

Nantucket Cottage Hospital Employee Housing

Nantucket Island, Massachusetts

Project Team Members:

Owner:
Nantucket Cottage Hospital

Engineer:
Nantucket Surveyors

Contractor:
Toscana Corporation

Product Used:
Vortechs® System Model 2000



Nantucket Island is a well-known vacation spot about 30 miles off the coast of Massachusetts. With nearly 40 percent of the island designated as protected conservation land, people are drawn to the island for its idyllic scenery and historic charm. The Island is home to the Nantucket Cottage Hospital, the smallest of 60 acute care facilities in the state. Beyond the routine challenges of community medical care, the hospital serves a population that swells from 9,500 to 50,000 in the summer. Staffing to meet the seasonal demand can be a challenge. To ease the housing burden for their employees, the hospital decided to build four duplex residences for staff housing.



The Challenge

This new construction meant careful planning. Nantucket is small, only 14 miles long by 3.5 miles wide, and preservation of the natural habitat was a priority. Developable land around the facility was scarce, and therefore high in value, so the hospital needed to maximize the use of the small parcel of land they had acquired. Stormwater treatment was of particular concern, and they turned to Nantucket Surveyors, a local engineering firm, for help.

Except for tidal creeks and a few intermittent streams, there are no significant natural watercourses on Nantucket. Because of its predominantly sandy surface soils, a large part of the precipitation that falls on the island is quickly absorbed and infiltrated to the groundwater, the island's sole source of drinking water. Runoff from the majority of the interior of the island flows into depressions, which sometimes contains ponds or wetlands, where additional infiltration occurs.

Drainage systems for new construction and development on Nantucket involve some form of stormwater infiltration in order to maintain natural recharge rates. Since Nantucket Cottage Hospital lies within the recharge area of the town's municipal water supply wells, the Massachusetts Department of Environmental Protection (MA DEP) required pretreatment of the infiltrated stormwater.

The Solution

The MA DEP policy requires that the stormwater pretreatment method achieve 80 percent net annual removal of total suspended solids (TSS). Jerry Buzanoski, Nantucket Surveyor's Project Engineer, chose the Vortechs® Stormwater Treatment System. "The documentation that Contech has to support the Vortechs System's performance provided assurance that we would meet those regulations." In addition, because the unit is installed below ground, more land was available for use, and the site was able to remain aesthetically pleasing. The installed Vortechs will receive runoff from the access road and parking areas for the four duplex residences, as well as future supplemental parking spaces for the hospital itself.

When it came time to schedule delivery, another interesting challenge surfaced. Nantucket is only accessible by boat or plane – neither of which are typical modes of delivery for the Vortechs. With the help of the Contech team, a special 18-wheeler was scheduled to transport the 17-ton Vortechs model 2000 by ferry. Contech Stormwater Consultant Kevin McKee, went along for the installation to ensure that everything went smoothly. Upon arrival to the Nantucket ferry terminal local contractor Toscana Corporation, which was in charge of the installation, guided them through the narrow island streets. They arrived on the hospital site without incident.

The Result

To guarantee an appropriate level of water quality treatment, hospital employees will be responsible for inspection of the system to determine when maintenance is necessary. Because pollutant deposition and transport may vary from year to year, on-going inspections will ensure that the system is cleaned at the appropriate time and will continue to operate at its full potential. According to Buzanoski, he had to consider that the person inspecting the system would have no experience with stormwater treatment systems, so it couldn't be complicated. "Because the Vortechs System has an unobstructed access port and can easily be inspected, I knew that the staff would be able to handle it."