

Making the Grade

REV. 2

10/22/13

When you think of some of the oldest colleges in the United States, famous Ivy League schools like Harvard, Yale, and Princeton are probably some of the first that come to mind. Perhaps lesser known is Dickinson College, the 16th oldest university in operation in the United States. Dating back to 1773 when it was established as a grammar school, this seldom-known center for education is located in the heart of Carlisle, Pennsylvania. Dickinson's campus is full of old-world buildings and is surrounded by narrow streets, sitting only two blocks from Carlisle's main square.

With an ever-expanding student and faculty population, the school's aging athletic center was due for a major renovation. Originally built in 1979, the Kline Fitness Center is a multipurpose center, housing a gymnasium, a fitness center, a pool, and a climbing wall. Bound by a railway line and two roadways, space was at a premium for Dickinson, as it is for most small-town colleges. With tight constraints and no additional property available, Dickinson had a tough decision to make: tear down a 40-year-old piece of campus history or propose an innovative expansion.

In conjunction with Centerpoint Engineering, Inc., and Cannon Design, Dickinson was able to develop a practical solution. The project entails a major renovation to the Kline Fitness Center, including an expansion toward the neighboring intersection. The expansion requires the removal of a facility called "The Depot" and the scenic, tree-lined walkways surrounding the property. With no space left and stormwater permitting required, the designers had to turn a subsurface system.



Image 1 – Aerial Photograph of Kline Fitness Center (Provided by Google Earth)

Installation Information:	
Project Name:	Dickinson College – Kline Fitness Center
Location:	Carlisle, PA
Engineering Consultant:	Centerpoint Engineering, Inc.
Site Contractor:	Handwerk Site Contractors
System:	Double Stack Detention Basin (ST-24 and ST-36)
Total Storage Volume:	29,343.45 ft ³
Installation Date:	May 2013

In an effort to preserve property for the building expansion, the designers developed a plan to install the modules along the face of the building and under the open canopy that lines the front of the building. The application of this innovative strategy helped to close the gap, but space remained limited. Therefore, the designers turned to the only solution that could meet the storage capacity needs with a limited footprint: Brentwood's StormTank® was selected because its modular design allows for stacking, offers the largest void space on the market, and provides a lightweight, polymeric, subsurface stormwater storage structure.

To meet the regulatory requirements for volume and rate, the designers utilized a double-stacked system that fit the tight dimensional constraints and allowed for installation around the building's structural foundation. The basin provided slightly more than 29,000 ft³ of stormwater storage while impacting zero buildable land. In addition, the product's design allowed for the easy incorporation of an impermeable liner to prevent infiltration in this heavy hotspot of Karst geology and sinkholes.



Image 2 – StormTank System Being Installed Along Building Foundation



Image 3 – StormTank Modules Installed Around Foundation Column

Due to be completed in the summer of 2014, this project will enhance yet another changing landscape on a campus that has seen its fair share of change. Successfully installed, the StormTank system will permit the necessary mitigation to meet regulatory needs while expanding usable land and providing the necessary cleanability. This innovative design met the needs of the designer, owner, community and regulatory agencies, while giving a proud community a new facility.

Author:

Jason Bailey, E.I.T.

Brentwood Industries

484-824-2324

jbailey@brentw.com

www.brentwoodindustries.com