



Cayuga Park Complex (Carpenter Park Circle)

UNITED STATES

Ithaca, NY



Owner
Park Grove Realty, LLC

Engineer
Terracon (Geotechnical); Jensen Engineering (Structural)

General contractor
DiMarco Constructors

Dates of work
August 2021 July 2024

Main figures

Controlled Modulus Columns - 1,399 EA
Phase 1 - August 2021 - 232 CMCs
Phase 2 - February 2022 - 251 CMCs
Phase 3 - July 2024 - 916 CMCs



Description

In Ithaca, NY, Carpenter Park was the selected site for an expansive, multi-phased development off bustling Route 13. The project would include a \$32 million, 5-story medical building; a 4-story affordable waterfront housing complex; and two 3-story, mixed-use buildings with commercial space and parking. Each building would include 166 market-rate rental units. The proposed Cayuga Health medical facility is considered a boon for the region. The complex would feature a floor dedicated to oncology services, including chemotherapy transfusions, while also providing services such as lab testing, X-rays, multiple pharmacies and a newfangled design approach known as “on-stage/off-stage” – which strategically separates patients from medical staff to reduce stress while undergoing medical care.

For the proposed structures, excessive settlement was predicted due to the loose and compressible nature of the soils at the site. Menard USA was contracted to install Controlled Modulus Column (CMC)[®] rigid inclusions via a multi-year, three-phase plan.



Ground conditions

The site soil consisted of 2-7 ft of variable fill material overlying deep deposits of very soft or loose glacial lake deposits. These deposits consisted of mixtures of silt, fine sand, and clay. Organic matter and peat layers were also observed at several locations within the natural soils. The medium dense to very dense granular sand/gravel layer was generally encountered around 80 ft below ground surface, ranging in thickness from 15 to 40 ft. In addition, high ground water was expected to be encountered.

Solution

Several solutions were considered for support of the buildings. This included driven piles and surcharging fill load. The latter was deemed implausible due to the unpredictable decomposition of organic/peat material. Menard, ultimately, provided an economical and time-saving solution with CMCs.

Menard began design assistance in 2018, however, construction and installation of CMCs did not begin until 2021. Installation was performed in multiple phases across four years. First, was the medical center (232 CMCs); Second, the apartment complex (251); and Third, the mixed-use buildings (916). The CMCs were installed to an average depth of 82 ft. Menard designed each building for footing and slab support with column loads ranging from 48 to 732 kips. Strip footings were designed for 1 kip/ft up to 3 kip/ft; slab support for 100 to 150 psf. The design provided for 1 in of post-construction settlement, with a ½-in of differential settlement, meeting the performance criteria of the new structures.

For a three-phase project spanning multiple years, Menard successfully installed nearly 1,400 CMCs to support three new structures at the Cayuga Park Complex in Ithaca.