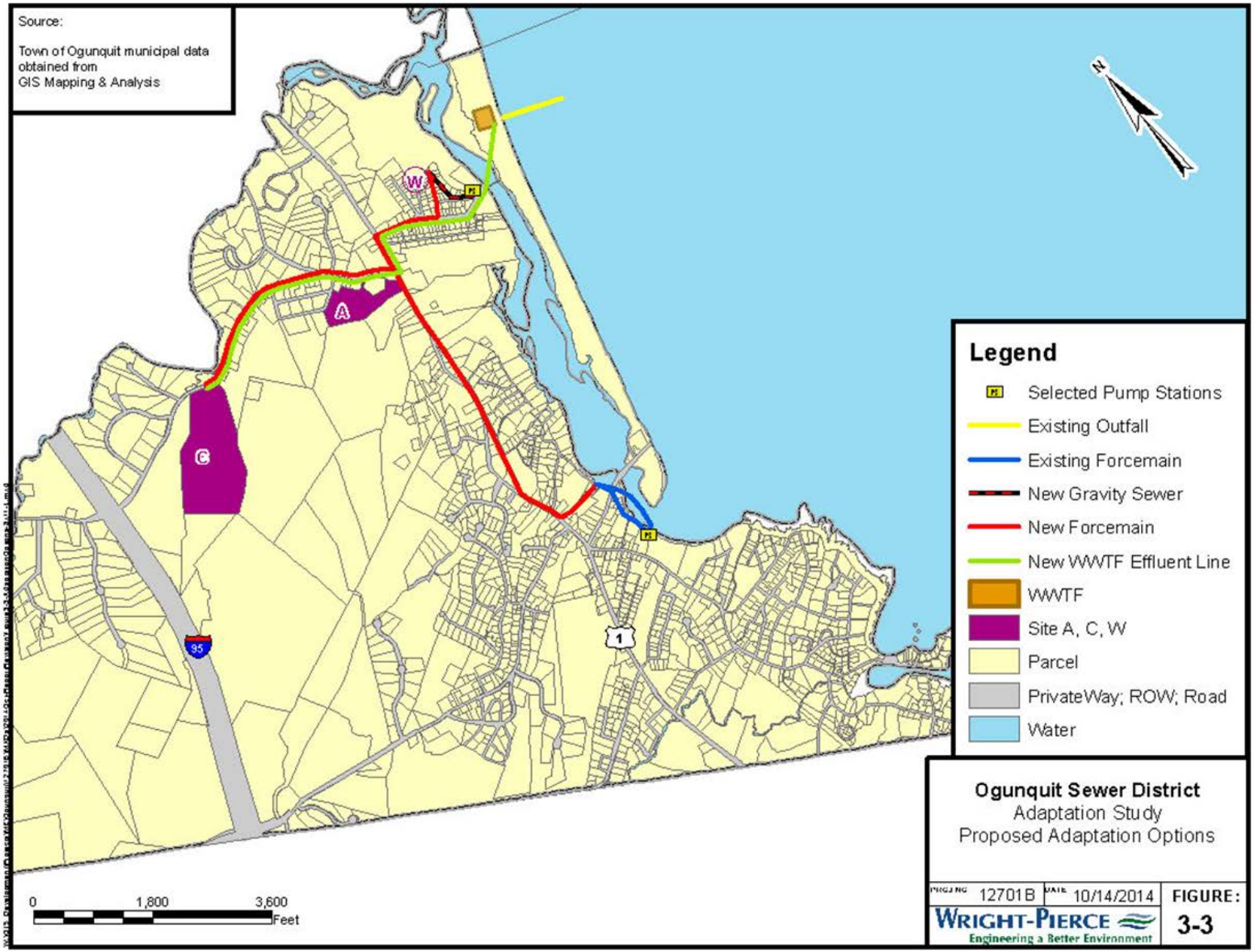
	ALTERNATIVE 1	**ALTERNATIVE 2**	**ALTERNATIVE 3**
PS 1 SITE	Site W	Relocated to WWTF	Existing
WWTF SITE	Existing	Existing	Existing
Pump Station 1 Interceptor Replacement	$220,000	$0	$0
Siphon	$0	$400,000	$0
Land Cost	$100,000	$0	$100,000
Pump Station Upgrades or Replacement	$1,250,000	$1,100,000	$650,000
Forcemain to WWTF	$150,000	$0	$0
Pump Station 12 Upgrades	$0	$0	$0
Pump Station 12 Forcemain to PS 1	$0	$0	$0
Subtotal	**$1,720,000**	**$1,500,000**	**$750,000**
Technical Services and Contingency (40%)	$690,000	$600,000	$300,000

TOTAL CAPITAL COST	**$2,410,000**	**$2,100,000**	**$1,050,000**
TOTAL ANNUAL ELECTRIC COST	$22,000	$21,000	$22,000
ANNUAL DEBT SERVICE	$147,000	$128,000	$64,000
TOTAL ANNUAL COST	**$169,000**	**$149,000**	**$86,000**

NOTES:

Alternative 1 will require land purchase for PS1, assumed to cost $100,000
Alternative 2 will require siphon from MH1-0 to existing WWTF & PS1 demo
Alternative 3 will require property purchase or easement for new electrical building, assumed to cost $100,000

FIGURE 3-3
ADAPTATION ALTERNATIVES



3.4 SUMMARY AND CONCLUSIONS

Based on our evaluations described herein, we offer the following summary and conclusions regarding relocation of the Ogunquit WWTF and Pump Station No. 1:

1. For the near-term, Alternative 3 is the most cost-effective approach for Pump Station 1. This alternative is also the smallest investment for this station.

2. For the long-term, the most cost-effective alternative is to relocation the WWTF to Site A utilize Pump Station Alternative 3. Pump Station Alternative 2 is the second most cost-effective approach for PS1 and PS2. Pump Station Alternative 1 is the most conservative approach for PS1 and PS2 in terms of adaptation to storm surge and sea level rise.

3. The cost of relocating the Ogunquit WWTF and Pump Station No. 1 is estimated at **$28 million to $30 million**, in 2013 dollars.

Section 4

WRIGHT-PIERCE
Engineering a Better Environment

SECTION 4

ADAPTATION UPGRADES AT THE OGUNQUIT WWTF

The District is considering the following adaptation strategies to address the implications of climate change: 1) relocation of the WWTF to a new location; 2) upgrading at the current location; or, 3) regionalization with the Wells Sanitary District. These strategies will likely be implemented in a combination of near-term and long-term upgrades. This section of the report will address alternatives to upgrade the Ogunquit WWTF

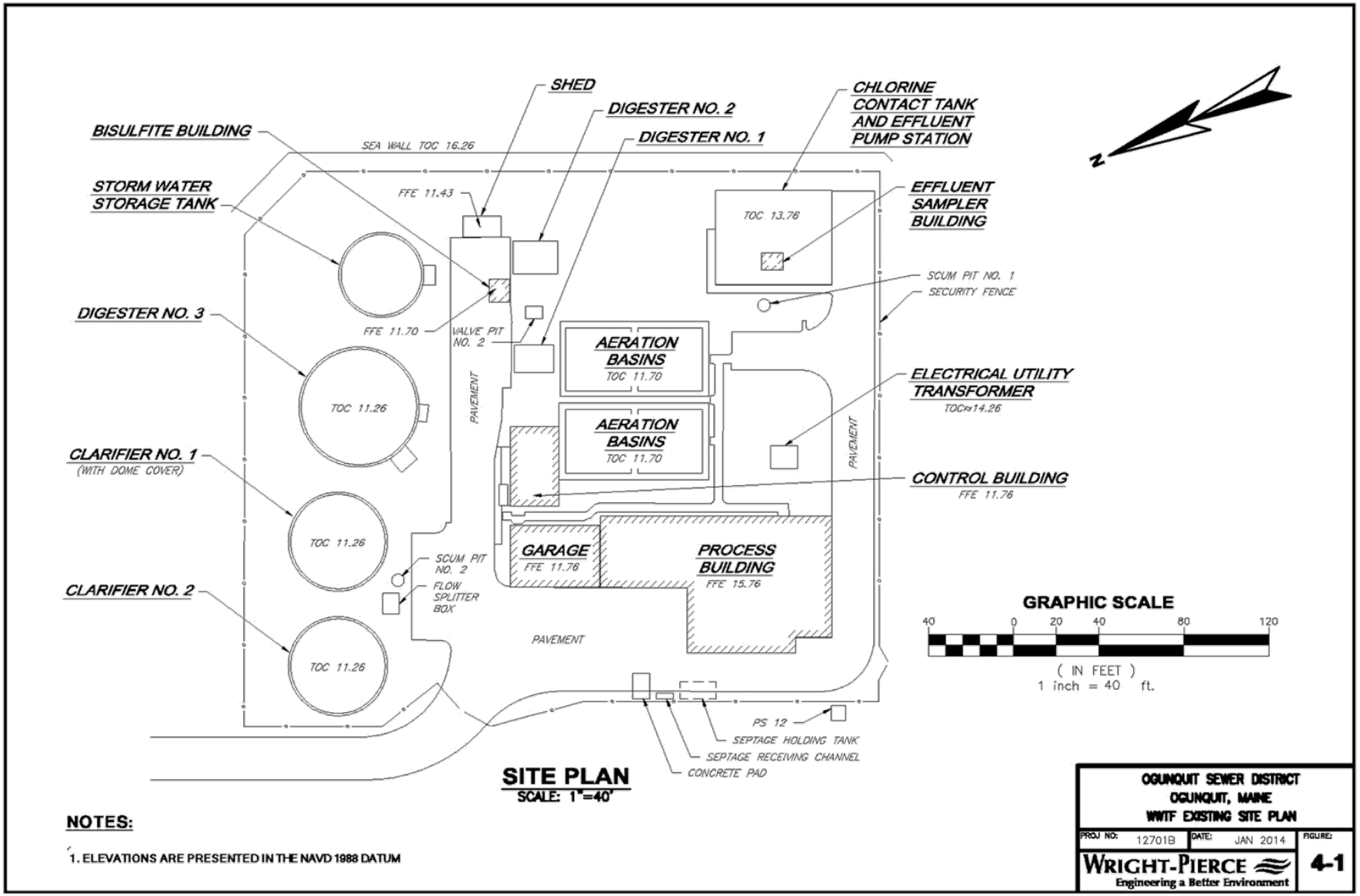
4.1 OGUNQUIT WWTF EXISTING CONDITIONS

The WWTF has a design average daily capacity of 1.28 MGD, with current average wastewater flows of 0.785 MGD (summer) to 0.490 MGD (non-summer). The WWTF consists of preliminary treatment (influent flow metering, screenings, and grit removal), secondary treatment (activated sludge), disinfection, and biosolids management. Effluent flows into the Atlantic Ocean through an outfall pipe with effluent diffusers. The WWTF was originally constructed in the 1960s and comprehensively upgraded in 1991. **Figure 4-1** depicts the existing OSD WWTF site plan. Each major equipment process and/or system is described below.

4.1.1 Preliminary Treatment

Influent sewage is pumped to the WWTF from PS1 (off-site), PS2 (off-site), and PS12 (on-site) to the Headworks Room in the Process Building. PS12 is a small submersible grinder pump station which collects wastewater from two nearby public beach houses and conveys it to the Headworks. The existing Headworks consists of a mechanical bar rack (1/2” spacing), seven slide gates, a vortex grit chamber, two grit pumps and a grit classifier. The bar rack is showing significant signs of age and should be replaced with a finer screen. The grit pumps, slide gates, and grit chamber paddle mixer should be evaluated for replacement. PS12 was recently upgraded, but electrical components should be moved above the anticipated flood elevation. The influent channels were recently protected with epoxy and the grit classifier recently replaced.

FIGURE 4-1
WWTF EXISTING SITE PLAN



4.1.2 Activated Sludge

There are four activated sludge tanks containing both anoxic and aerated zones. There are a total of 2 anoxic zones, one of which contains a mixer less than 10 years old (the other does not have a mixer). There are four aerobic zones with fine bubble membrane diffusers. The diffusers require frequent maintenance to remove grease buildup and should be replaced. There are three positive displacement dual-lobe blowers for activated sludge aeration. The blowers have been replaced in the recent past, have been well maintained, and should be maintained for future use. The concrete activated sludge tanks leak from one tank to another through cracks in the divider walls and need repair. The influent sluice gates (4), slide gate (1), and anoxic skirting are at the end of their useful life and need replacement.

The activated sludge process was originally configured as complete mix reactors, but has been modified to run as a Modified Ludzack-Ettinger process. Based on effluent data collected by the District in 2009 (when the modification was made), the process appears to achieve complete nitrification and partial denitrification. A summary of the data collected is provided in **Table 4-1**.Assuming an effluent organic N value of 4 mg/l, the effluent TN values would be higher than the anticipated TN limit for this facility (refer to **Section 2**). Improved nitrogen removal would require additional tank volume. Accordingly, the District should consider expanding current tankage and adding additional anoxic skirting as required to achieve 8 mg/l effluent TN. The costs to achieve 3 mg/l to 5 mg/l effluent TN will be significantly higher.

4.1.3 Secondary Clarifiers

The facility has two secondary clarifiers. Clarifier No. 1 has a fiberglass dome and Clarifier No. 2 is not covered. The dome on Clarifier No. 1 is showing signs of age and should be rehabilitated or replaced. Typically, secondary clarifiers are covered to prevent algal growth, to contain odor, and/or to minimize freezing conditions during the winter. Costs for a dome cover for Clarifier No. 2 are included in the initial cost estimate. The District should consider the costs, advantages and disadvantages of covering Clarifier No. 2 and repairing the existing cover on Clarifier No. 1. Additionally, the two sluice gates within the flow splitter box to the clarifiers and the scum removal system should be replaced.

The return sludge pumps, located in the Control Building Basement, include three screw impeller centrifugal pumps. Two of the three return sludge pumps were recently upgraded and should be maintained for continued use. The third RAS pump should be replaced.

TABLE 4-1
INFLUENT AND EFFLUENT NITROGEN CONCENTRATIONS

Date	Influent			Effluent		
	TKN (mg/l)	NH3 (mg/l)	NOx (mg/l)	NH3 (mg/l)	NOx (mg/l)	TN (mg/l)
6/17/2009 | Wednesday	44.1	29.1	1.6	0.0	9.7	12.7
7/1/2009 | Wednesday	41.8	26.8	4.4	2.2	0.4	6.6
7/13/2009 | Monday	42.7	27.7	0.6	0.0	7.4	11.4
7/22/2009 | Wednesday	59.8	44.8	0.7	0.0	7.7	11.7
7/29/2009 | Wednesday	41.5	26.5	0.6	0.5	7.0	11.5
8/5/2009 | Wednesday	52.5	37.5	0.8	0.1	8.0	12.1
8/12/2009 | Wednesday	61.6	46.6	0.5	0.1	5.3	9.4
8/20/2009 | Thursday	73.8	36.9	0.7	0.1	9.4	14.1
8/26/2009 | Wednesday	51.9	20.2	0.4	0.1	8.3	13.5
9/2/2009 | Wednesday	35.2	42.9	0.6	0.9	9.7	12.4
9/9/2009 | Wednesday	57.9	42.9	0.6	0.9	9.7	14.6
9/16/2009 | Wednesday	47.9	32.9	0.7	0.1	14.7	18.8
AVERAGE	**50.9**	**34.6**	**1.0**	**0.4**	**8.1**	**12.4**

4.1.4 Disinfection and Effluent Pumping

The facility utilizes a concrete chlorine contact tank (CCT) with two parallel trains. Liquid sodium hypochlorite and sodium bisulfite are used for chlorination and dechlorination of the effluent. Each chemical injection location has a mixer. The chlorine contact tanks were observed to be in good operating condition and should be maintained for continued use.

The existing sodium hypochlorite storage tanks (2 at 2500 gallons each) located in the Disinfection Room of the Process Building are over 20 years old, but appear to be in average condition. The tanks should be monitored for leaks, but should not be replaced at this time. The chlorine metering pumps (2) were installed in 2009 and 2013 and should be retained for future use. The sluice gates at the CCT (2 for drains and 2 for the effluent pumps) are over 20 years old and should be evaluated for replacement. The CCT scum removal system appears to be in average condition and does not require replacement.

The heated sodium bisulfite tank (1 at 1200 gallons) and metering pumps located in the Bisulfite Building near the Activated Sludge Tanks are less than 10 years old and in good condition. The bisulfite

mixer is over 20 years old and should be considered for replacement. For process control, OSD should consider replacing the residual chlorine monitors.

The effluent pumps are less than 10 years old, but the controls should be upgraded to Multi-Smart Units and include a pressure sensor on the outfall pipe. The outfall is approximately 2,000 feet into the Atlantic Ocean at mean high water. The outfall pipe should not require any upgrades.

OSD expressed interest in upgrading to UV disinfection with chlorine as backup. Due to the stringent fecal coliform discharge permit requirements, the manufacturer's budget pricing indicates that the equipment would likely cost in excess of $450,000 (not installed). As a result, the system was deemed cost prohibitive.

4.1.5 Biosolids Handling and Processing

The facility contains three aerobic digester tanks for sludge storage, digestion and thickening prior to dewatering by a belt press. The waste sludge/press feed pumps located in the Control Building Basement include two progressive cavity pumps which are over 20 years old and at the end of their useful life, as such they should be replaced. Additionally, OSD should consider replacing the multi-duty plunger pump and automating the 6 waste sludge valves for daily wasting (also located in the Control Building Basement).

The dewatering system is located in the Process Building Dewatering Room and includes a belt filter press (BFP) that is over 20 years old. Due to its age, the BFP reliability is decreasing and replacement parts are increasingly more difficult to find. The BFP should be replaced with a more efficient system or refurbished within the next five years. It is unlikely that the BFP could be sold, although it may be possible to sell it for parts or salvage.

The memorandum titled "Ogunquit Sewer District—Solids Handling Alternatives," dated February 20th, 2014, outlined the following three biosolids handling options:

- Maintaining the current BFP dewatering system
- Upgrading to a new screw press dewatering system

- Ceasing dewatering in favor of hauling thickened sludge

Maintaining the current BFP is the cheapest solution in terms of capital, hauling, O&M, and disposal costs; however, it also carries the most risk related to system reliability. The cost analysis assumes that no major failures will occur and BFP performance remains the same. The screw press was the second most cost effective alternative and had significantly lower hauling and disposal costs compared to the BFP. The memo is included in **Appendix C** and includes a breakdown of all the costs associated with each biosolids handling option.

