

# CASE STUDY

## CubeSmart<sup>SM</sup> Headquarters East Whiteland, Pennsylvania

<b>Storage Provided:</b>	94,319 cf
<b>Area:</b>	33,089 SF
<b>Models:</b>	Recharger 330XL
<b>Number of Units:</b>	723
<b>Installed:</b>	December 2012
<b>Project Engineer:</b>	Nave Newell, Inc. King Of Prussia, Pennsylvania
<b>Contractor:</b>	Lyons & Hohl Honeybrook, Pennsylvania



CubeSmart<sup>SM</sup> recently chose to expand its presence in Pennsylvania by opening a location in East Whiteland. Originally, the town envisioned the site would consist entirely of office space, but when CubeSmart chose to purchase the space, the company decided to relocate its corporate headquarters here and use the other half for storage. The space includes Class-A offices for 160 employees, as well as self-storage facilities.

Engineers from Nave Newell, Inc., based in King of Prussia, Pennsylvania, were tasked with designing the new location, which would include the installation of a stormwater management system. The engineering team from Nave Newell collaborated with contractors at Lyons & Hohl Site Contractors to develop the new layout for the site, and was faced with a number of onsite challenges when designing the stormwater management system. The engineers had to overcome a 60' topographic grade in order to establish the building pad and parking area. Also, the site is the last piece of land to be developed at a prominent intersection and is located at the top of a steep bluff. Because of this, engineers were under close scrutiny by the township, county and state regulators and stakeholders, and had to be mindful of the quality of the receiving watershed.

Nave Newell engineers selected the CULTEC stormwater system to detain, or temporarily store excess stormwater onsite, and allow for infiltration in accordance with both Township and State regulations. Since the site is located atop a steep bluff, engineers had to be very careful in establishing the discharge location. Runoff could not be discharged directly over the side of the bluff for fear of erosion down the slope.

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## CubeSmart<sup>SM</sup> Headquarters

East Whiteland, Pennsylvania *(continued)*

"We knew that any consistent flow of runoff going over the side of the bluff would eventually cause it to erode and set other potential dangers in motion," said Alex Tweedie, Nave Newell Design Engineer. "In order to prevent any chance of erosion, a pipe was extended outside of the area to create a discharge site that would be able to adequately receive the runoff."

Since only half of the site was dedicated to office space, the demand for parking was greatly reduced. Still, engineers had to optimize the grading to create enough level pads for the parking and reserve parking areas. The most efficient solution was to install a subsurface stormwater system. A grass field for reserve parking was placed on top of the stormwater system, leaving space for approximately 100 additional parking spots.

Given the constrictions of the site terrain and the storage requirement of 93,397 cubic feet, Nave Newell engineers chose to install CULTEC's Recharger 330XL® model for the system. With a capacity of over 400 gallons, this CULTEC chamber is one of the largest available. It provided a balance of maximizing storage while using a small footprint, and best satisfied the requirements of the CubeSmart site. The unit is 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. Because of its size, the chamber can help save land space and offer design flexibility. In all, the subsurface CULTEC system provided 94,319 cubic feet of storage.



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## CubeSmart<sup>SM</sup> Headquarters

East Whiteland, Pennsylvania *(continued)*

"We prefer to install an open chamber system over a pipe system because you get a much better overall footprint," said John Hogan, Nave Newell Design Engineer.

"The Recharger 330XL is a very efficient chamber which has a lower volume in the early stages of a storm."

Representatives of Lyons & Hohl Site Contractors, which specializes in residential and commercial turnkey sitework projects, installed the subsurface system in under three weeks. The extensive bed included over 700 chambers placed in 45 rows. Moreover, CULTEC's No. 410™ Filter Fabric encases the entire bed. The fabric prevents soil intrusion into the chamber bed. The system occupies 33,088 square feet. It also required 7,264 tons of stone, which provided a 40% void for the water. The void spaces between the stone adds to the storage provided while also assisting in alleviating the load above the system.

"CULTEC's chambers are created out of lightweight polyethylene making the installation fast and efficient," said Mike Hohl, Project Manager at Lyons & Hohl Site Contractors. "The entire system was installed with only a handful of workers. The chambers are durable and corrosion-resistant and their interlocking connections help facilitate a fast and foolproof operation."

Town regulations required a cost-effective yet environmentally friendly solution for the stormwater management system designed for CubeSmart's East Whiteland, Pennsylvania corporate headquarters. According to Tweedie, CULTEC systems were a natural decision due to the nature of the onsite conditions. The subsurface system solved the challenges of the extensive topography while maximizing the space above for reserve parking.



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