



UNITED STATES

Hilco Saugus Saugus, MA



Owner
Hilco Redevelopment

Engineer
Sanborn Head

General contractor
Columbia Construction

Dates of work
September 2021 December 2021

Main figures

Controlled Modulus Columns
1,359 EA.



Description

As part of its ever-expanding footprint, Hilco Redevelopment, a subsidiary of Hilco Global, proposed the construction of a single-story, 85,000 sq-ft warehouse in Saugus, MA, located 10 miles north of Boston. The warehouse would feature a mezzanine and loading docks on the southern side of the building. The proposed location was a former junkyard/auto salvage repair yard, Patty's Autoparts, on the 9.4-acre property.

Due to the loose and compressible nature of the soils at the site, excessive settlement was predicted within the compressible fill and clay deposits underlying the site. Menard USA was contracted to provide ground improvement – the selected technique was Controlled Modulus Column (CMC)[®] rigid inclusions.



Ground conditions

The site soils were characterized by variable dense, urban (historic) fill from the ground surface to a depth of approximately 20-1/2 ft. Below the urban fill, varying soil conditions were encountered that included organic soil, very loose to dense sand with varying amounts of silt and gravel, and marine deposits with soft clays and organics. Below the varying soils a deposit of natural sand was encountered underlain with a glacial till. Weathered bedrock was encountered below glacial till in some of the test borings at approximately 106 ft bgs.

Solution

CMC installation was deemed the most technically feasible, cost-effective and time-saving solution to support the warehouse. The elements supported the building's foundations and slab on grade.

A total of 1,359 CMCs were installed to the dense sand at an average depth of 74 ft and a maximum depth of 86 ft. Menard designed a layout of CMCs at each footing to support column loads up to 200 kips – along with several ft of net fill that brought the site up to grade. The design provided for 1-1/2 in of post-construction settlement with 3/4 in of differential settlement, meeting the performance criteria of the new facility. The slab loads were designed with an allowable bearing pressure of 250 psf.

Work was performed during challenging winter weather that slowed production. Menard worked overtime to meet the project's schedule. Menard also worked closely with the earthwork and footing contractor to adjust the ground improvement installation to ensure the perimeter wall lines were installed as priority. Menard successfully installed 1,359 CMCs to support a new warehouse for a new client in Saugus, MA.