The sludge conveyance system, air compressor, polymer blending system, and two sludge conveyors will need to be replaced when the dewatering equipment is upgraded. We have carried costs for upgrading each of these systems in the initial cost estimate included in **Section 4.3**.

4.1.6 Plant Water System

The plant water pumps (2) were replaced in 2013 and are in good condition. The basket strainer and hydropneumatic tank show signs of age and should be replaced.

4.1.7 Alkalinity Addition System

The alkalinity system consists of a single 550 gallon polyethylene tank, mixers and feed pumps located in the Process Building Basement. The system has been well maintained and in good condition; therefore, no upgrades are necessary.

4.1.8 Septage Receiving

Although septage receiving facilities exist on-site, very little septage is received. Septage receiving consists of an exterior loading hatch, manual bar rack, septage pump and storage tank. The septage pump is located in the Process Building Basement and is currently used for vac-truck disposal and wetwell cleaning disposal. The system is over 20 years old and shows signs of age, but is not considered a high priority for replacement. That being said, vac-trucks typically contain high amounts of grit; therefore, a grit separator should be considered if this function is expected to continue.

4.1.9 Ventilation Systems

OSD should consider a complete HVAC system upgrade. Facility staff indicate that summer cooling is inadequate in many rooms. Furthermore, most of the heating units are from the early 1990's and should be replaced with more efficient units. For the purposes of cost estimating, a comprehensive HVAC upgrade was assumed.

4.1.10 Electrical Systems

The electrical systems were comprehensively upgraded in 1991. Since that time, the District has updated some electrical equipment components (e.g., motor control center starters, variable frequency drives, motors, disconnects, switches, lighting, etc.) while others are original (e.g., lighting panels, transformers, etc.). The existing 350kW standby generator is over 20 years old and runs well; however, it is increasingly difficult to find spare parts. The associated automatic transfer switch was recently replaced. There does not appear to be any imminent electrical upgrade needs at this time; however, the District should continue to keep a careful watch on the electrical infrastructure. Based on the installation elevation, the main utility transformer (1000kVA, pad mounted) and the electrical gear in the Control Building are vulnerable to flood events, whereas the electrical gear in the Process Building is protected from flood events. Based on the age of the electrical infrastructure and the proximity to the ocean (i.e., salt air), increasing levels of investment will be needed in the next 10 years. Allowances have been included for general upgrade of electrical items.

4.1.11 Instrumentation and Controls

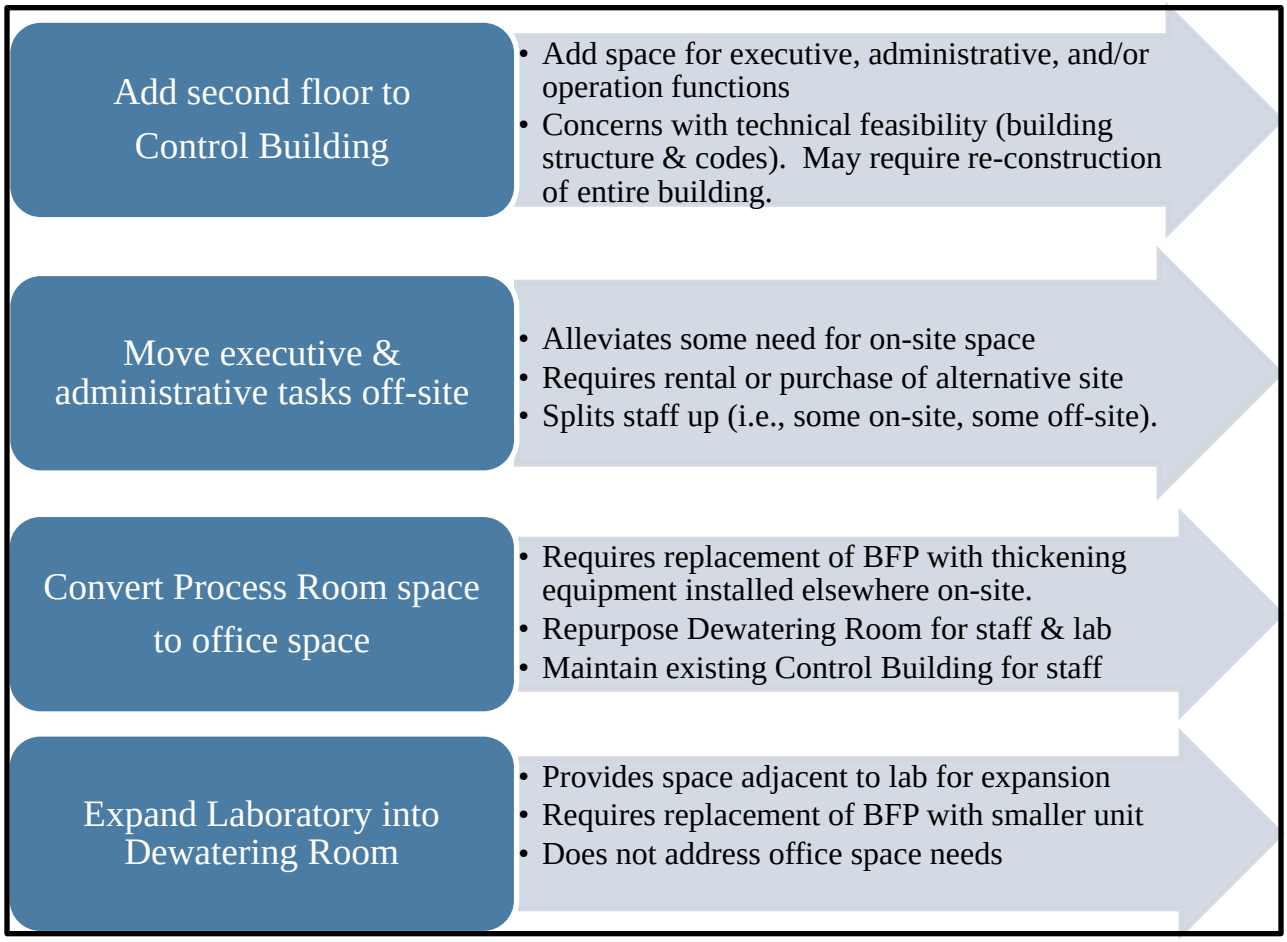
Typically, Control System Software (for example, SCADA) and some hardware have a design life of 5 to 10 years; whereas control panels and instruments have a design life of 15 to 20 years. The facility has control panels and instruments that date back to 1992 and although OSD has maintained and upgraded them, they should be considered for replacement. In general, the District should continue to upgrade controls with MultiSmart or consider a comprehensive upgrade. Other equipment which should be upgraded or replaced include magnetic flow meters (effluent pumps, pump room, and blower room) and the effluent pump controls and pressure sensor.

4.1.12 Building and Structures

The District has 6 full-time staff on-site. On-site functions include executive (trustees meetings), management (superintendent, office manager), operations, maintenance, and laboratory. The facility's current office space is insufficient for staff needs and lab space is inadequate. Options for increasing office space are summarized in **Figure 4-2** and described in more detail on the following page.

Compliance with current codes will need to be confirmed prior to any major building modifications. The codes which will need to be reviewed and addressed include: National Fire Protection Association 820 (NFPA 820, which includes fire safety and explosion hazard codes specific to wastewater treatment facilities); Americans with Disabilities Act (ADA, which includes codes related to accessibility for handicapped individuals; Life Safety Code (NFPA 101, which includes requirements to minimize danger to life from the effects of fires); and Building Codes.

FIGURE 4-2
OGUNQUIT WWTF FACILITY SPACE OPTIONS



Add Second Floor to Control Building

The addition of a second floor to the existing Control Building would provide adequate desk space for the facility's administrative and staff needs and would create space for operations and lab expansion. It would have the lowest impact on existing operations and provide a central space for administrative tasks. If the second floor is to be utilized for office or meeting space, an elevator will be necessary per the ADA. Should an elevator be required, it will need to be located where the shaft and machine room will fit. Similarly, a stair tower would need to be built within the existing building footprint. A detailed codes analysis will be required prior to preliminary design in order to determine if a second floor could be added or whether the Control Building would need to be replaced with a new two-story structure. For cost estimating, it was assumed that the existing building will only require minor structural adaptations to accommodate a second floor.

Move Executive and Administrative Tasks Off-Site

Moving administrative staff off-site would increase space on-site for operations, maintenance, lab, and break room space. However, it would require that OSD rent or purchase administrative space elsewhere. Purchasing sufficient land would allow OSD to eventually move the WWTF to that location. As indicated in **Section 3**, Site C contains adequate space and is currently owned by the Town of Ogunquit. OSD could arrange to sell the existing WWTF site to the Town when the facility moves in return for developing an administrative building on Site C in the near-term.

Convert Process Room Space to Office Space

If OSD replaced the BFP with thickening equipment, the existing Lime Room could be eliminated and the entire room could be converted to Office Space. Furthermore, this would allow for expansion of the Laboratory. This alternative limits biosolids handling options (i.e, would need to eliminate dewatering).

Expand Laboratory Space into Dewatering Room

Facility staff indicate that there is insufficient laboratory space. In general, there are three options to address the facility's laboratory space needs: expand into the Process Room; expand into the Break Room; or do nothing. Expanding the laboratory into the Process Room could only be accomplished if the BFP was replaced with a smaller dewatering option (e.g. screw press). Expanding the laboratory into the break room would result in the same space and not require removal of the BFP. That being said, the break room would need to be relocated (possibly to the Control Building with a second floor or reduced

office space). The third option is to keep the laboratory as is and replace items as needed until the facility moves off-site.

General

Other miscellaneous items to consider: 1) Security fence repairs and addition of an automatic entrance gate; 2) Paint removal in the Control Building Pump Room; 3) Stormwater Storage Tank modifications including removal of the fill troth; 4) Flood gates for exterior doors below flood level; and 5) Replacement of exterior doors, for example at the Process Building Headworks Room.

Flood Protection

In addition to process upgrades to maintain treatment capabilities, OSD should consider flood protection for its structures. Flood protection measures should be considered a short-term effort; the long-term solution has been determined to be relocation off-site. It is anticipated that flooding and wave action due to sea level rise will only worsen over-time. The 2013 FIRM flood elevations indicate the treatment facility is currently at risk of flood inundation. As a result, short-term efforts are warranted to lessen the impacts of potential flooding before relocation occurs.

Table 4-2 summarizes the current and 2013 preliminary flood elevations compared to some of the facility's site and building elevations. According to the 2013 flood elevations, many of the facility's structures would be submerged. Road access to the facility would also be a concern. According to the Flood Insurance Rate Map for this area, the treatment facility would have a flood elevation of 14 feet and medium wave action of approximately 15.5 feet during a 100 year storm event. Based on these values, the baseline flood protection is considered an elevation of 15 feet (i.e., 1 foot above FEMA flood elevation) and the baseline wave action protection is considered an elevation of 16 feet (i.e. 0.5 feet above wave action).

Grading on the site has elevations between 10 and 13 feet. As a result, the site would be completely submerged and the majority of buildings threatened by flood water during a 100-year flood event. The seawall would not be submerged, but would provide limited protection from wave action. The only structure which has a top of concrete elevation above the flood elevation is the Process Building. Other structures and buildings are below the flood elevation without accounting for wave action.

TABLE 4-2
OGUNQUIT WWTF STRUCTURE AND FLOOD ELEVATIONS

DESCRIPTION	Structure Elevation	Current FEMA Maps (1992)	Preliminary FEMA Maps (2013)
Flood Elevation:	-	**(8.26ft)**	**(14ft)**
Site Buildings & Structures	(ft)	**Protected or Submerged**	
Headworks & Process Building FFE	15.8	Protected	Protected
Truck Bay FFE	11.8	Protected	Submerged
Garage FFE	11.4	Protected	Submerged
Control Building FFE	11.8	Protected	Submerged
Utility Transformer	12.0	Protected	Submerged
Sodium Bisulfite Building FFE	11.7	Protected	Submerged
Activated Sludge Tanks TOC	11.7	Protected	Submerged
Secondary Clarifiers TOC	11.3	Protected	Submerged
Chlorine Contact Tank TOC	13.8	Protected	Submerged
Effluent Pump Station TOC	13.8	Protected	Submerged
Digester #3 TOC	11.3	Protected	Submerged
Stormwater Storage Tank TOC	12.0	Protected	Submerged
Seawall Top of Wall	16.3	Protected	Protected
Site Grades			
Site Grade (low)	10.3	Protected	Submerged
Site Grade (high)	12.3	Protected	Submerged

NOTES:

1. Elevations taken from 1991 WWTF Upgrade record drawings and converted to NAVD 1988 Datum (0.77-ft delta).
2. WWTF area may also be subject to wave action of 1.5 ft
3. Flood elevations based on: Flood Insurance Study: York County, Maine. Washington DC: FEMA (2013)

Specific recommendations are summarized below.

- Control Building: Install flood gates at all doors and relocate all VFDs and other electrical equipment upstairs.
- Process Basement: Move water sensitive equipment above flood elevation. Provide flood protection along the outside and inside of electrical conduits to limit inflow. Alternatively, move the electrical conduit wall penetrations to above the flood elevation.
- Activated Sludge Tanks: Raise the height of the existing outer concrete by 40 inches to baseline flood protection or 51 inches for wave action.
- Chlorine Contact Tanks: Raise the height of the existing outer concrete by 15 inches for baseline flood protection or 26 inches for wave action.

- Site: Maintain current flood mitigation strategies (barriers and natural systems). The access road would need to be raised approximately 4 feet to achieve baseline flood protection and provide access to the site; however, this is considered infeasible due to expensive Ocean Ave and site grading modifications.

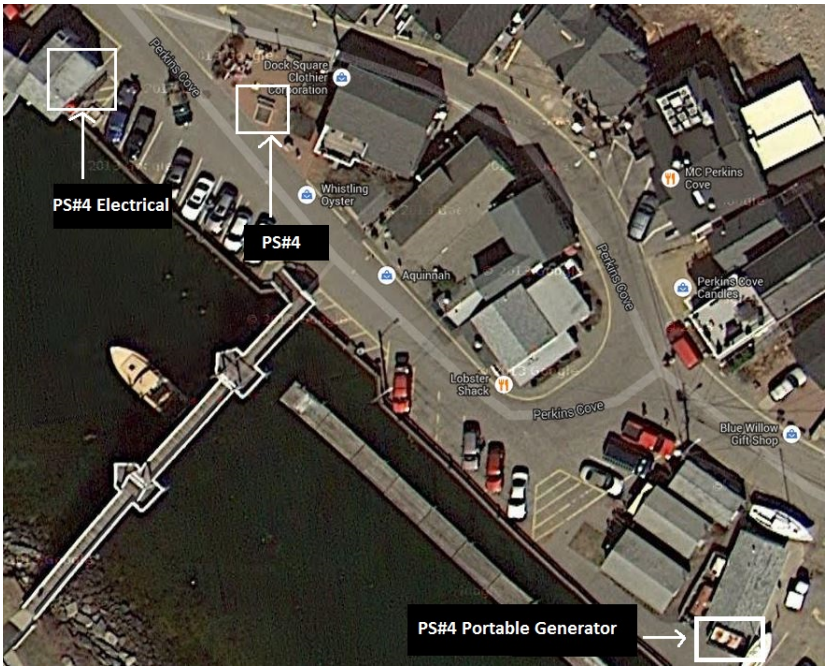
4.2 PUMP STATION NO. 4

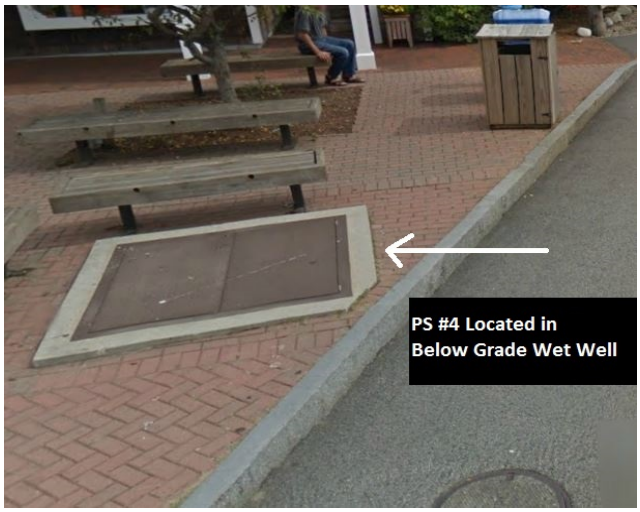
Pump Station No. 4 (PS4) is located along Harbor Lane at Perkins Cove. It was last upgraded in 2004 and is at risk of flood inundation according to the proposed 2013 FIRM flood elevations. The current entrance hatch elevation is 10.46 feet and the predicted 100 year storm elevation is 15 feet (not including wave action of 1.5 ft). The pump station is serviced by a portable generator located down the street behind the public bathhouse approximately 250 feet away. The electrical equipment is located across the street at the Harbor Master Shack at an elevation of approximately 14 feet. Electrical conduit that services the pump is located underground and is encased in concrete for water tightness. **Figure 4-3** depicts the current location of PS4 and its electrical equipment.

Should the generator be needed, it would have to be transported to the electrical receptacle at the Harbor Master Shack. During flooding this would not be possible; therefore, it is recommended that a permanent standby generator at or near the shack be installed. It is unlikely that the pump would operate during a flood, but after flood levels recede the standby generator would allow the pump to come back online. The electrical equipment and generator should be placed above 16.5 feet to protect from wave action. We recommend installing a deck for the equipment next to the Harbor Master Shack. This concept was originally discussed in 2003 when the pump station was upgraded. Since it was recently upgraded, OSD should complete a comprehensive upgrade of the station when necessary or complete electrical work separately. Consideration needs to be given to public opposition for visible components.

