Buildings

Prince George's Medical Center

UNITED STATES

Largo, MD

Owner
University of Maryland Medical Center

Engineer
ECS Mid Atlantic

General contractor
Clark Construction

Dates of work
2018/04 2018/05

Main figures

Controlled Modulus Columns
1,287 EA.

Description

In an effort to meet the healthcare needs of Prince George's County residents, the University of Maryland proposed the construction of a regional medical center in Upper Marlboro, MD. The facility would feature a cardiac surgery center, a neonatal intensive care unit, a Maryland Level II trauma center and a comprehensive regional cancer center.

The 10-story building, with a footprint of 180,000 sq ft, would be constructed on the site of a shopping center, which consisted of parking lots and a large, grassy area to the northeast. The site soils were compressible.

Consequently, Controlled Modulus Column (CMC)® rigid inclusions were proposed to mitigate settlement and to provide suitable bearing under column/retaining wall footings; elevator/stairwell footings; and core mats.

Ground conditions

The soil profile consisted of fill over loose silty sands, and dense river sand deposits. The river deposits were underlain by over-consolidated lean clay. The dense river sand deposit would serve as the bearing layer for CMC rigid inclusions.

Solution

Menard's design evaluated the performance of CMCs installed through the compressible soil layers and into the dense sand bearing layer at depth. The CMC ground improvement system provides increased stiffness and, therefore, improved settlement and bearing characteristics.

CMC rigid inclusion support was provided selectively under the structure in areas where compressible soils were present and where design loads were higher. A total of 1,287 CMCs, at an average depth of 35 ft, were placed directly under the structural components of the buildings. Spacing of the CMCs varied depending on the load.

Menard's work crews completed the installation of the CMCs within five weeks of mobilization. All work was completed in one continuous phase with all quality control testing meeting or exceeding the specified requirements.

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