



PREMIUM TECHNICAL SERVICES CORP.

Keeping America's Foundations Secure

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Project Specifications

Location	Queens – New York, NY
Installer	FSR
Engineers	Joseph G. Jaworski & P.H. Howell
Drilled Displacement Micropile (DDM) Specifications	<ul style="list-style-type: none"> - 26 MacLean Civil Products Excalibur™ DDM - Total Length of Each Excalibur™ Pile: 23' - Drive Plate Size: 14" x 0.5" - Pile Size: 5.50" OD x 0.415" Wall Thickness - Grout Column Diameter: 14"
Ultimate Load	- 80 kips (Compression)



ConEd was planning to build a new storage tank facility at its Astoria yard. The engineers designing this structure specified the use of DDMs to support the new structure's foundation. The EOR recommended the use of MacLean's newest deep foundation product, the Excalibur™ pressure grouted displacement pile system. FSR, an MCP certified installer with 25 years of experience, was contracted to install the Excalibur™ piles for ConEd. The piles were planned to be installed through undocumented fill and embedded into dense glacial till. It was soon discovered that the soil underlying the fill was much looser than expected. For similar deep foundation technologies this would pose a major problem and likely require an entire redesign of the structure's foundation. This was not the case with the Excalibur piles. They were successfully installed to the original plan depth using the cutting-edge technology of the specialized Excalibur™ drive head, which rotates the Excalibur™ pile into the ground while simultaneously delivering grout under pressure through the ID of the pile. During the installation, the operator has an easy-to-follow pile readout in the cockpit of the excavator to make sure the equipment is maintaining the planned amount of grout flow and pressure as the piles are being advanced. A test pile was installed utilizing a mix design with an accelerator to shorten the cure time. A load test was performed after 7 days to 80 kips compression. The pile passed under a total of 0.6" of deflection. While this deflection was larger than planned assuming embedment in dense glacial till, it was still well within tolerance. From there, FSR successfully installed the remaining 25 piles in just one and a half days. Please contact Premium Technical Services to learn more about the MacLean Excalibur™ displacement pile system.