FIGURE 4-3
PUMP STATION NO. 4

Perkins Cove Road, Ogunquit, ME





4.3 COST ESTIMATES

Planning-level costs were developed using standard cost estimating procedures consistent with industry standards utilizing concept layouts and unit cost information, as necessary. Total project capital costs include an allowance of 40% of the estimated construction costs to account for contingency, design and construction engineering, permitting, as well as financing, administrative and legal expenses. Except where noted, we assumed that all construction work would be completed by a contractor. These estimates have been developed primarily for evaluating alternative solutions and are generally reliable for determining the relative costs of various options. Many factors arise during final design (e.g. foundation conditions, owner selected features and amenities, code issues, etc.) that cannot be definitively identified and estimated at this time. These factors are typically covered by the 40% allowance described above; however, this allowance may not be adequate for all circumstances.

The facility must maintain operation of the facility while minimizing maintenance requirements in the short-term. It is not reasonable to expect the facility to effectively operate without upgrades; however, it may not be sensible to invest in improvements with an expected life exceeding 20 years. **Table 4-3** summarizes the Wastewater Treatment Facility condition assessment recommendations.

Since the District is ultimately considering relocation of the WWTF, we have categorized items into High (0-5 years), Medium (0-10 years) and Low (5-15 years) priorities. The suggested priority and estimated costs are summarized in **Table 4-4.**

TABLE 4-3
OGUNQUIT WWTF IMPLEMENTATION RECOMMENDATIONS

	Retain	Repair	Replace	Add
HEADWORKS				
Mechanical Bar Rack (1)			☐	
Grit Screw Classifier (1)	☐			
Grit Pumps (2)			☐	
Vortex Grit Chamber (1)	☐	☐		
Slide Gates (7)			☐	
SECONDARY TREATMENT				
Anoxic Zone Mixer (1)	☐			
Anoxic Zone Skirting			☐	
Aeration Blowers #1-3	☐			
Aeration Diffusers			☐	
Activated Sludge Tanks (4)		☐		
Secondary Clarifier (2)	☐			
Secondary Clarifier Dome Rehab (No. 1)		☐		
Secondary Clarifier Dome (No. 2)				☐
Return Activated Sludge Pumps (3)	☐(2)		☐(1)	
Sluice and Slide Gates			☐	
Nitrogen Removal Upgrades				☐
DISINFECTION/DISCHARGE				
Hypochlorite StorageTanks	☐			
Hypochlorite Pumps & Mixer	☐			
Sodium Bisulfite Storage Tank/w Heater	☐			
Dechlorination Pumps	☐			
Dechlorination Mixer			☐	
Residual Chlorine Monitor				☐
Effluent Pumps	☐			
Sluice Gates (4)			☐	

	Retain	Repair	Replace	Add
SOLIDS HANDLING				
Waste & Press Feed Pumps (2)			☐	
Automated Waste Sludge Valves				☐
Return Activated Sludge Pumps (3)	☐			
Digester Blower #5-6 & Diffusers	☐			
Digester Scum Removal				☐
Belt Press Equipment & Appurtenances			☐	
Polymer Blend System			☐	
Sludge Screw & Belt Conveyors			☐	
Air Compressor			☐	
Plant Water Pumps	☐			
Hydropneumatic Tank & Basket Strainer			☐	
Alkalinity Feed Pumps & Mixer	☐			
Alkalinity Storage Tanks	☐			
SEPTAGE RECEIVING				
Septage Pump, Bar Rack, & Storage Tank	☐			
MECHANICAL, ELECTRICAL & INSTRUMENTATION	***(See Section 4.3.11 for more details)***			
Comprehensive HVAC Upgrade			☐	
350 KW CAT. Generator	☐			
Automatic Transfer Switch	☐			
Transformers			☐	
Controls System			☐	☐
PUMP STATION NO. 4				
Upgrade & Flood Protection			☐	☐
PUMP STATION NO. 12				
Electrical Relocation	☐			

TABLE 4-4
OGUNQUIT WWTF COST ESTIMATE

Description	High Priority	Medium Priority	Low Priority
Preliminary Treatment	$325,000	-	$52,000
Secondary Treatment	$111,000	$293,000	$38,000
Secondary Treatment (TN Removal)	-	$900,000	-
Solids Handling	$637,000	$78,000	-
Disinfection/Effluent	$85,000	-	$114,000
Mechanical	$50,000	$200,000	$200,000
Instrumentation	$324,000	$33,000	$33,000
Electrical Install(30% of above)	$459,000	$451,000	$131,000
Electrical Equipment	$50,000	$500,000	$500,000
Process Gates	$143,000	-	-
Control Building Second Floor & Elevator	$527,000	-	-
Raise Activated Sludge and CCT	$200,000	-	-
Process Building/New Laboratory	-	$125,000	-
Process Building Dewatering Room Modifications	$200,000	-	-
Security Gate (1) and Exterior Doors (2)	$11,000	-	-
Pump Station No. 12	-	-	-
Pump Station No. 4	-	-	$350,000
Construction Subtotal	**$3,121,000**	**$2,579,000**	**$1,420,000**
Tech Services and Contingency (40%)	$1,248,000	$1,032,000	$570,000
TOTAL	$4,369,000	$3,611,000	$1,990,000
TOTAL ALL PRIORITIES	**$9,970,000**		

NOTES:
1) ENR CCI 9702 (March 2014)
2) Pump Station 12 will be completed as an in-house project.

4.4 SUMMARY AND CONCLUSIONS

Based on our evaluations described herein, we offer the following summary and conclusions regarding upgrades to the Ogunquit WWTF and Pump Station No. 1:

1. The existing WWTF has provided reliable service since it was last upgraded in 1991; however, some of the equipment and building systems are approaching the end of their useful life and will require upgrades in order to provide continued reliable service.

2. High priority upgrades include preliminary treatment, some secondary treatment components, biosolids handling, some disinfection system components, as well as miscellaneous mechanical,

instrumentation and electrical upgrades. High priority upgrades also include flood protection items and resolution of space needs for WWTF staff. High priority upgrades should be targeted for completion in less than 5 years. The cost for high priority upgrades is estimated at **$4.4 million**, in 2013 dollars.

3. Medium priority upgrades include expansion of the activated sludge system to address anticipated nitrogen removal requirements, aeration and digester blower upgrades, clarifier mechanism and dome upgrades, as well as miscellaneous mechanical, instrumentation and electrical upgrades. Medium priority upgrades should be targeted for completion in less than 10 years. The cost for medium priority upgrades is estimated at **$3.6 million**, in 2013 dollars.

4. Low priority upgrades include the remainder of items identified herein, including Pump Station No. 4, and can be deferred for greater than 10 years, if desired. The cost for low priority upgrades is estimated at **$2.0 million**, in 2013 dollars.

5. The extent to which the identified priorities are addressed depends on the time horizon the District has selected for remaining at the existing WWTF location. If less than 10 years, then only high priority items should be completed. If greater than 10 years but less than 15 years, then all high and medium priority items should be addressed. If greater than 20 years, then all identified items should be addressed.

6. The District recently retired $310,700 in debt service. The current interest for the Maine DEP CWSRF program loans is less than 2% for a 20 year loan. At this rate and term, the District could undertake capital projects amounting to approximately $5 million without raising rates (i.e., equivalent to approximately $60,000 of debt service per $1 million borrowed).

7. If desired, the District could consider a shorter loan term in order to save interest costs and to better match the selected time horizon for the WWTF. The Maine DEP CWSRF offers loan terms from 1-20 years. There are no additional requirements for loan terms less than 20 years and the interest rate is the same as a 20 year term.

8. The District has successfully completed numerous targeted upgrade projects at the WWTF with staff and should evaluate whether any of the repair, rehabilitation or upgrade projects could be completed by WWTF staff (versus a construction contractor). This approach would eliminate the need for hiring a contractor and could result in a cost-effective “combination approach”.

Section 5

WRIGHT-PIERCE
Engineering a Better Environment

SECTION 5

REGIONALIZATION UPGRADES AT WELLS WWTF

The District is considering the following adaptation strategies to address the implications of climate change: 1) relocation of the WWTF to a new location; 2) upgrading at the current location; or, 3) regionalization with the Wells Sanitary District. These strategies will likely be implemented in a combination of near-term and long-term upgrades. This section of the report will address alternatives associated with regionalization with the Wells Sanitary District

If the Ogunquit Sewer District and Wells Sanitary District agreed to regionalize, numerous technical, regulatory and political challenges would need to be addressed. From a technical perspective, flows from the Ogunquit WWTF would need to be conveyed to the Wells WWTF and the Wells WWTF would need to be upgraded to accommodate the additional flows and loads. These items are described below. The regulatory and political challenges are beyond the scope of this initial analysis.

5.1 OPTIONS TO TRANSPORT FLOW TO THE WELLS WWTF

There are two primary approaches to send wastewater to the Wells WWTF: 1) convey flow directly to Wells WWTF via open-cut trenching or via horizontal directional drilling; 2) convey flow to the Wells Collection System on Ocean Avenue or on Route 1. All options require a comprehensive upgrade to Pump Station No. 1. For the purposes of comparing transport options, we have utilized the parameters summarized in **Table 5-1**.

TABLE 5-1
PRELIMINARY SIZING OF OGUNQUIT PUMP STATION NO. 1

Condition	Flow Rate (gpm)	No. of Pumps Running	Flow Per Pump
Peak Pumping	2000	2	1000
Average Day	560	1	560
Minimum Day	400	1	400

5.1.1 Option 1: Convey Flow Directly to Wells WWTF via Open-Cut Trenching

There are two routes for which a traditional open-cut forcemain (FM) could be installed: Ocean Ave or Route 1. Ocean Ave would require winter construction when local traffic is minimal. Furthermore, there would be less road width available in which to install the FM. However, a FM along Rt. 1 would involve DOT, include higher pavement costs, and include a longer FM. For the purposes of this report, the Ocean Ave route was selected based on discussions with the District. **Figure 5-1** shows that the FM would travel under the Ogunquit River from OSD PS1 to Ocean Ave, Furbish Rd, and then to WSD WWTF under the existing wetlands via horizontal directional drilling.

This option requires 6,900 feet of open-cut forcemain and 3,800 feet of directionally drilled forcemain. The overall length of piping and range of expected flows result in a challenging compromise between pipe diameter, velocity, and total dynamic head (TDH). As a result, two options should be considered: a single 12 inch pipe or two 10 inch pipes. Dual pipes would better accommodate flow fluctuations and reduce TDH, but would increase costs. A single 12 inch pipe would result in low pipe velocities during the winter and high TDH during the summer. The other option is to include flow equalization or hold wastewater at PS1, which could result in nuisance conditions. **Table 5-2** summarizes the design data for Option 1 based on the design flow rates.

FIGURE 5-1
OPTION 1 FORCEMAIN ROUTE

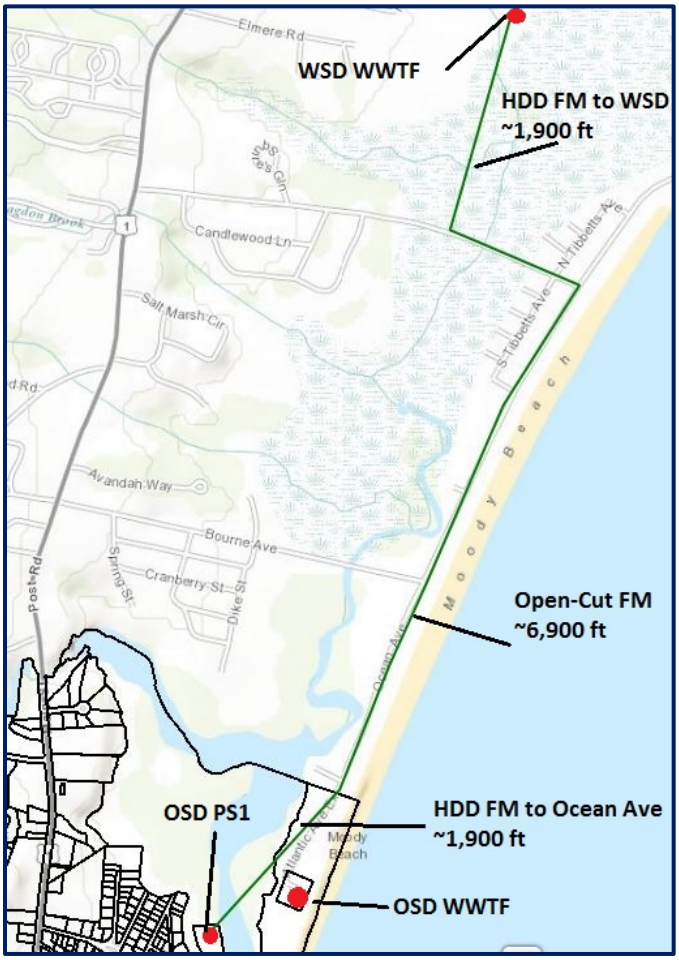


TABLE 5-2
PIPING SCENARIOS FOR TRANSPORT OPTION 1

Flow Rate		Single 12" to WSD	Dual 10" to WSD (2 pipes online)	Dual 10" to WSD (1 pipe online)
2000 gpm	Velocity (fps)	5.7	4.1	-
	TDH (ft)	144.4	106.2	-
560 gpm	Velocity (fps)	1.6	-	2.3
	TDH (ft)	37.2	-	52.8
400 gpm	Velocity (fps)	1.1	-	1.6
	TDH (ft)	31.6	-	40.0

5.1.2 Option 2: Convey Flow to Wells Collection System

Figure 5-2 and **Figure 5-3** show Option 2A and Option 2B, respectively. Both Options utilize the existing 10 inch forcemain from PS1. The existing forcemain would then be extended to WSD Manhole No. 38 on Ocean Avenue under Option 2A, 400 gpm or less of OSD flow would be diverted to the existing WSD collection system and flow over 400 gpm would be sent directly to the WSD WWTF via a separate forcemain. Alternatively, Option 2B diverts all OSD flow to the WSD collection system. Option 2A requires 9,800 feet of new forcemain whereas Option 2B requires 3,000 feet of new forcemain. Both scenarios require upsizing to 6,900 feet of existing WSD gravity sewer along Ocean Avenue.

Diverting flow to the WSD collection system negates some headloss associated with pumping the entire flow directly to the WSD WWTF. Furthermore, existing conditions in the WSD gravity sewer suggest that pipe capacity is underutilized. Additional flow would help prevent solids accumulation and reduce wastewater retention time within the system. The existing gravity sewer along Ocean Ave consists of 15 inch (Segment 1 on **Figure 5-4**) and 18 inch (Segment 2, 3, and 4) reinforced concrete pipe which conveys wastewater to WSD's Pump Station No. 1. The area which drains to the gravity sewer appears to be primarily residential homes and seasonal cottages; therefore, it was assumed that no large users were connected to this part of the sewer.

As shown in **Table 5-3**, the existing system would not have capacity for an additional 400 gpm from OSD without upsizing. Furthermore, the system would require three pipe diameter upsizes to accommodate peak OSD flow (2,000 gpm, shown in **Table 5-4**). Options for upsizing include open-cut replacement or pipe bursting. **Figure 5-4** depicts the WSD sewershed segments utilized for the hydraulic capacity analyses.

