

CASE STUDY

Warehouse Detention

Greencastle, PA

ENGINEER

Bohler, Chalfont, PA

INSTALLATION DATE

Fall 2021

CONTRACTOR

Clayco Construction Company, Inc., Chicago, IL

PRODUCTS

19,500' (5,943 m) of 12"-42" (300-1050 mm) N-12® pipe
32,020' (9,760 m) of 48" (1200 mm) N-12 pipe
48,080' (14,655 m) of 60" (1500 mm) N-12 pipe
110 48"-60" (1200-1500 mm) double manifolds
39 48"-60" (1200-1500 mm) single manifolds

179 12" (300 mm) Nyloplast® Inline Drains
119 FlexStorm® Pure Inlet Filters
179 Inserta Tee®
159,000 square yards of nonwoven geotextiles
17 48"-60" (1200-1500 mm) manifold bends

DESCRIPTION

Nearly 19 miles (30.5 km) of N-12 HDPE AASHTO watertight pipe was used to construct five large underground detention beds on a 1.5 million square foot (139,354 sq. m) warehouse in Pennsylvania's Franklin County. Although pipe stood out on the project, ADS was able to provide the entire package for stormwater management on the 83-acre site.

In addition to pipe, ADS supplied Nyloplast inline drains, FlexStorm Pure inlet filters, Inserta Tees, single and double manifolds, manifold bends and nonwoven geotextiles.



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The underground detention beds required watertight pipe under the loading and parking areas due to the site's karst topography. The five retention beds hold about 1.5 million gallons (about 5.7 million liters). The underground beds have a controlled output rate, but only after being treated to remove total suspended solids and other pollutants.

For riser/inspection ports, 179 12" (300 mm) Nyloplast traffic-rated inline drains were installed throughout the five beds, while 179 Inserta Tees were used for connections. For environmental water quality protections, 119 FlexStorm Pure inlet filters were utilized on site.

The underground beds on the project were massive:

1. 24,500' (7,467 m), which is 4.64 miles (7.5 km), of 60" (1500 mm) N-12 pipe
2. 15,300' (4,663 m) of 60" (1500 mm) N-12 pipe
3. 6,500' (1,981 m) of 60" (1500 mm) N-12 pipe
4. 17,500' (5,334 m) of 48" (1200 mm) N-12 pipe
5. 12,800' (3,900 m) of 48" (1200 mm) N-12 pipe

With 19,500 (5,943 m) of 12"-42" (300-1050 mm) N-12 pipe was required on the beds as well as 110 double manifolds, 39 single manifolds, 17 manifold bends and 159,000 square yards of nonwoven geotextiles.

By utilizing ADS pipe, fewer truckloads were required as the smaller diameter pipe was nested inside the larger diameter pipe. Fewer truckloads was a reason the contractor selected N-12 pipe as well as quick installation without heavy machinery, long service life and lower installed cost compared to other pipes and structures.

The success of the project completed during the third quarter of 2021, shows the ability of HDPE pipe to provide a watertight system that is both cost effective and a superior, sustainable replacement for precast vaults, CMP and RCP systems," said Daniel Currence, P.E., director of engineering for the Plastic Pipe Institute's drainage division.



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