

Bottomless BMPs



A Minnesota auto dealership meets rate control and infiltration requirements using an underground storm water system

By **Laura Blodgett**

Luther Brookdale Chevrolet in Brooklyn Center, Minn., was an older auto dealership in need of a facelift.

“An entire renovation was taking place to improve both the inside and out,” said Lance Hoff, water resource engineer for Royal Environmental, a div. of Royal Enterprises.

New storm water chambers were necessary to meet regulatory requirements for the city and watershed district.

“We had to meet the two-year, 10-year and 100-year storm events for rate control, and watershed requirements required us to use best management practices in infiltration,” said Nathan Wallerstedt, design engineer for LandForm, the company behind the project’s engineering. “In order to make our best effort, we decided to use a bottomless system to achieve both of those objectives.”

Space-Saving Solution

The car dealership’s parking lot was prime real estate. A detention pond would have taken up too much vital space, especially with

the new dealership building almost doubling in size.

“We knew we needed an underground storm water system because every parking spot at a dealership is worth money,” Wallerstedt said.

Through association with Royal Enterprises, a Triton Stormwater Solutions detention system was selected for its rate control and infiltration features.

“The city really liked the Triton system over the others because it had the solid floor in the first few chambers and sump dumpster,” Wallerstedt said. “They liked that header row for its easy maintenance.”

The Installation

The storm water system was split into two sections and placed in opposite corners of the parking lot. This design most effectively utilizes the site’s drainage patterns in order to collect all storm water runoff from the large site.

Phase I of the system, in the southeast corner, is 4,000 sq ft and uses 236 chambers with a storage

volume of 11,000 cu ft. At 2,760 sq ft, Phase II of the system will be placed in the southwest corner and use 164 chambers with a storage volume of 7,100 cu ft.

First, workers dug down to elevation and put down a 6-in. base layer of stone. Next, the chambers were put in and the walls of the trench were lined with a Class 2 nonwoven geofabric. The site was backfilled with stone up to 6 in. past the crown of the chambers, and the geofabric was folded back and backfilled with material to the desired elevation. The storm water system needed to be placed under 16 in. of cover.

The installation went smoothly and was finished within two days.

“Even though it was his first time using a Triton system, the contractor did the best installation job that I have seen yet,” Hoff said. “One benefit they had was that the system was strong enough that they could backfill from the side of the footprint. As a result, they were able to get the subgrade prepared and have the entire system laid out in the parking lot, ready to go prior to backfill. The chambers were all spaced perfectly and went together really smoothly. The contractors were very methodical.”

Joe Miskovich, president of Triton Stormwater Solutions, Brighton, Mich., also was impressed with the contractor. “It was clear that they had done a lot of prep work, such as reading the installation manual. I was blown away with the efficiency, knowledge and due diligence that the contractor had put in.”

Jeff Scherer of Metro Utilities, who installed the system, agrees that the Luther Brookdale Chevrolet job went smoothly. “This was the first one we have ever done, and everything went well. It was really easy to install, and everything just fastened together.”

Because the storm water system is strong enough not to require a pavement layer to distribute the load, construction equipment and customer traffic were able to move on and off the site during installation.

“It was a huge benefit not to have to impede ingress on or around the building,” Hoff said. “Can you imagine

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