FIGURE 5-2
OPTION 2A FORCEMAIN ROUTE

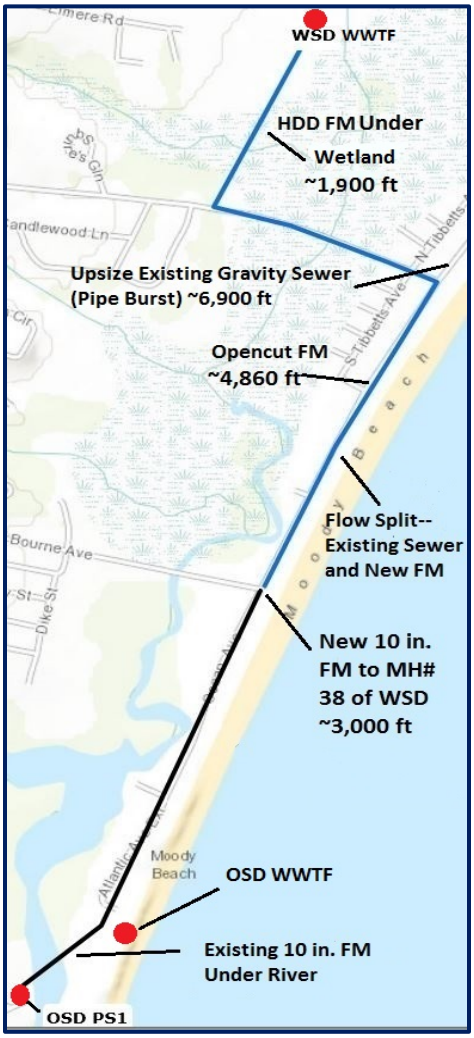


FIGURE 5-3
OPTION 2B FORCEMAIN ROUTE

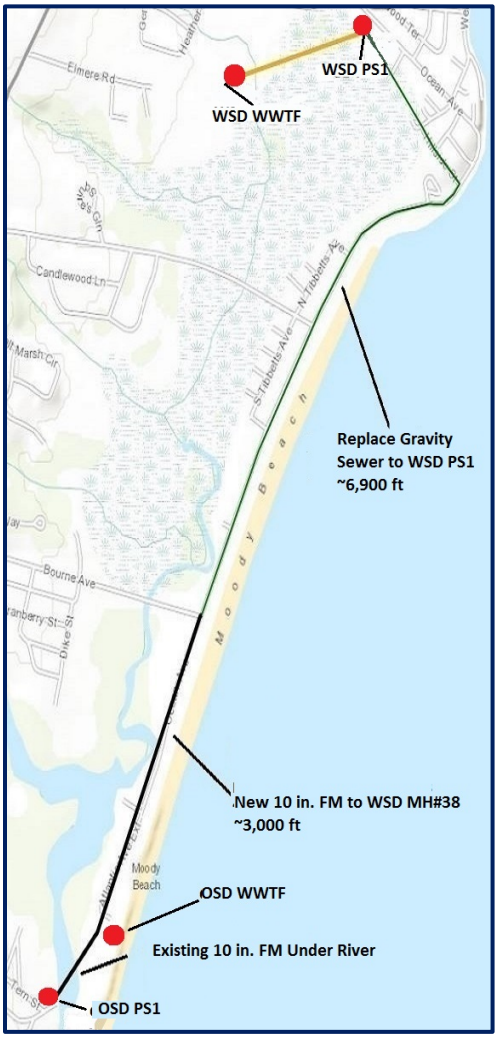


TABLE 5-3
OCEAN AVENUE SEWER CAPACITY ANALYSIS FOR TRANSPORT OPTION 2A

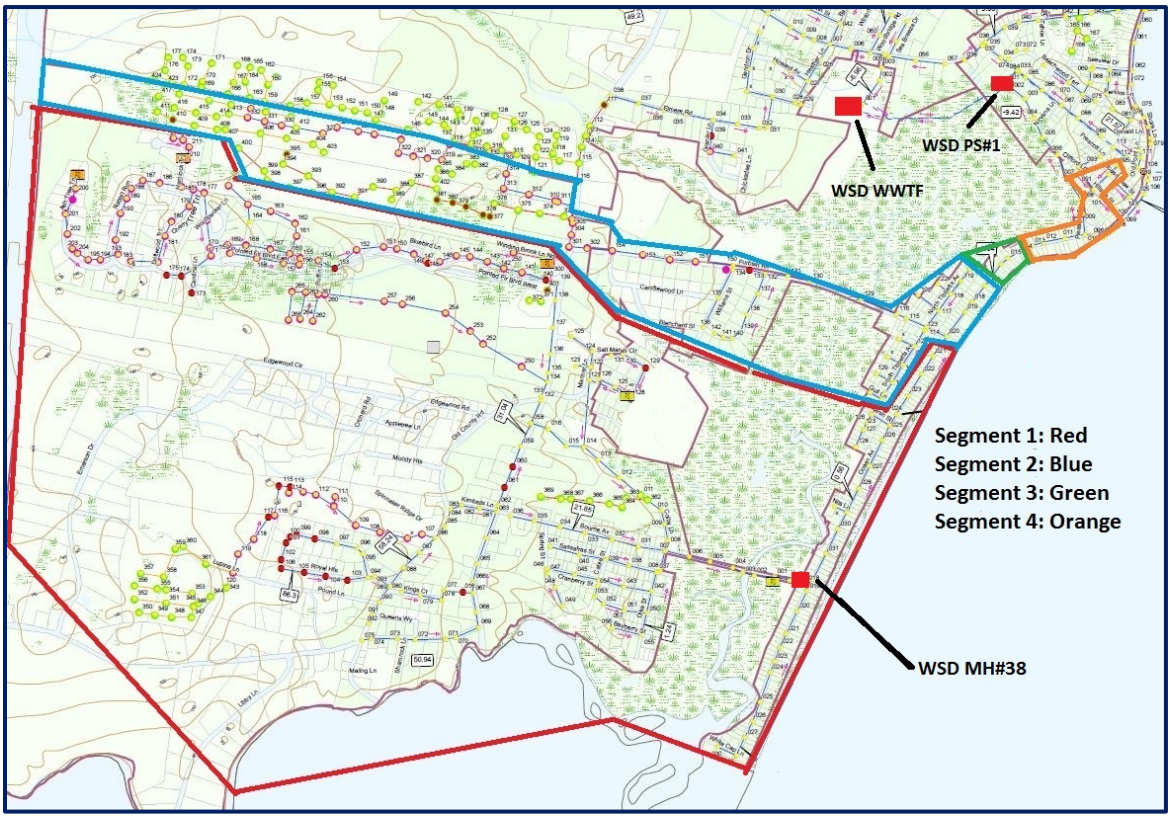
Segment	Persons Connected	Flow (gpm)	+400 gpm from OSD	Pipe Capacity (gpm)	Remaining Capacity (gpm)
1	2,800	700	1,100	1,000	-100
2	4,600	1,125	1,525	1,050	-475
3	4,700	1,130	1,530	1,410	-120
4	4,800	1,170	1,570	1,630	60

TABLE 5-4
OCEAN AVENUE SEWER CAPACITY ANALYSIS FOR TRANSPORT OPTION 2B

Segment	Capacity, Upsize 2 Diameters	Capacity, Upsize 3 Diameters	OSD Flow	WSD Flow	Total Flow	Remaining Capacity (2 upsizes)	Remaining Capacity (3 upsizes)
#	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)
1	2670	3020	2000	700	2700	-30	340
2	2460	3370	2000	1125	3125	-665	240
3	2910	3990	2000	1130	3130	-220	860
4	3300	4520	2000	1170	3170	170	1390

Notes:
1. Pipe capacity determined by Manning's Equation based on minimum actual slope in the segment.
2. Per 2012 ACS estimates, there are approximately 2.2 people per structure.
3. Assumed 70 gpcd design flow with no major sources of flow.
4. Peaking factor of 5.0 based on average daily flow.
5. Common upsizes in Pipe Bursting include 8", 12", 15", 18", and 21"
6. The "2 Upsize" scenario included pipe diameter changes from 15" to 21" and 18" to 24"
7. The "3 Upsize" scenario included pipe diameter changes from 15" to 22" and 18" to 27" and is considered the minimum upsize to meet capacity requirements.

FIGURE 5-4
HYDRAULIC CAPACITY ANALYSIS



Pipe bursting was considered a potential cost effective solution for upsizing due to existing deep excavations, high groundwater, and volume of summer traffic. Factors which would need to be considered prior to moving forward with pipe bursting include the following:

- Manholes—Majority of manholes along Ocean Ave would require excavation for the process
- Service connections—Service laterals would need to be addressed individually
- Geotechnical conditions – The 1976 record drawings for the sewer show existing ledge near the piping. The presence of sand or dense clay may limit pipe expansion and increase the risk of surface heaving and proximity to structures
- Condition of existing pipe—Reinforced concrete may be difficult to burst depending on condition and degree of reinforcement
- Presence of other underground utilities

The International Pipe Bursting Association (IPBA) provides classifications for the projects based pipe depth, existing pipe diameter, new pipe diameter, original trench depth, and soil type. The classifications range from "minimal" to "developmental" (i.e., unproven). Given the project parameters:

- Option 2A would be classified as "minimal" to "moderate" difficulty to pipe burst and is expected to be feasible.
- Option 2B would be classified as "comprehensive" to "developmental" difficulty. The hydraulic capacity analysis shown in **Table 5-4** indicates that three-diameter upsize (15 in. to 22 in. and 18 in. to 27 in.) would be necessary. A three-diameter upsize is not considered feasible due to existing geotechnical conditions, including ledge outcroppings. To accomplish the necessary upsizing, the existing gravity sewer under Option 2B would need to be replaced via traditional open-cut methods.

Pipe sizes and velocities for the various pipe segments under Options 2A and 2B are summarized in **Table 5-5** below.

TABLE 5-5
PIPING SCENARIOS FOR TRANSPORT OPTIONS 2A AND 2B

Flow Rate		Option 2A		Option 2B
		10" FM to WSD MH#38	10" FM to WSD WWTF	10" FM to WSD MH#38
2000 gpm (2 pumps)	Velocity (fps)	8.2	-	8.2
	TDH (ft)	146.2	-	131.7
1600 gpm (2 pumps)	Velocity (fps)	6.5	6.5	6.5
	TDH (ft)	104.3	247.7.0	104.3
560 gpm (1 pump)	Velocity (fps)	2.3	2.3	2.3
	TDH (ft)	38.7	82.3	24.4
400 gpm (1 pump)	Velocity (fps)	1.6	1.6	1.6
	TDH (ft)	32.4	68.3	18.1

5.1.3 Option 3: Convey Flow Directly to Wells WWTF via Horizontal Directional Drilling

Figure 5-5 shows Option 3, which would require approximately 9,000 ft of directionally drilled, 12 inch forcemain. The specific piping route would be based on existing geotechnical conditions. This option would require extensive geotechnical research and multiple drilling locations to accommodate the long distance. The advantages of this option include:

- Shorter FM distance, reducing costs and pumping requirements
- Limited need for traffic control
- Minimization of disturbance to local roads and buildings

Table 5-6 summarizes the pumping conditions under this option. It is important to note that during low flow to average flow conditions, the forcemain velocity would be lower than desired; however, this can be remedied with flow equalization measures.

5.1.4 Impacts to WSD Pump Station No. 1

The existing WSD Pump Station No. 1 (PS1) delivers untreated wastewater to the WSD WWTF via a 14 inch ductile iron forcemain. Options 1 and 3 have no impact on WSD PS1 because flow goes directly to WSD WWTF. Options 2A and 2B require WSD PS1 and the PS1 forcemain be

upgraded and/or upsized. **Table 5-7** provides an overview of the flow impacts on WSD PS1 from both options.

Option 2A would not significantly change the requirements of WSD PS1, so only minor rehabilitation work would be necessary. However, Option 2B would require a comprehensive pump station upgrade and upsizing to the FM leaving the pump station. **Table 5-8** summarizes the piping scenarios for Options 2A and 2B utilizing the existing FM.

FIGURE 5-5
OPTION 3 FORCEMAIN ROUTE

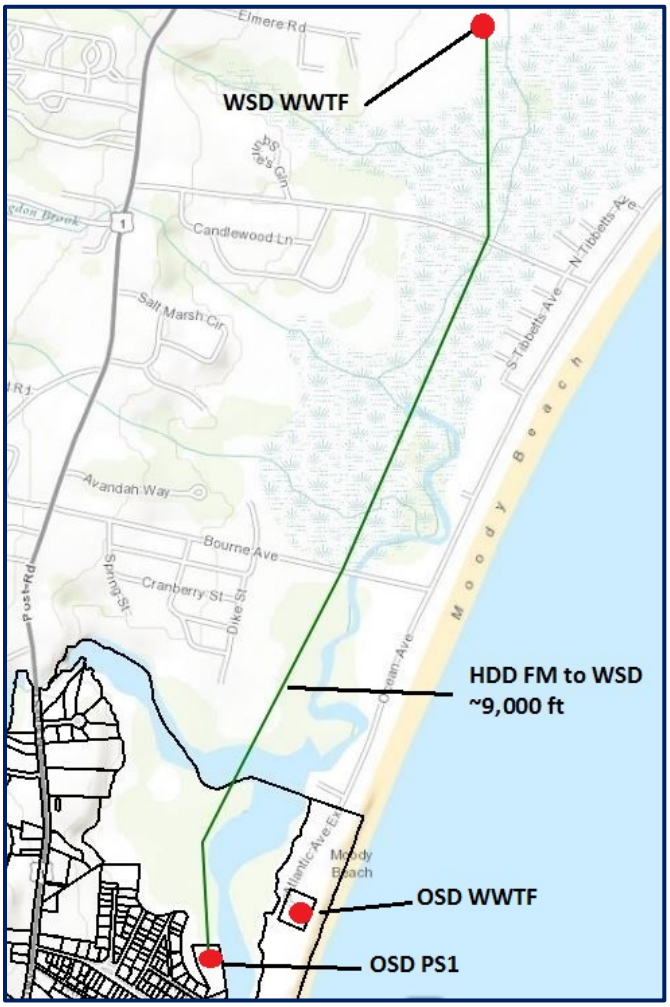


TABLE 5-6
PIPING SCENARIOS FOR TRANSPORT OPTION 3

Flow Rate		12" FM to WSD WWTF
2000 gpm (2 Pumps)	Velocity (fps)	5.7
	TDH (ft)	128.2
560 gpm (1 Pump)	Velocity (fps)	1.6
	TDH (ft)	35.7
400 gpm (1 Pump)	Velocity (fps)	1.1
	TDH (ft)	30.8

TABLE 5-7
FLOW IMPACTS TO WELLS PUMP STATION 1 (OPTIONS 2A AND 2B)

Flow (gpm)	Option 2A				Option 2B			
	WSD PS1	OSD	Combined	% Increase	WSD PS1	OSD	Combined	% Increase
Peak	2150	400	2550	19%	2150	2000	4150	93%
Average	430	400	830	93%	430	580	1010	135%
Min	100	400	500	400%	100	400	500	400%

TABLE 5-8
PIPING SCENARIOS FOR WELLS PUMP STATION 1

Flow Rate		Option 2A	Option 2B
4150 gpm (2 pumps)	Velocity (fps)	-	8.6
	TDH (ft)	-	116.4
2550 gpm (2 pumps)	Velocity (fps)	5.3	-
	TDH (ft)	62.5	-
1010 gpm (1 pump)	Velocity (fps)	-	2.1
	TDH (ft)	-	42.5
830 gpm (1 pump)	Velocity (fps)	1.7	-
	TDH (ft)	37.9	-
500 gpm (1 pump)	Velocity (fps)	1	1
	TDH (ft)	31.6	31.6

5.1.5 Cost Estimates for Transport Options

Planning-level cost estimates have been prepared for the various transport options. These planning-level costs were developed using standard cost estimating procedures consistent with industry standards utilizing concept layouts and unit cost information, as necessary. Total project capital costs include an allowance of 40% of the estimated construction costs to account for subsurface conditions, construction contingency, design and construction engineering, permitting, as well as financing, administrative and legal expenses. A summary of these costs is presented in **Table 5-9**.

TABLE 5-9

COST ESTIMATES FOR OGUNQUIT TRANSPORT OPTIONS TO WELLS WWTF

	Option 1: Dual 10" FM-Ocean Ave			**Option 2A: Divert Flows**			**Option 2B: All to WSD MH#38**			**Option 3: Single 12" FM (HDD)**		
	Quantity	Unit Cost	Cost	Quantity	Unit Cost	Cost	Quantity	Unit Cost	Cost	Quantity	Unit Cost	Cost
Open Cut FM (lf)	6,900	$200	$1,380,000	7,860	$150	$1,179,000	3,000	$150	$450,000	-	-	-
Open Cut Gravity Sewer (lf)	-	-	-	-	-	-	6,900	$220	$1,518,000	-	-	-
HDD FM (lf)	3,800	$170	$646,000	1,900	$170	$323,000	-	-	-	9,000	200	$1,800,000
Pipe Burst (lf)	-	-	-	6,900	$200	$1,380,000	-	-	-	-	-	-
WSD PS1 (LS)	-	-	-	1	$100,000	$100,000	1	$1,000,000	$1,000,000	-	-	-
WSD PS1 FM (lf)	-	-	-	-	-	-	1,650	$150	$247,500			
OSD PS1 (LS)	1	$100,000	$100,000	1	$100,000	$100,000	1	$60,000	$60,000	1	$100,000	$100,000
OSD PS2 Upgrade (LS)	1	$1,230,000	$1,230,000	1	$1,230,000	$1,230,000	1	$1,230,000	$1,230,000	1	$1,230,000	$1,230,000
Sub Total	**$3,356,000**			**$4,312,000**			**$4,505,500**			**$3,130,000**		
Tech Services & Contingency	$1,342,400			$1,724,800			$1,802,200			$1,252,000		
TOTAL	**$4,698,000**			**$6,037,000**			**$6,308,000**			**$4,382,000**		

Notes:

1. Option 1 includes two 10” pipes sharing a trench, resulting in lower unit construction costs.
2. Option 2B requires a comprehensive WSD PS1 upgrade.
3. All Options require that OSD PS1 be upgraded; the costs of doing so for Option 2B are assumed to be lower due to the shorter pumping distance.
5. Technical services and contingency are assumed to be 40% of the sub total.
6. ENR CCI 9702 (March 2014)

5.2 WELLS WWTF EXISTING CONDITIONS

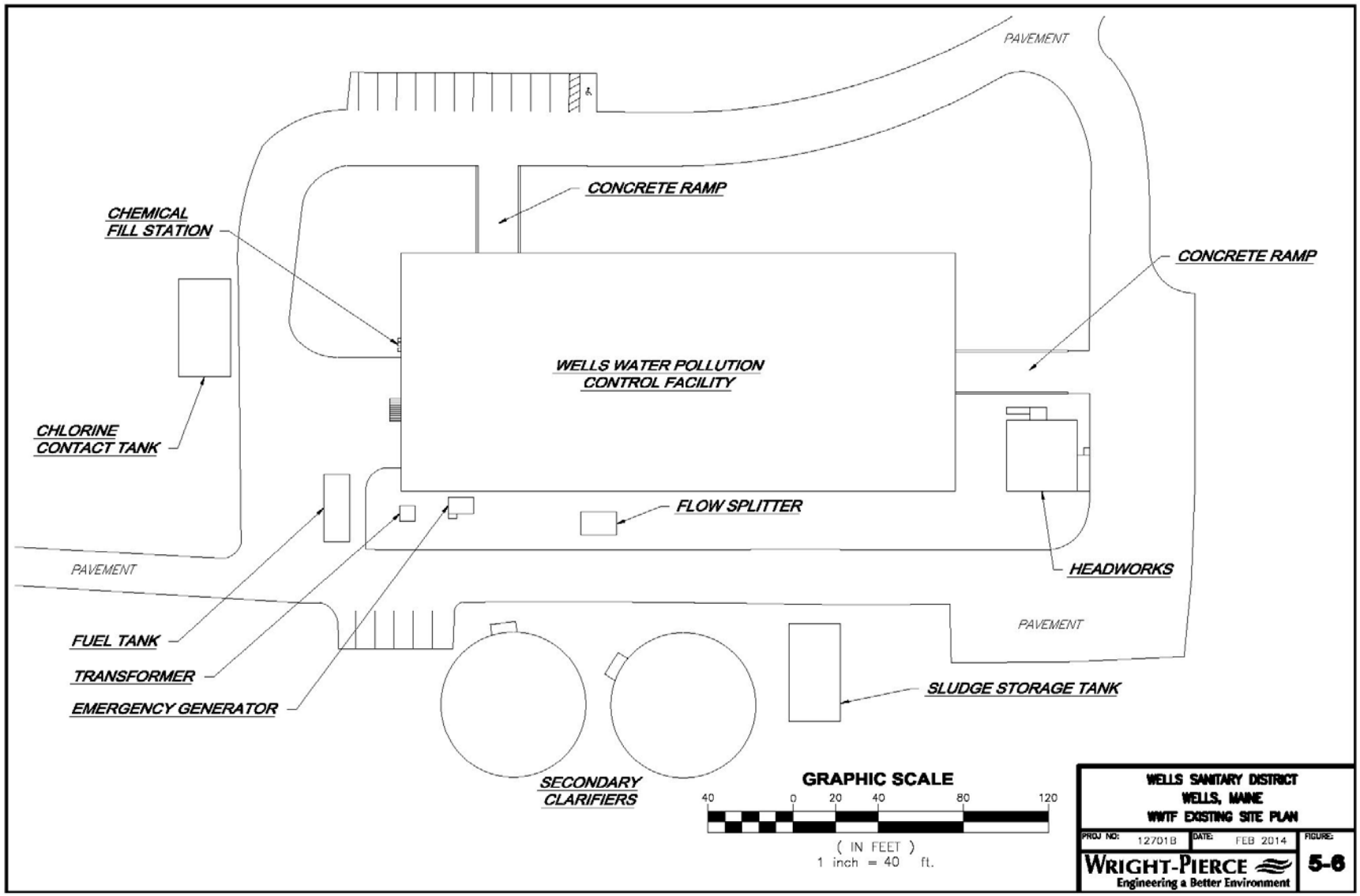
The Wells WWTF has a design average daily flow of 2.0 MGD, with current average wastewater flows of 1.08 MGD in the summer. The collection system is comprised of 40 miles of sewer and forcemain. The WWTF consists of preliminary treatment (influent flow metering, screenings, and grit removal), secondary treatment (activated sludge), disinfection, and biosolids management. Effluent flows into the Atlantic Ocean through an outfall pipe with effluent diffusers. The WSD WWTF was originally constructed in 1980 and was comprehensively upgraded in 2002. The WSD WWTF also underwent targeted upgrades of the dewatering system (2005) and the HVAC system (2012). **Figure 5-6** depicts the existing WSD WWTF site plan.

