

Case Study: Lagoon Ridge Low Pressure Sewer & Advanced Treatment System - Oak Bluffs, MA

Overview

Lagoon Ridge is an 18-home residential development located in Oak Bluffs, Massachusetts on Martha's Vineyard. The community required a wastewater solution capable of meeting strict nitrogen discharge limits of less than 5 mg/L, a common regulatory requirement in sensitive coastal and estuarine environments such as those found on the Vineyard. A gravity sewer system was not feasible for this development, making a low pressure sewer collection system paired with an advanced treatment plant the ideal approach.

Each of the 18 homes is equipped with an individual Environment One (E/One) grinder pump station that conveys wastewater through a shared 2-inch force main to a centralized advanced treatment facility. The system is designed to handle estimated flows of approximately 6,100 gallons per day while achieving the nitrogen reduction levels required by the project's discharge permit.

The Solution

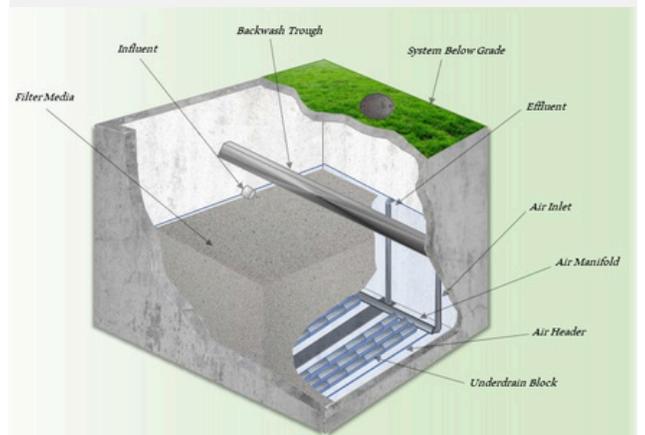
The development utilizes an E/One Low Pressure Sewer (LPS) system to efficiently collect and transport wastewater from each residence to a centralized Amphidrome advanced treatment system. The Amphidrome provides biological nutrient removal capable of achieving effluent nitrogen concentrations below the required 5 mg/L threshold, a critical performance standard for protecting the nitrogen-sensitive coastal waters surrounding Martha's Vineyard.



E/One grinder pump stations and control panels serving Lagoon Ridge homes



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Amphidrome Reactor

Each home's E/One grinder pump station handles residential wastewater flows and pumps through the shared 2-inch force main network. This small-diameter piping approach significantly reduced excavation requirements and infrastructure costs compared to a conventional gravity collection system, while delivering dependable wastewater conveyance across all 18 lots.

Results

The Lagoon Ridge project demonstrates how the combination of E/One Low Pressure Sewer technology and Amphidrome advanced treatment can deliver both reliable wastewater conveyance and high-performance nitrogen removal in a coastal residential setting. By utilizing individual grinder pump stations and a shared force main, the system avoided the cost and disruption of conventional gravity sewer infrastructure while meeting the strict environmental standards required for discharge on Martha's Vineyard.

The result is a cost-effective, environmentally responsible wastewater management solution purpose-built for the nitrogen-sensitive coastal environment of Oak Bluffs, protecting local water quality while reliably serving the 18-home Lagoon Ridge community.



Treatment field area serving the Lagoon Ridge development



System Specifications	
Homes Served	18 residential units
Collection System	E/One Low Pressure Sewer (LPS)
Force Main	2-inch shared force main
Treatment	Amphidrome advanced treatment plant
Nitrogen Limit	<5 mg/L
Design Flow	6,100 gallons per day



For more information please contact me today!

Daryl Coppola

dcoppola@frmahony.com | 781-820-5808 (cell)