

SOILS/WEEKHAWKEN TOWN HOUSES

2,100 of CMC in town



Facing the Manhattan skyscrapers (United States), DGI-Menard is currently installing controlled modulus columns (CMC) for the foundation supports of a prestigious residential complex.

ON THE BANKS OF THE HUDSON, in Weekhawken (New Jersey), a property development project will soon see the construction of four groups of luxury town houses on the site of an old port terminal of approximately 180,000 ft². "The foundation soils required consolidation," explains Frédéric Massé, assistant managing director of DGI Menard, "and our proposed turnkey treatment using controlled modulus columns (CMC) won out over a pile-supported structural slab solution." To strengthen the foundations of the courtyards, slabs-on-grade and footings of the future buildings, 2,100 of CMC will be installed. This will require deep drilling down to between 75 and 90 ft in very soft soils consisting of clayey and organic alluvium and anchor the cmcs into a solid bearing layer consisting of granular glacial material. "To carry out this deep-drilling," explains Gary Corwin, "we chose a Liebherr 255 platform with a capacity of 95 feet. The exceptional dimensions, weight and capacity of the equipment led us to adopt draconian safety measures." During the preparation phase, nothing was left to chance, so that the design requirements were fully met in terms of the allowable bearing capacity and long term settlements. DGI-Menard used the finite

element analysis method in order to define the maximum load, the diameter of the CMCs and the treatment grid for the entire site. The novel nature of the operation did not hamper productivity, which was sustained by the regular supply of grout and the experience of the operators. "In six weeks, we have managed to complete more than 20% of the work," said Mike Carey, New Jersey project manager at DGI-Menard, in mid-October.

The most complex project

The company itself was very pleased with this performance, given the project's luxury label, its highly visible urban location and the design and implementation difficulties that made this probably the most complex project DGI-Menard has ever undertaken. Another reason to be proud: two load tests were performed to the satisfaction of the client and the production is ahead of schedule. Work should therefore be completed during the first quarter of 2007, ahead of its contractual completion date. ■





CMC: A TECHNIQUE THAT RESPECTS THE ENVIRONMENT

Controlled modulus columns (CMC) are normally installed using a special displacement auger. The displacement auger is screwed into the soil to the desired depth and then retracted without spoil. The ground is pushed laterally instead of being brought up to the surface by the auger flights. Grout or mortar is then injected into the soil through the centre of the hollow auger so that a column of cemented material is formed. Since this technique involves neither driving nor vibration and creates no appreciable spoil, the environment is unaffected.

