CASE STUDY

Shemin Nurseries, Inc.

Greenwich, Connecticut

Storage Provided:	17,429 cu. ft.
Area:	7,732 SF
Models:	Recharger® 330XLHD
Number of Units:	204
Installed:	Spring 2014
Project Engineer:	Redniss & Mead, Inc. Stamford, CT
Contractor:	White Contractors Greenwich, CT

In 2008, Shemin Nurseries, Inc., a wholesale supplier of landscape and nursery supplies, decided to subdivide its Greenwich, Connecticut-based location into five lots with a private right-of-way roadway. Under this new arrangement, four lots would be marketed and sold as separate residential properties, with the fifth becoming the nursery. At the beginning of 2014, Shemin Nurseries implemented the design and began construction on the common improvements of the approved subdivision.

With the addition of the roadway and other impervious surfaces, Stamford, Connecticut-based Redniss & Mead, Inc. engineers needed to include a new stormwater management system to mitigate the increased stormwater runoff. In addition, the roadway leading into the development had to be mitigated for peak flows and stormwater volume. The project required that the team provide detention on the site using a subsurface stormwater management system.

Given the requirements of the site, the team chose CULTEC's Recharger® 330XLHD, an efficient chamber that has a relatively low volume in the early stages of a storm. The chambers were supplied by Shemin, and installed by White Contractors based out of Old Greenwich, Connecticut.

A stormwater system, which includes 204 chambers, was placed beneath Shemin's current employee parking lot of approximately 50 parking spaces. This location was chosen because during the approval process, the Town of Greenwich ruled that the wetlands were not to be used as a volume control function for the drainage.

"In the Town of Greenwich, we are particularly mindful of drainage impacts associated with development and while the Wetlands and Watercourses Agency always promotes natural alternatives to maintaining existing flow rates, we have been pleased with the results stemming from the growing use of recharge chambers," said Michael Chambers, Town of Greenwich Director, Wetlands and Watercourses Agency. "In an ever-evolving industry, recharge chambers appear to be a storage system that has remained the preferred means of controlling rates of runoff. In this case, CULTEC's chambers met our strict stormwater drainage requirements."

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“Of the 44-acre site, 19% is made up of wetlands, which encouraged us to consider a low-impact solution for the stormwater management system,” said Lou DiMarzo, P.E., Redniss & Mead. “The unique feature about this project is just how close those wetlands are to the development. We really took precautions to preserve the site from an environmental perspective.”

CULTEC’s Recharger 330XLHD has a capacity of over 400 gallons, making it one of the largest CULTEC chambers available. The unit itself measures 52 inches wide by 30.5 inches high and has an installed length of 7.5 feet long with a bare chamber capacity of 7.5 cubic feet per linear foot. The CULTEC system provides a total of 17,429 cubic feet of storage, maximizing storage capacity within a small footprint to best satisfy the requirements of the site.

In addition, a Vortechs® Model 2000 and a VortSentry® HS unit produced by another manufacturer are placed upstream from the pipes leading to the CULTEC system. These oil-grit separators pre-treat stormwater runoff before it flows into the chambers using a cyclonic separation method to control pollution. Another two hydrodynamic separators will be placed in the roadway to provide pre-treatment for the pipes that will be in-letting into a rain garden and a surface water quality detention basin.

The CULTEC chambers are encased with the company’s No. 20L™ Polyethylene Liner, an impervious membrane consisting of a blended linear polyethylene, to stop the system from infiltrating due to the presence of seasonal high ground-water. The liner is located beneath the CULTEC chambers and spans the entire width of the bed. In addition, CULTEC’s No. 410™ Filter Fabric encases the entire bed and prevents soil intrusion into the chamber bed. The team determined that a combination of the filter fabric and a polyethylene liner underlayment would trap and remove sediment while allowing water to flow through the chambers.

“One important consideration for this installation was the project timeline,” said Tom White, President and Manager of Field Operations, White Contractors. “We needed to have the work done before the spring gardening season began, so the employees could use their parking lot and have access to the yard to start stocking supplies and plant material. Most of the work was completed in the company’s offseason, but that presented its own set of challenges because we had such a harsh winter this year. In the end, we were able to provide the client with a high-quality installation by the deadline.”

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