The additional wastewater flows and loads from Ogunquit, as shown in **Table 5-10**, will necessitate process upgrades at the Wells Sanitary District Treatment Facility as described in **Section 5.3**. Similar to the Ogunquit WWTF, the Wells WWTF is primarily designed for flows and loads during peak summer months. The addition of summer flow from Ogunquit increases the average daily flow at the WSD WWTF by 77% and the average BOD load by 84%. Wells WWTF upgrades will be necessary regardless of which transport option is selected.

TABLE 5-10
CONSOLIDATED FLOWS FROM OGUNQUIT AND WELLS WWTFS

Parameter – Summer	Ogunquit	Wells	Combined	% Increase (over Wells)
Summer Flow (gpm)				
Average Day (gpm)	578	753	1,330	77%
Maximum Month (gpm)	622	797	1,418	78%
Peak Day (gpm)	771	944	1,715	82%
Peak Hour (gpm)	2,127	2,710	4,837	78%
BOD Average Day (lbs/d)	2,358	2,801	5,159	84%
TSS Average Day (lbs/d)	2,034	2,586	4,620	79%

FIGURE 5-6
WWTF EXISTING SITE PLAN



5.3 COST ESTIMATES

We have reviewed the basis for sizing of each major unit process for the Wells WWTF based on recent information in our files and have identified conceptual upgrades necessary to accommodate the additional flow and load from Ogunquit. Detailed calculations or assessments of unit process sizing at the Wells WWTF was beyond the scope of this study. **Table 5-11** presents a brief summary of anticipated facility needs at WSD WWTF based on the addition of flows from Ogunquit.

Conceptual-level cost estimates have been prepared for the identified upgrades. These costs were developed using standard cost estimating procedures consistent with industry standards using cost curves and cost information from similar sized facilities. Total project capital costs include an allowance of 40% of the estimated construction costs to account for subsurface conditions, construction contingency, design and construction engineering, permitting, as well as financing, administrative and legal expenses. Costs are presented as “Low” and “High” cost estimates.

Maintaining some level of preliminary treatment in Ogunquit could limit the degree of upgrades at the Wells WWTF (e.g. influent screening, grit removal, influent flow equalization, etc.). Preliminary treatment by Ogunquit would reduce solids loading, improve pumping conditions, and limit wear to the pumps at Ogunquit Pump Station No. 1 and potential reduce diurnal flow fluctuations.

TABLE 5-11
COST ESTIMATE FOR REGIONALIZATION WITH WELLS WWTF

Process/Structure	Retain	Upgrade	Add	Low Cost	High Cost	Comments
Screening & Grit Removal		✓	✓	$500,000	$1,500,000	Upgrade and add equipment
Primary Clarifiers			✓	$2,000,000	$2,500,000	Two @ 60' diameter
Activated Sludge Tanks		✓		$250,000	$500,000	
Activated Sludge Aeration		✓		$400,000	$600,000	Blower and Diffuser Upgrades
Secondary Clarifier		✓		$750,000	$1,000,000	One @ 65' diameter
Disinfection	✓			-	-	
Effluent Discharge		✓		$200,000	$1,000,000	Extend or add diffusers
Solids Storage Tank and Aeration		✓		$700,000	$1,000,000	Add additional solids storage to maintain existing dewatering operations
Dewatering	✓			-	-	
Site Piping		✓		$500,000	$1,000,000	
Electrical & Instrumentation		✓		25%	30%	
Mechanical	✓			In Above	In Above	
Building Services	✓			In Above	In Above	
Sub Total Construction Costs				**$6,500,000**	**$11,500,000**	
Tech Services and Contingency (40%)				$2,600,000	$4,600,000	
Ogunquit Wastewater Transport Options				$4,400,000	$4,700,000	Option 1 & 3, From **Section 5.1**
TOTAL PROJECT COST				**$13,500,000**	**$20,800,000**	

Notes:

1. This report assumes that no buy-in fee will be required for OSD to send flows to WSD.
2. Annual O&M costs were not considered at this time, although it is anticipated that both Districts would see cost savings.
3. ENR CCI 9702 (March 2014)

5.4 SUMMARY AND CONCLUSIONS

Based on our evaluations described herein, we offer the following summary and conclusions regarding regionalization options with the Wells Sanitary District:

1. The most cost-effective solution for connecting to the Wells WWTF is Option 3 (Convey Directly to Wells WWTF via Horizontal Directional Drilling). This option carries higher risk due to unknown subsurface conditions. This option also requires easements with the Rachel Carson National Wildlife Refue, as the forcemain goes under their land.

2. The second most cost-effective solution was installation of a dual pipe forcemain directly to the Wells WWTF via open-cut trenching along Ocean Avenue (Option 1). This option is considered the most conservative option with the lowest risk of unknown field conditions. It also provides more pump station operation flexibility since a single pipe could be utilized in the winter and two in the summer.

3. Due to the costs and technical challenges, these Options 2A and 2B are not recommended.

4. Preliminary review of the Wells WWTF indicates that the addition of Ogunquit flows will necessitate upgrades to screening, grit removal, secondary treatment, solids storage, on-site piping, electrical & instrumentation and outfall upgrades. Furthermore, Wells WWTF would need to add two new primary clarifiers.

5. The cost of regionalizing is estimated at **$14 million to $21 million**, in 2013 dollars.

6. Regionalization could lead to cost savings for both communities over the long-term.

7. If Ogunquit decides to engage Wells further on the topic of regionalization, a more detailed analysis of the Wells WWTF will be required

Section 6

WRIGHT-PIERCE
Engineering a Better Environment

SECTION 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY AND CONCLUSIONS

The District is concerned with the potential for loss of access to the WWTF and Pump Station 1 as well as loss of reliability of its collection and treatment system in the face of storm surges and sea level rise. Based on the evaluations described herein, we offer the following summary and conclusions:

1. The existing WWTF has provided reliable service since it was last upgraded in 1991; however, some of the equipment and building systems are approaching the end of their useful life and will require some upgrades in order to provide continued reliable service. Given the location and elevation of the WWTF, adaptation measures should be incorporated into near-term investments in the current WWTF. Long-term, the WWTF should be relocated to a new site.

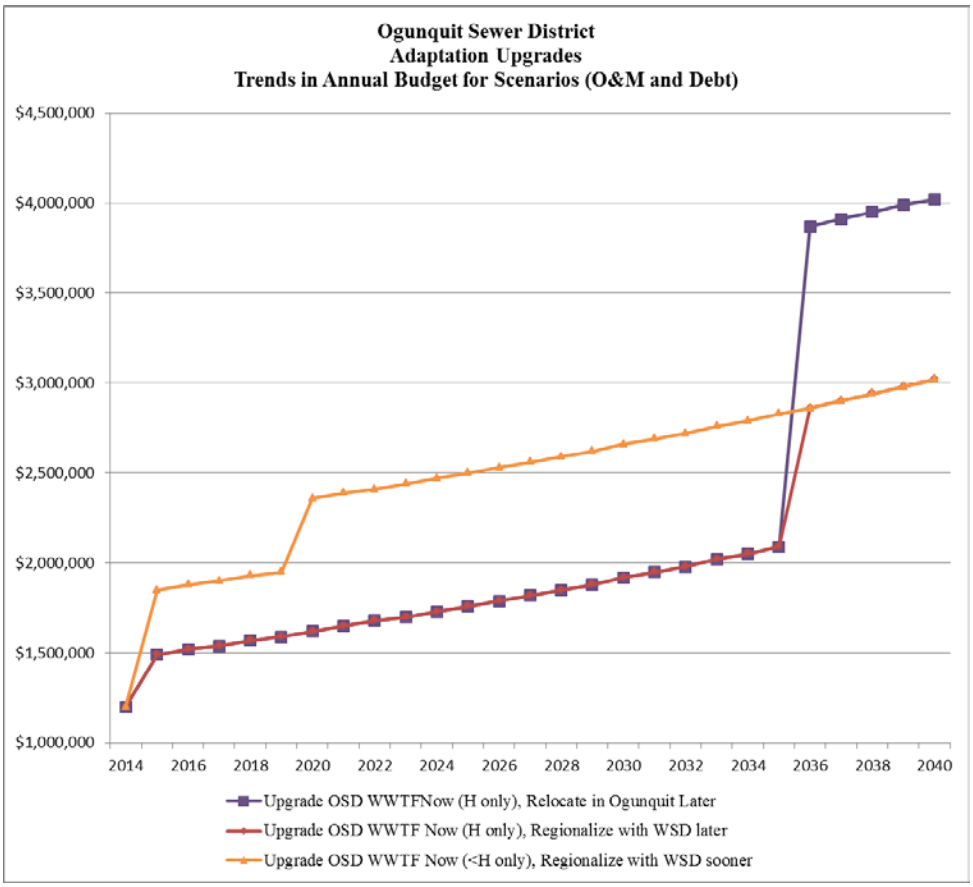
2. Pump Station No. 1 has provided reliable service since it was last upgraded in the 1980s; however, the equipment and building systems have reached the end of their useful life. This station requires a comprehensive upgrade. Given the location and elevation of Pump Station 1, adaptation measures should be incorporated into that near-term project.

3. Pump Station No. 2 was recently upgraded. Given its location and elevation, Pump Station No. 2 is reasonably well protected from floods, storm surges and sea level rise.

4. The WWTF will eventually be required to meet total nitrogen removal requirements as a part of its MEPDES permit; however, this is not expected to occur for 5 or more years. When application, it is likely that the effluent total nitrogen limit would be 8 mg/l for this discharge location. Based on data provided by the District for 2009, the WWTF would require upgrades to meet this limit. These were accounted for under “medium priority” items.

5. Current trends in the wastewater industry indicate that regulation of compounds of emerging concern (CECs) and reuse of treated effluent will become topics of concern in the future. Given the timeline for relocation, the District should monitor these items and consider them in future planning efforts.

6. The costs associated with potential WWTF and Pump Station 1 relocation are substantial. The chart below shows the combined annual O&M and debt service for three scenarios: 1) relocate the Ogunquit WWTF in 20± years; 2) regionalize with Wells in 20± years; or 3) regionalize with Wells in 5± years. Each scenario includes upgrading the Ogunquit WWTF (high priority items only). This assumes 2% annual inflation, 20 year notes at 3% interest, 5 year notes at 1.5% interest, and future 20 year notes at 4% interest in 2035. This chart shows that regionalizing sooner or later results in a similar annual budget, which is substantially lower than relocating the WWTF in Ogunquit.



7. Land that is currently available and suitable for a WWTF may be developed over time. In order to proactively address WWTF and Pump Station 1 relocation, the District should continue to refine its analysis of sites, approach, user rate impacts, etc. and purchase land as soon as it makes a decision to relocate the WWTF (vs regionalize).

8. The cost estimates presented in Section 3 (relocate the WWTF) and Section 5 (regionalize with Wells WWTF) are conceptual cost estimates. The cost estimates presented in Section 4 (adaptation upgrades at the Ogunquit WWTF) are planning-level estimates. Conceptual cost estimates are based on limited technical information and have a broad range of accuracy (+40% to -25%). Planning-level costs are based on a greater level of technical information and have a more narrow range of accuracy (+30% to -10%). These cost estimates should be refined as the District proceeds through this process and collects additional technical information.

6.2 RECOMMENDATIONS

We recommend that the District move forward as follows:

1. Engage agencies that provide grant funding for wastewater infrastructure in small communities as well as adaptation planning and/or implementation.

2. Determine the costs, advantages and disadvantages associated with regionalizing with the Wells Sanitary District.

3. Proceed with the comprehensive upgrade of Pump Station No. 1 based on “near-term Alternative 3”.

4. Review and prioritize targeted adaptation upgrades for the WWTF to protect access and provide for reliable service until the facility is relocated in the future. Establish an investment cap for the existing WWTF since it will eventually be abandoned. We would suggest setting an “investment cap” proportional to the time that the current WWTF will

remain in service (e.g., 20% of replacement cost if duration is 10 years or less, 50% of replacement cost if the duration is 20 years, etc.). Proceed with the targeted upgrades.

5. Plan for eventual relocation of the WWTF to Site A and Pump Station No. 1 to Site W. At this time, it is appropriate to expect that relocation should occur in approximately 20 to 30 years (i.e., 2033 to 2043).

6. Estimate the user rate impacts of these major capital projects. Develop proposed adjustments to user rate system and reserve accounts to address the near-term and long-term revenue needs, as necessary and appropriate. Review the advantages/disadvantages of establishing a reserve account for the purpose of "WWTF relocation" studies, land purchase, permitting and construction.

7. Prepare an Infiltration/Inflow (I/I) Study to identify and prioritize I/I projects. This study should address project costs and potential funding sources. Reductions in I/I will help the District's current operations but, more importantly, will keep the future WWTF from being unnecessarily large. Implement I/I reduction projects in accordance with the plan.

8. Prepare a detailed Wastewater Facilities Plan to determine wastewater flows and loading for the future WWTF. This planning step should be completed after the I/I Study(s) and prior to design of the new facilities.

9. Collaborate with the Town of Ogunquit to establish a beach nourishment program, especially in the vicinity of the WWTF and its seawall.

10. Purchase land for the new WWTF. Consider completing the local site permitting necessary to construct the WWTF on the new land. Ensure that the permits do not have an expiration date included in the final approval.

6.3 IMPLEMENTATION TIMELINE

The recommendations include planning tasks as well as implementation tasks. The planning tasks should be undertaken in the next one to four years, as they are essential to providing the District with the technical and cost information necessary to make financially responsible, long-term decisions related to relocation of the WWTF and Pump Station 1. The implementation tasks should take place over the next several decades. A suggested implementation timeline is provided in **Table 6-1**.

TABLE 6-1
SUGGESTED IMPLEMENTATION TIMELINE FOR ADAPTATION UPGRADES

	2013-2014	2015-2016	2017-2018	2019-2020	2021-2022	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	2037-2038	2039-2040	2041-2042
Identify planning and implementation grants	X														
Evaluate regionalization alternative with Wells	X														
Establish a WWTF "investment cap"	X														
Proceed with Pump Station 1 upgrade		X	X												
Proceed with targeted WWTF upgrades		X	X												
Continue planning for WWTF and Pump Station 1 relocation		X													
Evaluate impacts to user rates and reserve accounts	X	X													
Perform Infiltration/Inflow Studies	X	X	X												
Implement Infiltration/Inflow reduction projects		X	X	X											
Perform Detailed Wastewater Facilities Study						X	X	X	X						
Collaborate with Town on beach nourishment program	X		X		X		X		X						
Decide whether to regionalize with Wells Sanitary District		X	X												
Purchase land for WWTF and Pump Station 1 relocation			X	X											
Relocate WWTF and Pump Station 1											X	X	X	X	X

X Suggested time frame

Appendix A

WRIGHT-PIERCE
Engineering a Better Environment

APPENDIX A
Review of Adaptation Options Report

WRIGHT-PIERCE
Engineering a Better Environment

Water
Wastewater
Infrastructure

March 28, 2013
W-P Project No. 12701A

Mr. Phil Pickering
Superintendent
Ogunquit Sewer District
P.O. Box 934
Ogunquit, Maine 03907

Subject: WWTF Adaptation Options
Review of Adaptation Options Report

Dear Phil:

We have completed our review of the report entitled "*Preliminary Engineering Report - Adaptation Options to Protect the Ogunquit Sewage Treatment Plant Against Floods, Storm Surges and Sea Level Rise"* (Woodard & Curran, August 2012). You requested that we perform an independent review of the conclusions and recommendations and provide feedback to the District.

In general, we concur with the conclusions presented in the Adaptation Options Report (the "Report"). Specifically, the Ogunquit WWTF is located in area highly susceptible to the impacts of shoreline change, impacts of sea level rise, and impacts of climate change (including increasing storm frequency and storm intensity). Flooding of the Ogunquit River and storm surge onto Ogunquit Beach currently occurs routinely. The Coastal Barrier Resource System designation and the coastal sand dune designation of the area will make it difficult (from a permitting and financing perspective) to protect the WWTF moving forward. Appendix A of the Report indicates that the WWTF will be at high risk within 20-30 years. It is likely that the WWTF will be relocated in the longer-term. That said, relocating the WWTF is an expensive proposition. Ultimately, this difficult question can only be resolved by considering when the *risks* of remaining in this location will exceed the *benefits* of remaining in this location.

We offer the following specific comments on the Report for the District's consideration.

1. Appendix A identifies sea level rise projections as a range of 0.4' to 1.0' by 2050 and of 1.0' to 3.2' by 2100. The lower end of the range is based on projections from the Intergovernmental Panel on Climate Change (IPCC, 2007) and the upper end of the range is based on IPCC 2007 "with Rignot 2011" (which includes the impacts of accelerated melting of Greenland and Antarctic ice sheets). Appendix A page 4 states that the author (Rignot, et.al.) indicates that caution should be exercised when using the upper end values because they are based on a short-term data set. To put this in perspective, the 100-year storm event flood elevation in **2050** with Rignot (shown on Figure 2-1) is essentially equivalent to the 100-year storm event flood elevation in **2100** without Rignot (not shown on Figure 2-1). Refer to Figure 2-1 and Appendix A pages 3 and 4.

