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New Development Elevated with Unique Foundation Solution

Hilton Garden Inn & Homewood Suites Dual Brand hotel is located in Easton, OH. Easton Town Center is the Midwest's premier shopping, dining and entertainment destination, which makes it the perfect location for the hotel.

Plan

The site for the Hilton Garden Inn & Homewood Suites is located near Alum Creek with a significant grade change requiring multiple retaining walls along the edges. Middletown Hotel Management, owner of the Dual Brand Hotel, contracted with HiFive as the Design-Build firm for the entire hotel project including a layout of the site. The retaining wall (located along the back of the lot along the creek) was needed to raise the elevation of the entire site and would reach approximately 30 ft (9.1 m) tall and be 19,000 ft (5,792 m).

HiFive wanted to ensure the retaining walls were designed properly, so they brought in Joe Kowalski with Kowalski Engineers for the designs based on his years of experience and knowledge.

Although, many retaining wall systems were considered, a geogrid reinforced Allan Block retaining wall provided the best engineering value to the Middletown Hotel Management.

Project Information

Name: Hilton Garden Inn & Homewood Suites Dual Brand

Location: Easton, OH

Product: AB Classic

Size: 19,000 ft (5,792 m)

Wall Builder: Structures Inc.

Wall Designer: [Joe Kowalski](#)

Kowalski Engineers

Allan Block Manufacturer:

Reading Rock

Cincinnati, OH



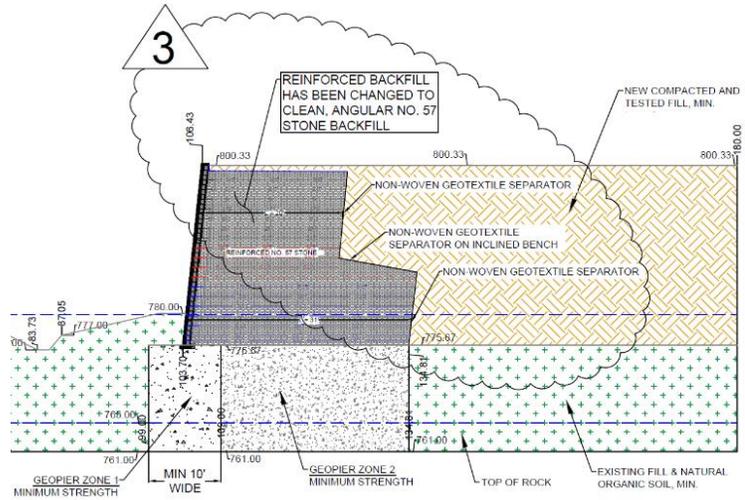


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Design

Once the system was selected the designs could begin. Due to the site location near the creek the soils were very poor and organic soils needed to be removed and replaced. The final design employed the use of geopiers for the foundation improvement. The geopiers extend below the retaining wall to provide a stable foundation for the block facing and the reinforced soil. By having the geopier extend below the reinforced zone it reduced/eliminated any differential settlement from the facing and the reinforced zone.



During the design Joe Kowalski had to account for the water management of the site and how the change in the creek’s water elevation affected the retaining wall. A 100-year flood elevation was used to determine the potential water level below the wall. Since the flood elevation resulted at a higher elevation than the bottom of wall, Joe designed the retaining wall with a clean, angular backfill that allows water to rise and fall within the mass alleviating any hydrostatic pressure build up in the wall.

Build

After the design was completed it was time to break ground. HiFive contracted with [Structures Inc.](#) out of Shakopee, MN for the install as Structures has the training and experience to handle a complicated project such as this.





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Each project has its own complications and due to the height of the wall, site layout and the geopiers needed for the Hilton Gardens Inn & Homewood Suites Dual Brand Hotel, coordination and planning was key for an efficient install. Dave Landwehr, with Structures, stated that because this was a 30 ft (9 m) tall wall the setback played a big role in the site layout and they had to get it right the first time. To ensure the location was accurate, they pre-planned and staked out the stations of the wall locations, for both top and bottom of wall, to take the setback distance into account, as well as the location of the geopiers. The extent of the geopiers was critical, as there was a limitation on the amount of disturbance that was allowed in regards to the wetlands below the wall near the creek.



Because of their efforts in pre-planning and communication “the install of the retaining wall went exactly to plan” according to Dave. Hilton Garden Inn & Homewood Suites now sits atop a 30 ft (9 m) Allan Block retaining wall with the use of geopiers to elevate their site to the next level.

The residents of the hotel may never see this wall, but they will certainly feel the stability of Allan Block and enjoy the view of Alum Creek



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