



## MERCEDES BENZ DEALERSHIP

The Vertica Stone Cut® retaining wall system helped a Pennsylvania Mercedes dealership create additional parking that maximized space using an attractive product that matched its upscale brand.

### LOCATION:

Fort Washington, Pennsylvania

### PRODUCTS:

Vertica Stone Cut® Retaining Wall System

### INSTALLED AREA:

16,000 sq. ft.

### WALL DESIGN ENGINEER:

Bart Shippee  
Shippee Engineering, Inc.  
Doylestown, Pennsylvania

### WALL CONTRACTOR:

John Franklin  
Franklin Construction  
Springhouse, Pennsylvania



## Background

Mercedes-Benz of Fort Washington sought a retaining wall to transform an unusable 30-foot-tall 1:1 slope into a 40-foot area of level parking.

## The Challenge

A massive retaining wall was to be constructed on a small site, which was a former landfill. The project required a complex design that included using imported soils, as well as accommodating an underground

water detention basin, a buried gas line and a water suppression outlet.

## The Solution

The tight space required a wall with very little batter, so the Vertica Stone Cut® retaining wall system with a 2° batter was chosen. "Designing a 30-foot-tall retaining wall is challenging," said Bart Shippee of Shippee Engineering, Inc. "The lack of space added to the complexity, as the owner wanted to use every inch for parking. The original request

was for a wall with no setback installed on the property line, but we discovered the plan didn't account for the necessary fencing and landscaping. Most of the retaining wall choices had a 7° batter, but the Vertica® system is 2°, allowing us to design the fencing and landscaping while gaining at least three feet for parking space, which was incredibly important to the owner."

After excavating and removing old car parts and building materials from the former landfill, more than 1,000 triaxle loads of 3/4-inch modified stone was hauled

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in from a local quarry. Using processed, clean aggregate was critical for installing a wall of this height because it reduced post-construction movement as well as hydrostatic pressure building up within the reinforced zone. Franklin Construction excavated nine feet of onsite material in a 100-foot-long path and filled it in with crushed stone to provide a stable base.

As mentioned, the site challenges included an underground water detention basin that required a rear drainage column 20 feet from the face of the retaining wall behind the geosynthetic reinforcement zone. There was also an existing gas line in front of the retaining wall, so a stress analysis was conducted, and the base course was buried four courses deep to transfer stress away from the gas line. Another complexity included the installation of a galvanized steel dry fire line that runs from the face of the wall back 80 feet. Franklin Construction worked around the reinforcement zone and set the pipe in concrete.

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*Bart Shippee  
Shippee Engineering, Inc.*

**The Result**

The finished retaining wall successfully provided Mercedes-Benz of Fort Washington with more parking spaces, while acting as an asset to the site. In addition to meeting the owner's requirements to use every available foot of space, the Vertica Stone Cut system features a natural appearance in a complementary color. Attractive fencing and professional landscaping complete the site.

**About Belgard Commercial®**

Belgard Commercial, part of Oldcastle® APG, offers a complete collection of paver and wall products for plazas, terraces, parking areas, roadways, rooftops and retaining walls. Available in a range of styles, premium Belgard Commercial products have been found in the nation's finest developments and award-winning commercial and retail properties since 1995.

Oldcastle APG is part of CRH's Building Products division. As the largest building materials company in North America, CRH provides a single-source solution for commercial construction projects with a full portfolio that also includes structural masonry, masonry veneers, dry mix products, hardscape jointing sands and sealants, stormwater management systems, concrete infrastructure, architectural glass, lawn & garden products, and composite decking.