75 Washington Avenue, Suite 202
Portland, ME 04101 USA
Phone 207.761.2991 Fax 207.761.2978

2. The Report makes no mention of the fact that FEMA is updating the Flood Insurance Rate Mapping and that the draft mapping shows the WWTF site within "Zone AO", an area of inundation. Figure 2-1 should show the earth grade around the process tanks (Aeration Tanks, Clarifiers, Digesters, etc.) as approximately elevation 10.0 ft NAVD. This elevation is higher than the predicated 100-year storm event flood elevations in 2050 (with or without Rignot). The District should petition FEMA to modify the extents of Zone AO on the basis of the Report and the supporting modeling in Appendix A.

3. The risks identified in Section 4 of the Report are comprehensive; however, there was no written summary of the key comparative risks. From our perspective, the biggest risks faced at the WWTF are as follows:

   - Loss of physical access to the WWTF is probably the single largest, potentially near-term comparative risk. A dune breach in the vicinity of the beach parking lot would eliminate access to the WWTF for an extended period of time.

   - Physical damage to equipment or structures caused by wave velocity or wave elevation resulting from dune overwash at the WWTF site. The existing WWTF is constructed largely of robust materials (i.e., concrete, masonry, etc.); however, additional flood protection measures could be implemented to provide additional protection.

   - Physical damage to equipment or structures caused by area flooding from the Ogunquit River. All of the existing WWTF structures are "flood protected" (i.e., the threshold elevations of the structures are at or above the elevation of the floods of record); however, some structures are protected much better than other structures. The Control Building should receive additional flood protection measures (e.g., flood gates on the doors).

   - Loss of utility power due to damage or flooding to the on-site utility transformer or to damage to the utility lines that feed the WWTF are also major risks; however, the WWTF has a dedicated standby generator on-site located in the Process Building which is at minimal risk of flooding.

   - Each of the above items will be exacerbated by sea level rise and increasing storm intensity.

4. In order to embark on the appropriate course of action, it is important to establish the answers to the followings questions:

   - *When will the risk of remaining in the current WWTF location exceed the benefits?*
   - *When should the WWTF be relocated?*
   - *How will the District respond to a significant storm event which alters the above timeline?*
   - *Where should the WWTF be relocated?*
   - *When should changes to the WWTF NPDES permit be expected?*
   - *How much life is left in the existing WWTF?*
   - *How much money should be invested in the current WWTF if it will ultimately be abandoned?*
   - *What does the District need to do now to prepare for relocation?*

The Report identifies a broad framework for the District to start with, but significant additional analysis is needed prior to any decision making regarding relocating the WWTF. In order to advance this topic for the District, we have developed two supplemental documents.

First, we have developed an "implementation timeline" (refer to the attached figure). The timeline begins in 1991 (when planning for the current WWTF began) and ends in 2080 (by which time the WWTF would likely be relocated). The timeline depicts the general timeframes for the major milestones by which the District is constrained, including the potential for "earlier" or "later" arrival of these milestone events.

Second, we have developed a "detailed outline of a strategic plan" for the WWTF (attached). The focus of the strategic plan is to answer the questions identified above so the District can make informed decisions.

We are available to meet with you and/or the Trustees at your convenience to discuss the contents of this letter. If you have any questions or if you need any additional information during your review, please contact me.

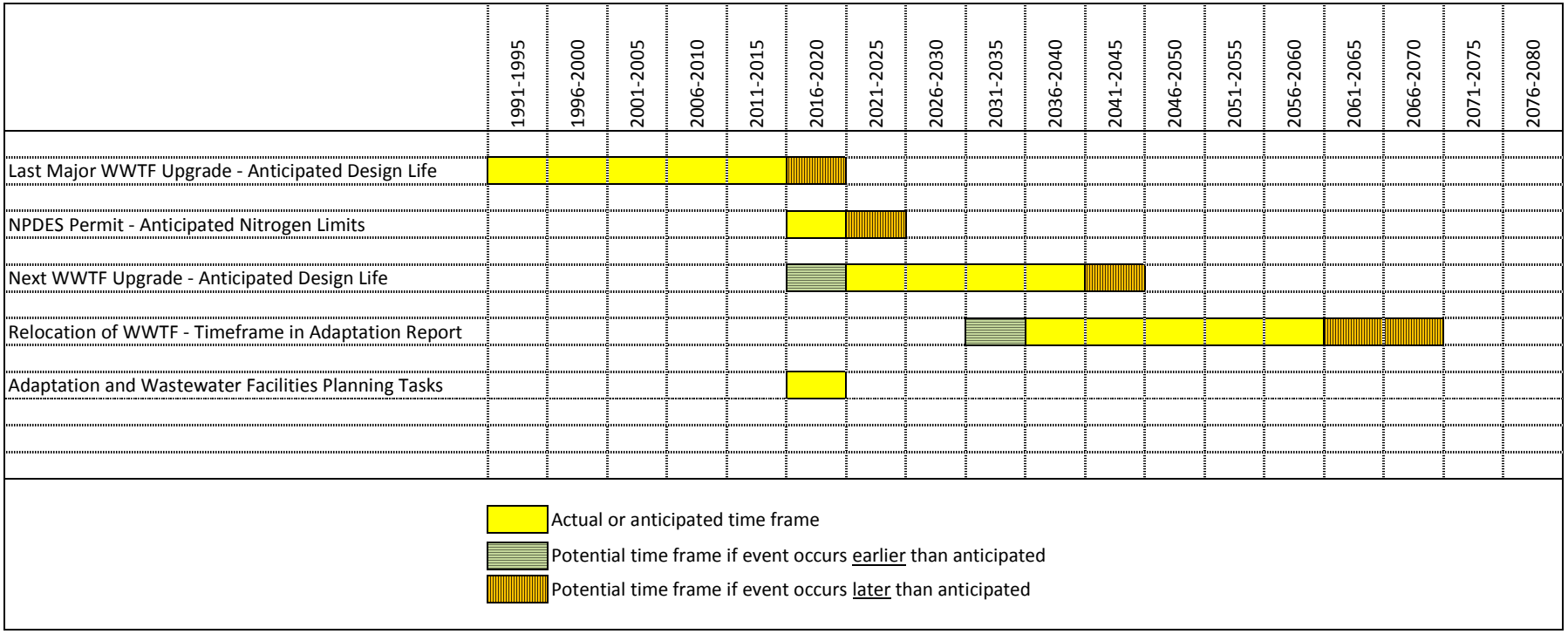
Very truly yours,

WRIGHT-PIERCE

Edward J. Leonard, P.E.
Project Manager

Attachments

ANTICIPATED TIMELINE FOR IMPLEMENTATION OF ADAPTATION TASKS
OGUNQUIT SEWER DISTRICT - WASTEWATER TREATMENT FACILITY



Wright-Pierce, 22 March 2013

OGUNQUIT SEWER DISTRICT
ADAPTATION OPTIONS TO PROTECT AGAINST FLOODS,
STORM SURGES AND SEA LEVEL RISE

DETAILED OUTLINE OF STRATEGIC PLAN

Planning Tasks –
Ideally, the planning tasks on this list would be undertaken and completed in the next two to four years as they are essential to providing the District with the technical and cost information necessary to make financially responsible, long-term decisions related to WWTF relocation.

1. Identify and apply for additional planning grants which may be available for these studies.

2. Establish the "value" or replacement cost of the existing WWTF. Based on our cost database, a conceptual replacement value for the WWTF is approximately $14M to $18M in current dollars. Establish an investment cap for the existing WWTF since it will eventually be abandoned. We would suggest setting an "investment cap" proportional to the time that the current WWTF will remain in service (e.g., 20% of replacement cost if duration is 10 years or less, 50% of replacement cost if the duration is 20 years, no cap if the facility is to remain in its current location, etc.).

3. Prepare an Infiltration/Inflow Study to identify and prioritize infiltration/inflow (I/I) projects. This study should address project costs and potential funding sources. Reductions in I/I will help the District's current operations but, more importantly, will keep the future WWTF from being unnecessarily large.

4. Prepare a WWTF Relocation Study to identify potential sites for a future WWTF. This study should include a town-wide search for suitable sites for a new WWTF utilizing screening criteria (e.g., parcel size, zoning, ground surface elevation, flood zones, etc.), aerial photography, and "windshield survey" of shortlisted parcels. This study should address at least three viable alternatives, potentially including: a) a new site away from the shore (where land is "less costly"); b) a new site near the shore (where land is "more costly"); and c) a regional option such as the Wells Sanitary District.

5. Prepare a Wastewater Facilities Plan to address the following:
    a. Determine wastewater flows and loading within an extended time horizon through 2100 (full build-out and theoretical build-out);
    b. Physical condition of structures and ability to withstand flooding;
    c. Upgrades needed, if any, to meet potential NPDES permit modifications;
    d. Upgrades needed to lengthen the life of the WWTF for a time horizon through 2040, such as access drive modifications/armoring, boat access ramp/dock, beach nourishment, flood protection measures, electrical upgrades;

6. Coordinate with State of Maine and FEMA prior to release of new Flood Insurance Rate Mapping (2014). The site-specific modeling work documented in Appendix A of the Adaptation Options report should substantiate changes to the "Zone AO" mapping in and around the treatment plant site.

7. Review the advantages/disadvantages of establishing a reserve account for the purpose of "WWTF relocation". These funds would initially be used for studies and, eventually, would be used for land purchase and construction of a relocated WWTF.

8. Review the advantages/disadvantages of establishing a reserve account for the purpose of "WWTF flood adaptation". These funds would be used for physical upgrades at the WWTF intended to increase the useful life of the facility at its current location.

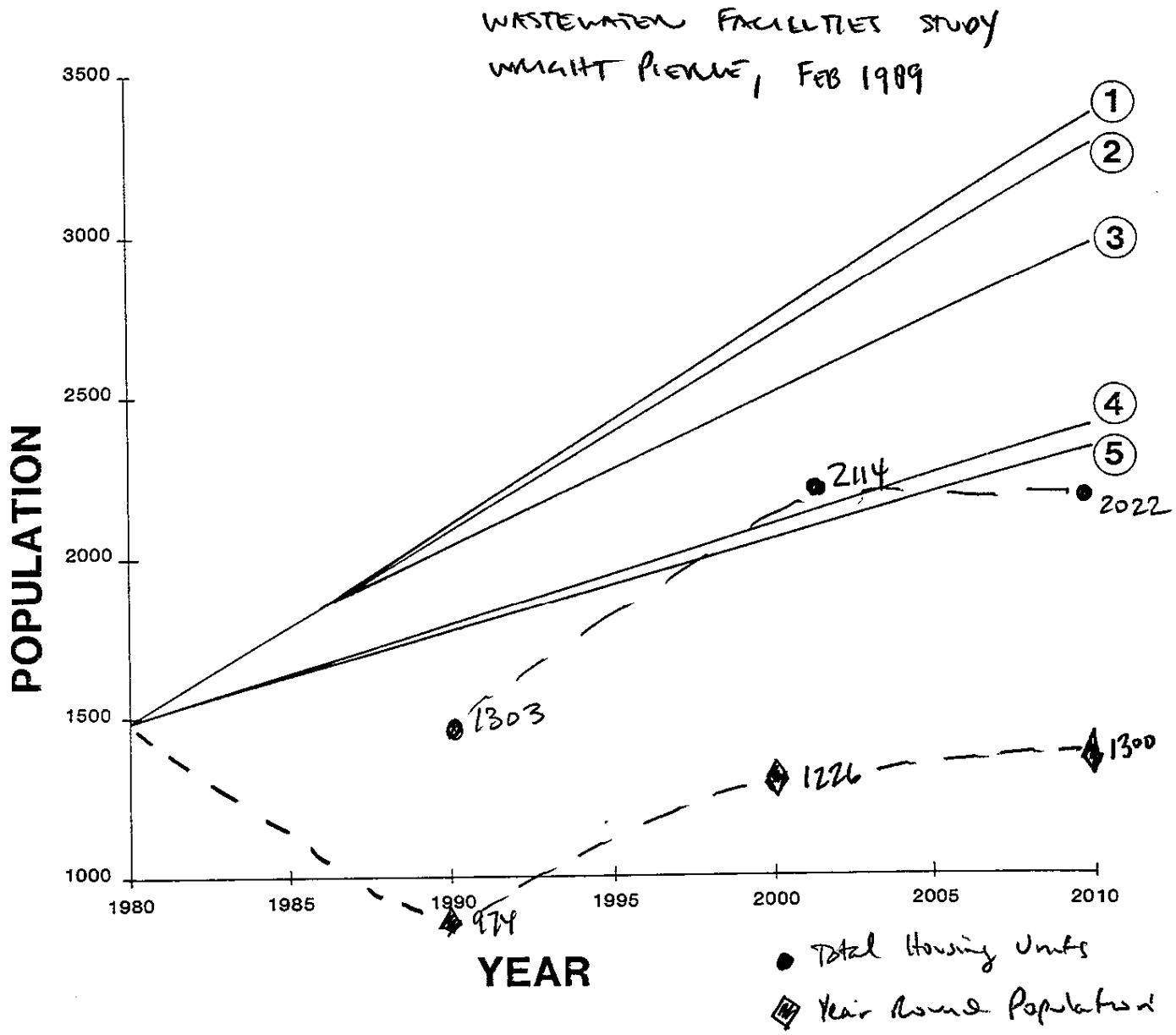
Implementation Tasks – Once the planning tasks are completed, the District can focus on implementation tasks and timelines (e.g., 2016 and beyond). Implementation tasks include the following:

1. Identify and apply for implementation grants which may be available.
2. Implement I/I reduction projects.
3. Purchase land for future WWTF.
4. Implement beach nourishment program in concert with the Town.
5. Implement strategic upgrades at current WWTF to maintain permit compliance, reliability and site access for the duration that the WWTF remains at the current location.
6. Implement changes in rate structure to prepare for WWTF relocation.

Appendix B

WRIGHT-PIERCE
Engineering a Better Environment

APPENDIX B
Demographics and Land Use Information



1. SOUTHERN MAINE REGIONAL PLANNING COMMISSION
2. 1980-86 GROWTH RATE PROJECTED TO YEAR 2010
3. WRIGHT-PIERCE
4. BH2M 1981 REPORT
5. MAINE DEPT. OF HUMAN SERVICES

SOURCE: 1987 COMPREHENSIVE PLAN

FIGURE 4-1

POPULATION PROJECTIONS

OGUNQUIT SEWER DISTRICT
WWTF & PUMP STATION NO. 1 ADAPTATION UPGRADES
Parcel Distribution in Town of Ogunquit

	No. of Parcels			
	Town	**Private**	**Other**	*% of Total*
0 to 1 acre	14	1,249	38	*80%*
1 to 2 acres	3	168	5	*11%*
2 to 3 acres	2	46	2	*3%*
3 to 4 acres	-	33	2	*2%*
5+ acres	6	60	4	*4%*
Totals	***25***	***1,556***	***51***	***1,632***
% of Total	*2%*	*95%*	*3%*	

	Total Acreage			
	Town	**Private**	**Other**	*% of Total*
0 to 1 acre	5.0	414.6	9.7	*16%*
1 to 2 acres	4.9	234.6	7.6	*9%*
2 to 3 acres	4.4	110.1	5.3	*4%*
3 to 4 acres	-	127.3	8.1	*5%*
5+ acres	128.5	1,345.5	271.5	*65%*
Totals	***142.7***	***2,232.1***	***302.1***	***2,677.0***
% of Total	*5%*	*83%*	*11%*	

	ESTIMATED Parcels Served by Sewer			See Note 1
	Users	**Non-Users**		*% of Total*
0 to 1 acre	1,028	273		*80%*
1 to 2 acres	58	118		*11%*
2 to 3 acres	17	33		*3%*
3 to 4 acres	22	13		*2%*
5+ acres	19	51		*4%*
Totals	***1,144***	***488***		***1,632***
% of Total	*70%*	*30%*		

1) The numbers in the table above are based on parcels within 200' feet of sewer in Ogunquit only. This results in an estimated 1,144 sewered parcels.
2) GIS has an attribute field called "parcels with septic", totaling 326 parcels. This results in an estimated 1,306 sewered parcels.
3) OSD has 1,806 customers, some of which are in York and some of which are multiple customers per parcel. This results in an estimated 1,258 sewered parcels.

Appendix C

WRIGHT-PIERCE
Engineering a Better Environment

APPENDIX C
MEPDES Permit and Modification

STATE OF MAINE

Department of Environmental Protection

Paul R. LePage
GOVERNOR

Patricia W. Aho
COMMISSIONER

February 15, 2013

Mr. Philip Pickering
Superintendent
Ogunquit Sewer District
P. O. Box 934
Ogunquit, ME 03907

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0100986
Maine Waste Discharge License #W000449-6D-I-R
Final Permit

Dear Mr. Pickering:

Enclosed please find a copy of your **final** MEPDES permit/WDL which was approved by the Department of Environmental Protection. Please read the permit and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

If you have any questions regarding the matter, please feel free to call me at 287- 7693.

Sincerely,

Gregg Wood
Division of Water Quality Management
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STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

DEPARTMENT ORDER

IN THE MATTER OF

OGUNQUIT SEWER DISTRICT		) MAINE POLLUTANT DISCHARGE
PUBLICLY OWNED TREATMENT WORKS		) ELIMINATION SYSTEM PERMIT
OGUNQUIT, YORK COUNTY, MAINE		) AND
ME0100986		) WASTE DISCHARGE LICENSE
W000449-6D-I-R	**APPROVAL**	) **RENEWAL**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, *et. seq.* and *Conditions of Licenses*, 38 M.R.S.A., Section 414-A *et seq.*, and applicable regulations, the Department of Environmental Protection (Department hereinafter) has considered the application of the OGUNQUIT SEWER DISTRICT (OSD/permittee hereinafter), with its supportive data, agency review comments, and other related material on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The OSD has submitted a timely and complete application to the Department for the renewal of combination Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0100986/Maine Waste Discharge License (WDL) #W000449-5L-G-R (permit hereinafter) which was issued by the Department on March 12, 2008, for a five-year term. The 3/12/08 permit authorized the discharge of up to a monthly average flow of 1.28 million gallons per day (MGD) of secondary treated sanitary waste waters from a publicly owned treatment works facility to the Atlantic Ocean, Class SB, in Ogunquit, Maine.

