



Keyser West Virginia shopping complex

The Situation

Keyser, West Virginia, a small town outside Cumberland with an estimated population of just 5,515, had nothing in the way of retail besides a Wal-Mart. So when a local entrepreneur decided to build a new \$7 million outdoor shopping complex on the outskirts of town, it was a big deal for local residents.

"This was much-needed and very exciting," explains Kevin Sandridge, of Norco, who served as project manager. "There was nothing here before but a field with mountains on either side."

Seven acres of the 15 acre site were partially developed to include two large buildings 91 feet wide by 260 feet and 380 feet long, respectively. Parcels are available to be sold off for future free-standing buildings such as banks, restaurants and convenience stores.

A stormwater detention system was specified by the engineers at Rummel, Klepper & Kahl (RK&K) who were looking for the most cost-effective underground storage system available. The system needed to be placed under the parking lot where it could hold water that would be let out slowly into the creek across the road without flooding it.

Because there was not much difference in elevation to provide natural run-off, the system needed to hold a large amount of water. About the size of a football field, the site demanded close to 100,000 cubic feet of storage.

The Solution

The Triton Stormwater Solutions Retention System was selected. "We called three of four different companies," explains Walter Hull, project engineer, RK&K. "It was really price-driven in the end."

The larger the project, the greater the cost savings when using the Triton system, explains Joe Miskovich, president of Triton Stormwater Solutions. "What we're seeing on midrange jobs is a total install savings of between 20 to 30



A 15-acre outdoor shopping complex site in Keyser, WV required over 100,000 cubic feet of storage to handle water run off from the parking lot. Triton chambers, which have 46 percent greater capacity, meant fewer chambers were required for the project. This was a key factor in saving costs.

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Triton's proprietary design and patented construction offers larger-capacity, lighter-weight, easier-to-install storm water chambers that are more than 50 percent stronger than traditional products. Triton stormwater chambers have 46 percent greater capacity per linear foot and withstand 16,000 more pounds of pressure than traditional chambers, according to independent tests. A key feature is that the chambers weigh only 32 pounds each, enabling workers to carry two or three at a time.

In addition, the system is designed for service and maintenance with the use of bottom pieces and sumps in addition to chambers and end pieces for easy access. Made of soy resin, the Triton products provide up to 21 LEED credits.



The light weight of Triton chambers allowed one man to unload them from the pallet while another man could carry them to the site.

The Installation

First, the crew excavated down to elevation and put down a six inch base layer of stone. Next, the chambers were put in and the walls of the trench were lined with a class 2 non woven geo fabric. The site was backfilled with stones up to six inches past the crown of the chambers and the geo fabric was folded back down and backfilled with material to the desired elevation, with Triton chambers needing to be placed under only 16" of cover.

"Because of the enormous size of the site, the team had to build and backfill in sections," explains Miskovich. "The size of each section was limited by the reach of the excavation equipment."

Justin Doss, owner, FC and Sons Excavating, who installed the system, had never worked with Triton chambers before. "I like that they are lightweight and stackable," he explains. "I have worked with similar systems on the market, but Triton is lighter and easier to handle than the other."

It took one man to unload the chambers from the pallet and another man to carry them to the site. Roughly 2550 stormwater chambers were used. Though the team experienced delays due to a large amount of rainfall and holidays, the installation went smoothly and was completed within six weeks.

"I would be happy to work with Triton again," says Doss.

Summary

Large scale developments such as this shopping center are one reason why Triton designed their unique system.

"Large amounts of stormwater need to be retained when these large developments are built," explains Miskovich. "That's why Triton was designed to have more cubicle feet of storage per lineal foot than any other system currently on the market. We knew that the larger systems would need more storage – that's why we use the materials and process we do, so that you can install the system without lifting a heavy product that causes fatigue and have a stronger product where you can double stack the system."

Working on this whole project was a real pleasure, he continues. "Everybody was on the same page and we were able to easily resolve some minor issues regarding site constraints. Everyone was extremely professional and knowledgeable and I enjoyed being part of a cohesive team like that."

Hull agrees. "There were no surprises and the ease of installation was good."



The enormous size of the site required the team to build and backfill in sections. The size of each section was limited to the reach of the excavation equipment. Because of the chambers strength, only 16" of cover was needed.

Triton Stormwater Solutions is the proven, comprehensive solution to stormwater management challenges. On your next project, turn to Triton Stormwater Solutions, the stronger, lighter, larger, greener, easier to install, cost-effective stormwater solution. Triton gives you Power Over Water.



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