

A Divide & Conquer Approach to Storm Water

A new, 80,000-sq-ft Super One store located in Superior, Wis., was replacing two older, smaller grocery stores and consolidating them into one. Super One Foods is a chain of supermarkets with 33 locations in Minnesota, Wisconsin, Upper Michigan and North Dakota. The \$10 million project includes almost 20,500 sq ft of retail rental space, enough room for about seven tenants. Local regulations call for water quality and volume control of storm water due to the close proximity to Lake Superior.

Designing a storm water management system for the site was complicated. Not only was the site flat, but the building sits on a rectangular site that is surrounded on all sides by roadways, each with a different storm sewer system. Given the site conditions, the best approach was to divide the site into segments, each with its own storm water management system.

Northland Consulting Engineers worked with Contech Engineered Solutions to develop a storm water management system that included a VortClarex oil-water separator, a Vortechs hydrodynamic separator, and a detention system made from corrugated metal pipe (CMP) and PVC pipe.

In one segment, runoff from the roof and a portion of the parking lot is directed to a sand filter and then to a Vortechs hydrodynamic separator, which removes fine particles and other pollutants of concern and acts as a flow control device. The treated runoff then is conveyed to an underground storage system made of 48-in.-diameter, Aluminized Type 2 CMP, before being discharged into the local storm sewer infrastructure.

In the area near the loading dock, runoff is treated by a VortClarex oil-water separator that utilizes coalescing media to efficiently remove freely dispersed oil and other liquid pollutants. After treatment, runoff is discharged into the local storm sewer infrastructure. In another segment, runoff from roofs and a small parking area is



directed to pervious pavers, which allow the runoff to infiltrate into a sand filter and then a segment of perforated A-2000 PVC pipe. The pipe provides flow control before the runoff is discharged into the local storm sewer infrastructure.

Two other segments use a combination of swales and perforated A-2000 PVC pipe. The swales act as pretreatment while the perforated pipe provides flow control before discharge.

The new store opened for business in April 2014.

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