PERMIT SUMMARY

This permitting action is carrying forward all the terms and conditions of the previous permitting actions except that this permit is:

1. Incorporating the average and maximum technology based concentration limits for total mercury that were originally established in a permit modification on May 23, 2000.

2. Reducing the monitoring frequencies for biochemical oxygen demand (BOD), total suspended solids (TSS) and for fecal coliform bacteria from 2/Week to 1/Week, and for settleable solids from 5/Week to 3/Week based on a statistical evaluation of the previous five years of monitoring data.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated January 14, 2013, and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

3. The provisions of the State's antidegradation policy, 38 MRSA Section 464(4)(F), will be met, in that:

   a. Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   b. Where high quality waters of the State constitute an outstanding natural resource, that water quality will be maintained and protected;

   c. The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   d. Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and

   e. Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the application of the OGUNQUIT SEWER DISTRICT, to discharge up to a monthly average flow of 1.28 million gallons per day of secondary treated sanitary waste waters to the Atlantic Ocean, Class SB, subject to the attached conditions and all applicable standards and regulations:

1. "*Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*," revised July 1, 2002, copy attached.

2. The attached Special Conditions, including any effluent limitations and monitoring requirements.

3. This permit becomes effective upon the date of signature below and expires at midnight five (5) years after that date. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the terms and conditions of this permit and all subsequent modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [*Maine Administrative Procedure Act*, 5 M.R.S.A. § 10002 and *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2(21)(A) (effective April 1, 2003)]

DONE AND DATED AT AUGUSTA, MAINE, THIS 20th DAY OF February, 2013.

COMMISSIONER OF ENVIRONMENTAL PROTECTION

BY: Michael Kuhns
for Patricia W. Aho, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application November 15, 2012.

Date of application acceptance November 16, 2012.

Filed
FEB 20 2013
State of Maine
Board of Environmental Protection

Date filed with Board of Environmental Protection _____

This Order prepared by GREGG WOOD, BUREAU OF LAND & WATER QUALITY

ME0100986 2013 2/14/13

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Beginning upon issuance of this permit, the permittee is authorized to discharge secondary treated wastewaters from **OUTFALL # 002** to the Atlantic Ocean. Such discharges shall be limited and monitored by the permittee as specified below. The italicized numeric values bracketed in the table below and on the following pages are code numbers that Department personnel utilize to code Discharge Monitoring Reports (DMR's).

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow *[50050]*	1.28 MGD *[03]*	---	Report MGD *[03]*	---	---	---	Continuous *[99/99]*	Recorder *[RC]*
Biochemical Oxygen Demand (BOD_5) *[00310]*	320 lbs/Day *[26]*	480 lbs/Day *[26]*	534 lbs/Day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	24 Hr. Composite *[24]*
BOD5 % Removal (1) *[81010]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Total Suspended Solids (TSS) *[00545]*	320 lbs/Day *[26]*	480 lbs/Day *[26]*	534 lbs/Day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	24 Hr. Composite *[24]*
TSS % Removal (1) *[81011]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Settleable Solids *[00545]*	---	---	---	---	---	0.3 ml/L *[25]*	3/Week *[03/07]*	Grab *[GR]*
Fecal Coliform Bacteria (2) *(Year-round)* *[74055]*	---	---	---	15/100 ml(3) *[13]*	---	50/100 ml *[13]*	1/Week *[02/07]*	Grab *[GR]*
Total Residual Chlorine(4) *(April – September)* *(October – March)* *[50060]*	--- ---	--- ---	---	0.1 mg/L *[19]* ---	--- ---	0.3 mg/L 0.65 mg/L *[19]*	1/Day *[01/01]* 1/Day *[03/01]*	Grab Grab *[GR]*
pH (Std. Units) *[00400]*	---	---	---	---	---	6.0-9.0 *[12]*	5/Week *[05/07]*	Grab *[GR]*

SPECIAL CONDITIONS
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS – OUTFALL #002 (cont'd)

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type
Arsenic (Total) (5) [01002] *(Upon permit issuance)*	Report lbs/Day [26]	---	---	Report ug/L [28]	---	---	1/Year [01/YR]	Composite [24]
Arsenic (Inorganic) (6) [01252] *(Upon EPA method approval)*	0.068 lbs/Day [26]	---	---	Report ug/L [28]	---	---	1/Year [01/YR]	Composite [24]
Mercury (Total) (7) [71900]	---	---	---	19.3 ng/L [3M]	---	29.0 ng/L [3M]	1/Year [01/YR]	Grab [GR]

SCREENING LEVEL - Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity(8)						
Acute – NOEL						
Mysidopsis bahia [TDM3E] (Mysid Shrimp)	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Chronic – NOEL						
Arbacia punctulata [TBH3A] (Sea urchin)	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Analytical Chemistry(9,11) [51168]	---	---	---	Report ug/L [28]	1/Quarter [01/90]	Composite/Grab [24]
Priority Pollutant(10, 11) [50008]	---	---	---	Report ug/L [28]	1/Year [01/YR]	Composite/Grab [24]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)
Footnotes:

Sampling - Sampling and analysis must be conducted in accordance with; a) methods approved in 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services. Samples that are sent to another POTW licensed pursuant to *Waste discharge licenses*, 38 M.R.S.A. § 413 or laboratory facilities that analyze compliance samples in-house are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 CMR 263 (last amended February 13, 2000).

All analytical test results shall be reported to the Department including results which are detected below the respective reporting limits (RLs) specified by the Department or as specified by other approved test methods. See **Attachment A** of this permit for a list of the Department's RLs. If a non-detect analytical test result is below the respective RL, the concentration result shall be reported as <Y where Y is the RL achieved by the laboratory for each respective parameter. Reporting a value of <Y that is greater than an established RL or reporting an estimated value ("J" flagged) is not acceptable and will be rejected by the Department. Reporting analytical data and its use in calculations must follow established Department guidelines specified in this permit or in available Department guidance documents.

1. **Percent Removal** - The treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand for all flows receiving secondary treatment. The percent removal shall be based on monthly average concentration values. The percent removal shall be waived when the monthly average influent concentration is less than 200 mg/L. For instances when this occurs, the facility shall report "*NODI-9*" on the monthly Discharge Monitoring Report (DMR).

2. **Fecal coliform bacteria** - Limits and monitoring requirements are in effect on a year-round basis.

3. **Fecal coliform bacteria** – The monthly average limitation is a geometric mean limitation and results shall be reported as such.

4. **Total residual chlorine (TRC)** – Limitations and monitoring requirements for TRC are applicable whenever elemental chlorine or chlorine based compounds are being utilized to disinfect the discharge. For instances when a facility has not disinfected with chlorine based compounds for an entire reporting period, the facility shall report "NODI-9" for this parameter on the monthly DMR. The permittee shall utilize approved test methods that are capable of bracketing the limitations in this permit.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

5. **Arsenic (Total) – Beginning upon issuance of this permit and lasting through a date on which the USEPA approves a test method for inorganic arsenic**, the permittee shall sample and analyze the discharge from the facility for total arsenic. The Department's most current reporting limit (RL) for total arsenic is 5 ug/L but may be subject to revision during the term of this permit. All detectable analytical test results shall be reported to the Department including results which are detected below the Department's most current RL at the time of sampling and reporting. Only the detectable results greater than the total arsenic threshold of 13 ug/L (See page 18 of the Fact Sheet attached to this permit) or the Department's RL at the time (whichever is higher) will be considered as a possible exceedence of the water quality criteria for inorganic arsenic. If a test result is determined to be a possible exceedence, the permittee shall submit a toxicity reduction evaluation (TRE) to the Department for review and approval within 45 days of receiving the test result of concern from the laboratory.

6. **Arsenic (Inorganic)** – The limitations and monitoring requirements for inorganic arsenic are not in effect until the USEPA approves of a test method for inorganic arsenic. See Special Condition J, *Schedule of Compliance – Inorganic Arsenic*, of this permit modification. Once effective, compliance will be based on a 12-month rolling average basis beginning 12 months after the effective date of the limits. Following USEPA approval of a test method for inorganic arsenic and based on recent available data, the permittee may request that the Department reopen this permit in accordance with Special Condition M, *Reopening on Permit For Modifications*, of this permit to establish a schedule of compliance for imposition of the numeric inorganic arsenic limitations.

7. **Mercury** – All mercury sampling (1/Year) required to determine compliance with interim limitations established pursuant to *Interim Effluent Limitations and Controls for the Discharge of Mercury*, 06-096 CMR 519 (last amended October 6, 2001) shall be conducted in accordance with EPA's "clean sampling techniques" found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analyses shall be conducted in accordance with EPA Method 1631E, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry. See **Attachment B,** *Effluent Mercury Test Report*, of this permit for the Department's form for reporting mercury test results.

   Compliance with the monthly average limitation established in Special Condition A of this permit will be based on the cumulative arithmetic mean of all mercury tests results that were conducted utilizing sampling Methods 1669 and analysis Method 1631E on file with the Department for this facility.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

8. **Whole Effluent Toxicity (WET)** - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions bracketing the acute and chronic critical thresholds of 1 % and 2% respectively), which provides an estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points. Acute tests shall be conducted on the mysid shrimp (*Mysidopsis bahia*) and chronic tests shall be conducted on the sea urchin (*Arbacia punctulata*). The critical acute and chronic thresholds were derived as the mathematic inverse of the applicable acute and chronic dilution factors of 50:1 and 102:1 respectively.

   a. **Surveillance level** testing – Waived pursuant to 06-096 CMR Chapter 530, *Surface Water Toxics Control Program* Chapter 530 (2)(D)(3)(b).

   b. **Screening level testing** –Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee shall conduct screening level WET testing at a minimum frequency of (1/Year) for both the mysid shrimp and the sea urchin.

   WET test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the toxicity reports for up to 10 business days after receiving the results from the laboratory before submitting them. The permittee shall evaluate test results being submitted and identify to the Department possible exceedences of the critical acute and chronic water quality thresholds of 1% and 2%, respectively.

   Toxicity tests must be conducted by an experienced laboratory approved by the Department. The laboratory must follow procedures as described in the following U.S.E.P.A. methods manuals:

   a. Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Marine and Estuarine Organisms, Third Edition, October 2002, EPA-821-R-02-014.

   b. Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

See **Attachment C** of this permit for the Department's WET report form. The permittee is also required to analyze the effluent for the parameters specified in the WET chemistry section, and the parameters specified in the analytical chemistry section of the form in **Attachment A** of this permit each time a WET test is performed.

9. **Analytical chemistry** – Refers to a suite of parameters listed in **Attachment A** of this permit.

   a. **Surveillance level** testing – Waived pursuant to 06-096 CMR Chapter 530, *Surface Water Toxics Control Program* Chapter 530 (2)(D)(3)(b).

   b. **Screening level testing** – Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee shall conduct screening level analytical chemistry testing at a minimum frequency of once per calendar quarter (1/Quarter).

10. **Priority pollutant testing** – Priority pollutants refers to a suite of parameters listed in **Attachment A** of this permit.

    a. **Surveillance level** testing – Not required pursuant to 06-096 CMR Chapter 530, *Surface Water Toxics Control Program* Chapter 530 (2)(D)(3)(b).

    a. **Screening level testing** - Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee shall conduct screening level priority pollutant testing at a minimum frequency of once per year (1/Year).

11. **Priority pollutant and Analytical chemistry** - Priority pollutant and analytical chemistry testing shall be conducted on samples collected at the same time as those collected for whole effluent toxicity tests when applicable. Priority pollutant and analytical chemistry testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. **See Attachment A** of this permit for a list of the Department's reporting levels (RLs) of detection.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

Priority pollutant and analytical chemistry test results must be submitted to the Department not later than the next DMR required by the permit provided, however, that the permittee may review the toxicity reports for up to 10 business days after receiving the test results from the laboratory before submitting them. The permittee shall evaluate test results being submitted and identify to the Department, possible exceedences of the acute, chronic or human health AWQC as established in Department rule Chapter 584. For the purposes of Discharge Monitoring Report (DMR) reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9" monitoring not required this period.

B. NARRATIVE EFFLUENT LIMITATIONS

1. The effluent shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated for the classification of the receiving waters.

2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated for the classification of the receiving waters.

3. The discharges shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated for the classification of the receiving waters.

4. Notwithstanding specific conditions of this permit the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

C. TREATMENT PLANT OPERATOR

The person who has the management responsibility over the treatment facility must hold a minimum of a **Grade III** certificate or must be a Maine Registered Professional Engineer pursuant to *Sewerage Treatment Operators*, Title 32 M.R.S.A., Sections 4171-4182 and *Regulations for Wastewater Operator Certification*, 06-096 CMR 531 (effective May 8, 2006). All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

SPECIAL CONDITIONS

D. AUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on November 16, 2012; 2) the terms and conditions of this permit; and 3) only from Outfall #002. Discharges of wastewater from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5)(*Bypass*) of this permit.

E. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee shall notify the Department of the following.

1. Any introduction of pollutants into the waste water collection and treatment system from an indirect discharger in a primary industrial category discharging process waste water; and

2. Any substantial change in the volume or character of pollutants being introduced into the waste water collection and treatment system by a source introducing pollutants into the system at the time of permit issuance. For the purposes of this section, notice regarding substantial change shall include information on:

   (a) the quality and quantity of waste water introduced to the waste water collection and treatment system; and

   (b) any anticipated impact caused by the change in the quantity or quality of the waste water to be discharged from the treatment system.

F. LIMITATIONS FOR INDUSTRIAL USERS

Pollutants introduced into the waste water collection and treatment system by a non-domestic source (user) shall not pass through or interfere with the operation of the treatment system. The licensee shall conduct an Industrial Waste Survey (IWS) at any time a new industrial user proposes to discharge within its jurisdiction, an existing user proposes to make a significant change in its discharge, or, at an alternative minimum, once every permit cycle, and submit the results to the Department. The IWS shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging into the POTW subject to Pretreatment Standards under section 307(b) of the federal Clean Water Act, 40 CFR Part 403 (general pretreatment regulations) or *Pretreatment Program*, 06-096 CMR 528 (last amended March 17, 2008).

SPECIAL CONDITIONS

G. WET WEATHER MANAGEMENT PLAN

The treatment facility staff shall maintain a current written Wet Weather Management Plan to direct the staff on how to operate the facility effectively during periods of high flow. The Department acknowledges that the existing collection system may deliver flows in excess of the monthly average design capacity of the treatment plant during periods of high infiltration and rainfall.

The plan shall include operating procedures for a range of intensities, address solids handling procedures (including septic waste and other high strength wastes if applicable) and provide written operating and maintenance procedures during the events.

The permittee shall review their plan annually and record necessary changes to keep the plan up to date.

H. OPERATION & MAINTENANCE (O&M) PLAN

This facility shall have a current written comprehensive Operation & Maintenance (O&M) Plan. The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee shall evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the waste water treatment facility to ensure that it is up-to-date. The O&M Plan shall be kept on-site at all times and made available to Department and EPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee shall submit the updated O&M Plan to their Department inspector for review and comment.

SPECIAL CONDITIONS

I. DISPOSAL OF TRANSPORTED WASTES IN WASTEWATER TREATMENT FACILITY

During the effective period of this permit, the permittee is authorized to receive and introduce into the treatment process or solids handling stream **a daily maximum of 3,000 gallons per day and not to exceed a monthly total of 20,000 gallons** of transported wastes, subject to the following terms and conditions.

1. "Transported wastes" means any liquid non-hazardous waste delivered to a wastewater treatment facility by a truck or other similar conveyance that has different chemical constituents or a greater strength than the influent described on the facility's application for a waste discharge license. Such wastes may include, but are not limited to septage, industrial wastes or other wastes to which chemicals in quantities potentially harmful to the treatment facility or receiving water have been added.

2. The character and handling of all transported wastes received must be consistent with the information and management plans provided in application materials submitted to the Department.

3. At no time shall the addition of transported wastes cause or contribute to effluent quality violations. Transported wastes may not cause an upset of or pass through the treatment process or have any adverse impact on the sludge disposal practices of the wastewater treatment facility.

   Wastes that contain heavy metals, toxic chemicals, extreme pH, flammable or corrosive materials in concentrations harmful to the treatment operation must be refused. Odors and traffic from the handling of transported wastes may not result in adverse impacts to the surrounding community. If any adverse effects exist, the receipt or introduction of transported wastes into the treatment process or solids handling stream shall be suspended until there is no further risk of adverse effects.

4. The permittee shall maintain records for each load of transported wastes in a daily log which shall include at a minimum the following.

   (a) The date;
   (b) The volume of transported wastes received;
   (b) The source of the transported wastes;
   (d) The person transporting the transported wastes;
   (e) The results of inspections or testing conducted;
   (f) The volumes of transported wastes added to each treatment stream; and
   (g) The information in (a) through (d) for any transported wastes refused for acceptance.

   These records shall be maintained at the treatment facility for a minimum of five years.

SPECIAL CONDITIONS

I. DISPOSAL OF TRANSPORTED WASTES IN WASTEWATER TREATMENT FACILITY (cont'd)

5. The addition of transported wastes into the treatment process or solids handling stream shall not cause the treatment facility's design capacity to be exceeded. If, for any reason, the treatment process or solids handling facilities become overloaded, introduction of transported wastes into the treatment process or solids handling stream shall be reduced or terminated in order to eliminate the overload condition.

6. Holding tank wastewater from domestic sources to which no chemicals in quantities potentially harmful to the treatment process have been added shall not be recorded as transported wastes but should be reported in the treatment facility's influent flow.

7. During wet weather events, transported wastes may be added to the treatment process or solids handling facilities only in accordance with a current Wet Weather Flow Management Plan approved by the Department that provides for full treatment of transported wastes without adverse impacts.

