

CANAL BLUFFS WASTEWATER TREATMENT PLANT, BOURNE, MA

# Ground Water Protection Multi-Phase Community Removes Nitrogen

August 10, 2018



## DESIGN CHARACTERISTICS

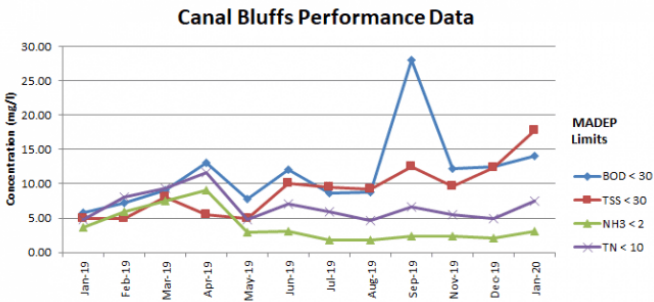
	Influent	Effluent
DESIGN FLOW (GPD)	38,000	38,000
DESIGN TEMP (C)	10	–
BOD5 (mg/l)	250	< 30
TSS (mg/l)	250	< 10
TKN (mg/l)	65	–
AMMONIA?N (mg/l)	50	< 2
NITRATE?N (mg/l)	–	< 5
TOTAL?N (mg/l)	–	< 10
TURBIDITY (NTU)	–	< 5
FECAL (MPN/100ml)	–	< 200

## OVERVIEW

On the banks of the Cape Cod canal lies the town of Bourne, Massachusetts, a busy summer retreat for many seasonal residents. Like many Cape Cod communities, Canal Bluffs condominiums has some full time residents and the population spikes in the summer months. Flow rates at the development’s Bioclere™ wastewater treatment system increase substantially in peak months and drop to as little as 10% of design flow in the winter. In order to balance these seasonal conditions with a multiphase build out of the condominiums, the developer elected to phase build out of the wastewater treatment system. The first phase of the system was designed to process the initial 9,500 gpd to <25 mg/l total nitrogen under Massachusetts Title-V regulations. When the plant was expanded to 38,000 gpd it was permitted under Massachusetts Groundwater Discharge (GWD) pollution control regulations requiring the system to meet a standard of < 10 mg/l total nitrogen.

The project engineer selected an AquaPoint Bioclere™ treatment system for its proven nitrification & denitrification performance capability, energy efficiency, low life cycle costs and its flexible fixed film process. Effluent from the biological process is polished through a sand filter and UV disinfection prior to groundwater discharge.

## PERFORMANCE DATA



DATE	BOD5 (mg/l)	TSS (mg/l)	NH3 (mg/l)	TN (mg/l)
JAN. 2019	5.75	5.00	3.71	4.72
FEB. 2019	7.25	5.00	6.00	8.00
MAR. 2019	9.00	8.00	7.43	9.38
APR. 2019	13.00	5.50	9.00	11.60
MAY 2019	7.75	5.00	3.00	4.74
JUN. 2019	12.00	10.00	3.14	7.06
JUL. 2019	8.67	9.50	1.75	5.92
AUG. 2019	8.75	9.25	1.75	4.59
SEP. 2019	28.00	12.50	2.30	6.65
OCT. 2019	12.23	9.60	2.41	5.48
NOV. 2019	12.50	12.35	2.06	4.98
DEC. 2019	14.00	17.75	3.09	7.46
<b>AVG.</b>	<b>11.58</b>	<b>9.12</b>	<b>3.80</b>	<b>6.71</b>

- System Commissioned: 2008
- Detectable Limit for BOD & TSS: 2 & 5 mg/l respectively
- Data Source: MA DEP Records

## SYSTEM DIAGRAM