8. In consultation with the Department, chemical analysis is required prior to receiving transported wastes from new sources that are not of the same nature as wastes previously received. The analysis must be specific to the type of source and designed to identify concentrations of pollutants that may pass through, upset or otherwise interfere with the facility's operation.

9. Access to transported waste receiving facilities may be permitted only during the times specified in the application materials and under the control and supervision of the person responsible for the wastewater treatment facility or his/her designated representative.

10. The authorization is subject to annual review and, with notice to the permittee and other interested parties of record, may be suspended or reduced by the Department as necessary to ensure full compliance with Chapter 555 of the Department's rules and the terms and conditions of this permit.

SPECIAL CONDITIONS

J. SCHEDULE OF COMPLIANCE - ARSENIC

Beginning upon issuance of this permit and lasting through a date on which the USEPA approves a test method for inorganic arsenic, the limitations and monitoring requirements for inorganic are not in effect. During this time frame, the permittee is required by Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit to conduct 1/Year sampling and analysis for total arsenic.

Upon receiving written notification by the Department that a test method for inorganic arsenic has been approved by the USEPA, the limitations and monitoring requirements for inorganic arsenic become effective and enforceable and the permittee is relieved of their obligation to sample and analyze for total arsenic.

K. 06-096 CMR 530(2)(D)(4) STATEMENT FOR REDUCED/WAIVED TOXICS TESTING

By December 31 of each calendar year, the permittee shall provide the Department with a certification describing any of the following that have occurred since the effective date of this permit *[PCS Code 95799]*: See **Attachment F** of the Fact Sheet of this permit for an acceptable certification form to satisfy this Special Condition.

(a) Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;

(b) Changes in the operation of the treatment works that may increase the toxicity of the discharge; and

(c) Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

In addition, in the comments section of the certification form, the permittee shall provide the Department with statements describing;

(d) Changes in storm water collection or inflow/infiltration affecting the facility that may increase the toxicity of the discharge.

(e) Increases in the type or volume of hauled wastes accepted by the facility.

The Department reserves the right to reinstate annual (surveillance level) testing or other toxicity testing if new information becomes available that indicates the discharge may cause or have a reasonable potential to cause exceedences of ambient water quality criteria/thresholds.

SPECIAL CONDITIONS

L. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and mailed on or before the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMR's are received by the Department on or before the fifteenth (15th) day of the month following the completed reporting period. A signed copy of the DMR and all other reports required herein shall be submitted to the Department's compliance inspector (unless otherwise specified) at the following address:

Department of Environmental Protection
Southern Maine Regional Office
Bureau of Land and Water Quality
Division of Water Quality Management
312 Canco Road
Portland, Maine 04103

Alternatively, if you are submitting an electronic DMR (eDMR), the completed eDMR must be electronically submitted to the Department by a facility authorized DMR Signatory not later than close of business on the 15th day of the month following the completed reporting period. Hard Copy documentation submitted in support of the eDMR must be mailed on or before the thirteenth (13th) day of the month or hand-delivered to the Department's Regional Office such that it is received by the Department on or before the fifteenth (15th) day of the month following the completed reporting period. Electronic documentation in support of the eDMR must be submitted not later than close of business on the 15th day of the month following the completed reporting period.

M. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results or monitoring requirements specified in Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at anytime and with notice to the permittee, modify this permit to; 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded, (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

N. SEVERABILITY

In the event that any provision(s), or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

STATE OF MAINE

Department of Environmental Protection

Paul R. LePage
GOVERNOR

Patrica W. Aho
COMMISSIONER

September 9, 2013

Mr. Philip Pickering
Superintendent
Ogunquit Sewer District
P. O. Box 934
Ogunquit, ME 03907

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0100986
Maine Waste Discharge License #W000449-6D-J-M
Final Modification

Dear Mr. Pickering:
Enclosed, please find a copy of your **final** MEPDES permit and Maine WDL **modification** which was approved by the Department of Environmental Protection. Please read the permit/license and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

If you have any questions regarding the matter, please feel free to call me at 287-7693.

Sincerely,

Gregg Wood
Division of Water Quality Management
Bureau of Land and Water Quality

Enc.
cc: Matt Hight, DEP/SMRO
Sandy Mojica, USEPA

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

DEPARTMENT ORDER

IN THE MATTER OF

OGUNQUIT SEWER DISTRICT	)	MAINE POLLUTANT DISCHARGE
PUBLICLY OWNED TREATMENT WORKS	)	ELIMINATION SYSTEM PERMIT
OGUNQUIT, YORK COUNTY, MAINE	)	AND
ME0100986	)	WASTE DISCHARGE LICENSE
W000449-6D-J-M **APPROVAL**	)	**MODIFICATION**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, *et.seq.* and Maine Law 38 M.R.S.A., Section 414-A *et seq.*, and applicable regulations, the Department of Environmental Protection (Department hereinafter) is initiating a modification of combination Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0100986/Maine Waste Discharge License (WDL) #W000449-6D-I-R (permit hereinafter) last issued by the Department on February 20, 2013 for a five-year term. With its supportive data, agency review comments, and other related materials on file the Department FINDS THE FOLLOWING FACTS:

MODIFICATION SUMMARY

Special Condition A, *Effluent Limitations and Monitoring Requirements*, of the permit established a monthly average water quality based mass limitation for inorganic arsenic along with a monitoring and reporting requirement for total arsenic. The limit and monitoring requirements were established as a statistical evaluation of the test results on file at the Department at that time indicated the discharge from the waste water treatment facility either exceeded or had a reasonable potential to exceed the human health ambient water quality criteria (AWQC) established in 06-096 CMR, Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants,* for inorganic arsenic. Chapter 584, adopted on October 12, 2005, established human health AWQC for inorganic arsenic as follows:

	Human Health for Consumption of:	
	Water & Organisms	Organisms only
Inorganic Arsenic	0.012 ug/L	0.028 ug/L

MODIFICATION SUMMARY (cont'd)

In a letter dated May 16, 2013, to the Commissioner of the Maine Department of Environmental Protection, the Acting Director of the Office of Ecosystem Protection in Region I of the U.S. Environmental Protection Agency (EPA) stated "Pursuant to Section 303(c)(2) of the Clean Water Act and 40 C.F.R. Part 131, I hereby approve the following water quality standards revisions to 38 MRSA, §420, sub-§2 as set forth in P.L. 2011 Ch. 194 (LD 515) "An Act To Review Water Quality Standards" and CMR 584, *Surface Water Quality Criteria for Toxic Pollutants.*

1. Revision of the cancer risk level used to calculate the human health criteria for arsenic from one in 1,000,000 to one in 10,000 and;

2. Revision of the arsenic criteria to protect human health from 0.012 to 1.3 ug/L for the consumption of water and organisms and from 0.028 to 3.7 ug/L for the consumption of organisms only."

On July 17, 2013, the Department conducted a statistical evaluation (evaluation) on arsenic data submitted by the permittee consistent with the methodology found in Section 3.3.2 and Table 3-2 of USEPA's "*Technical Support Document for Water Quality-Based Toxics Control" (USEPA Publication 505/2-90-001, March, 1991, EPA, Office of Water, Washington, D.C.)* to determine whether the discharge from the permittee's facility exceeds or has a reasonable potential to exceed the revised human health criteria for arsenic approved by the EPA on May 16, 2013. The evaluation indicates the most current 60 months of arsenic data on file at the Department does not exceed or have a reasonable potential to exceed the revised AWQC. Therefore, pursuant to Special Condition M, *Reopening of Permit For Modifications*, of the permit, the monthly average water quality based mass limit and monitoring requirement for inorganic arsenic and the monitoring and reporting requirement for total arsenic are being removed from the permit. In addition, this modification is removing Special Condition J, *Schedule of Compliance - Arsenic,* of the permit as it is no longer necessary.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated July 17, 2013, and subject to the Conditions listed below, the Department makes the following conclusions:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

CONCLUSIONS (cont'd)

3. The provisions of the State's antidegradation policy, 38 MRSA Section 464(4)(F), will be met, in that:

   a. Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   b. Where high quality waters of the State constitute an outstanding natural resource, that water quality will be maintained and protected;

   c. The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   d. Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and

   e. Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the modification of MEPDES permit #ME0100986/WDL #W000449-6D-I-R, issued by the Department on February 20, 2013, to remove the monthly average limitations, monitoring requirements, reporting requirements and schedule of compliance for inorganic arsenic and total arsenic from said permit. The discharges shall be subject to the attached conditions and all applicable standards and regulations including:

1. "*Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*," revised July 1, 2002, copy attached to MEPDES permit #ME0100986/ WDL #W000449-6D-I-R, issued by the Department on February 20, 2013.

2. All terms and conditions of MEPDES permit, #ME0100449/WDL #W000449-6D-I-R, issued by the Department on February 20, 2013, not modified by this permitting action remain in effect and enforceable.

ACTION (cont'd)

3. This permit modification becomes effective upon signature and expires on February 20, 2018, concurrent with ##ME0100986/WDL #W000449-6D-I-R, issued by the Department on February 20, 2013. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the terms and conditions of this permit and all subsequent modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [*Maine Administrative Procedure Act*, 5 M.R.S.A. § 10002 and *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2(21)(A) (effective April 1, 2003)].

DONE AND DATED AT AUGUSTA, MAINE, THIS 11th DAY OF September, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Michael Kuhns
For Patricia W. Aho, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application June 13, 2013.

Date of application acceptance June 13, 2013.

Filed
SEP 11 2013
State of Maine
Board of Environmental Protection

Date filed with Board of Environmental Protection _____.

This Order prepared by GREGG WOOD, BUREAU OF LAND & WATER QUALITY

ME0100986 MR 2013 9/6/13

DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process <u>or</u> that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

Appendix D

WRIGHT-PIERCE
Engineering a Better Environment

APPENDIX D
Cost Estimating Reference Material

COMPARISON OF COSTS

FOR

WASTEWATER MANAGEMENT SYSTEMS

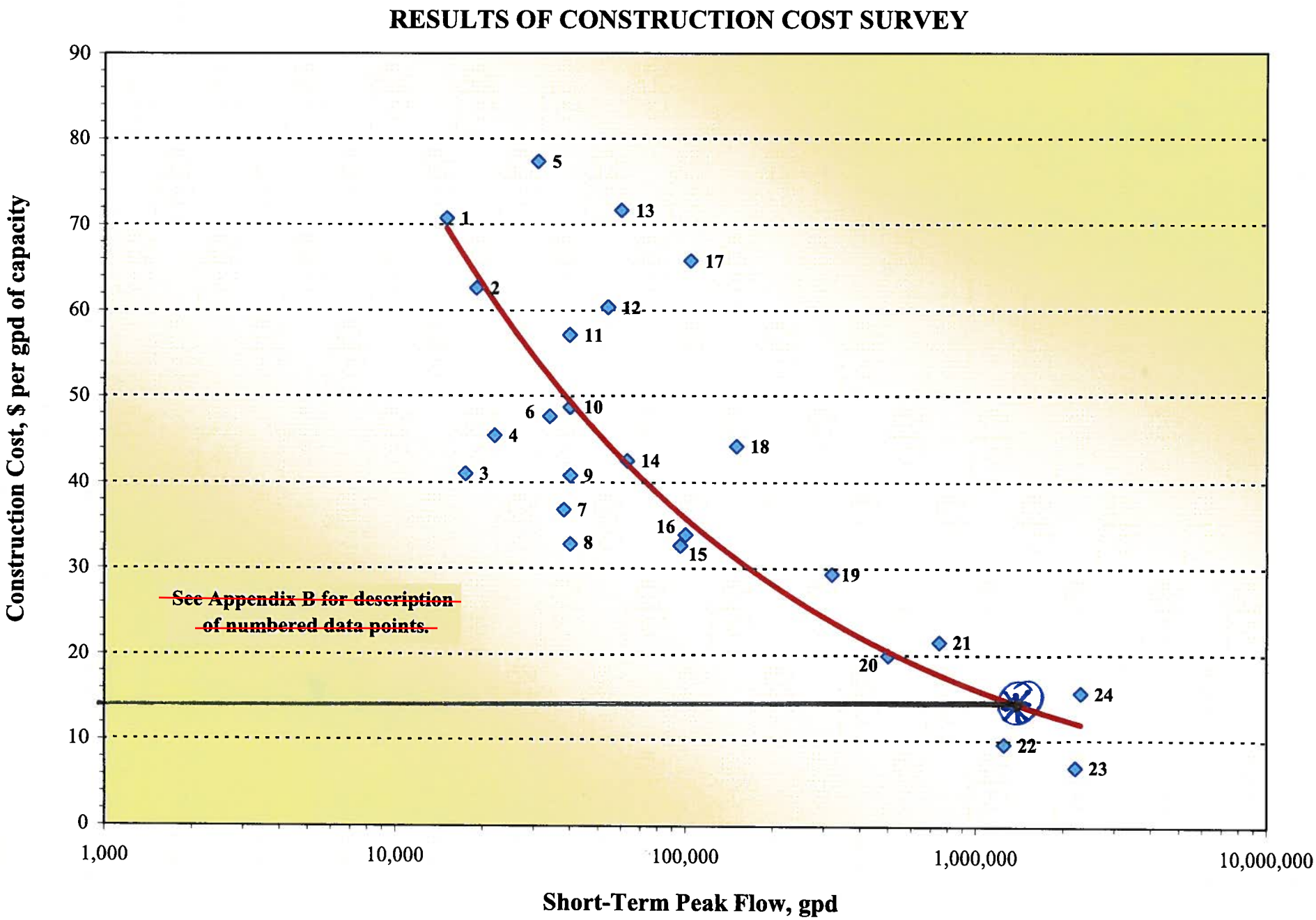
APPLICABLE TO CAPE COD

Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning

Prepared for:
Association to Preserve Cape Cod
Cape Cod Business Roundtable
Cape Cod Water Protection Collaborative

Prepared by:
Barnstable County Wastewater Cost Task Force

April 2010


RESULTS OF CONSTRUCTION COST SURVEY
Construction Cost, $ per gpd of capacity
Short-Term Peak Flow, gpd
0
10
20
30
40
50
60
70
80
90
1,000
10,000
100,000
1,000,000
10,000,000
1
2
3
4
5
6
7
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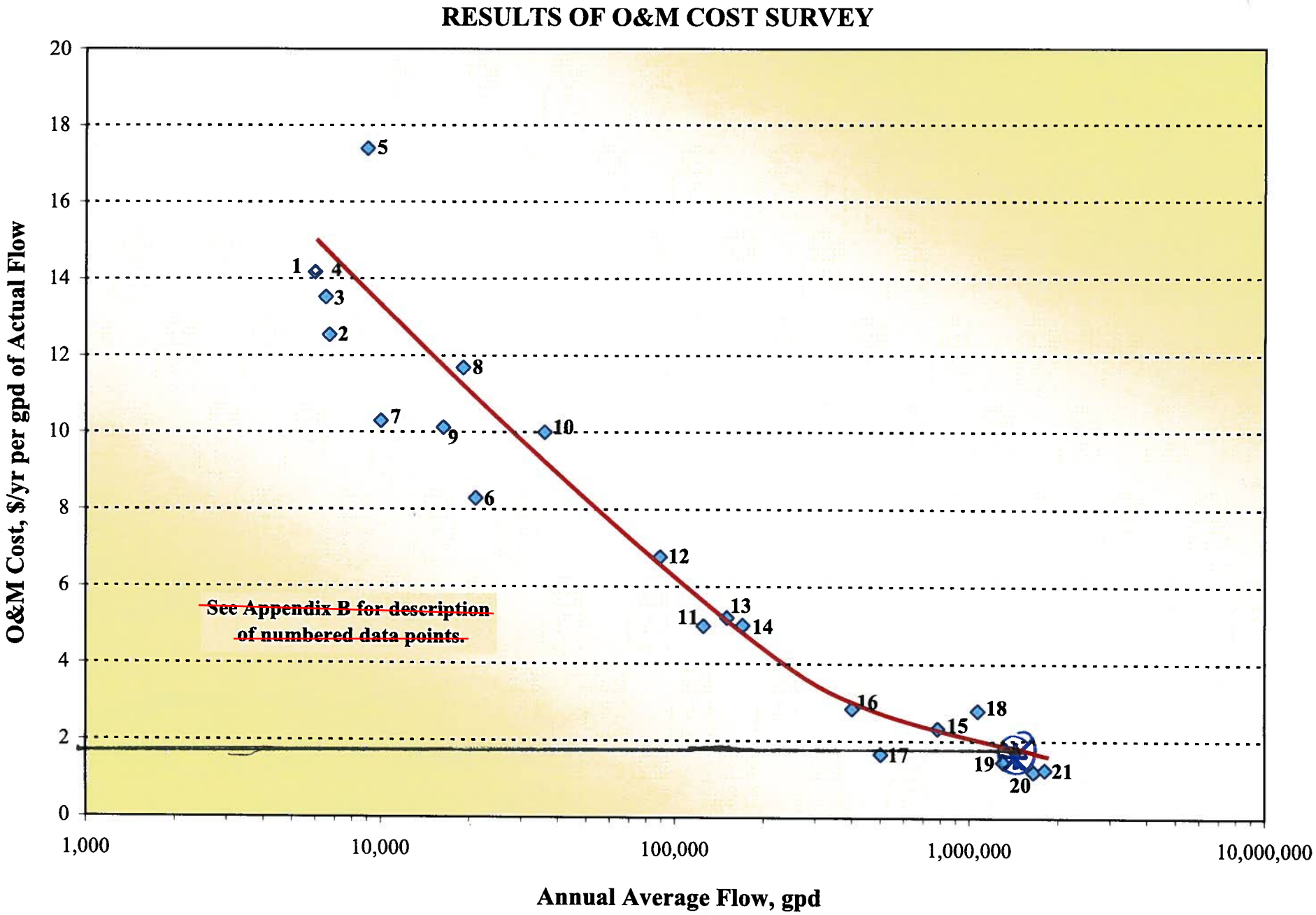
~~See Appendix B for description of numbered data points.~~


RESULTS OF O&M COST SURVEY
O&M Cost, $/yr per gpd of Actual Flow
Annual Average Flow, gpd
0
2
4
6
8
10
12
14
16
18
20
1,000
10,000
100,000
1,000,000
10,000,000
1
2
3
4
5
6
7
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See Appendix B for description of numbered data points.

WRIGHT-PIERCE

Engineering a Better Environment