CASE STUDY

SCUDDER ROAD SOLAR FARM

PROJECT OVERVIEW

The Scudder Road Solar Project in Bath, New York, encompasses approximately 13.6 acres and delivers a nameplate capacity of 2.7 megawatts (MW). Due to the site's location and large footprint, the design and installation of a reliable foundation system were critical to project success.

CHALLENGES:

The original foundation concept utilized traditional W-section H-piles, a common approach for solar farm construction. However, the load testing program revealed significantly limited pile capacities stemming from poor soil conditions across the site.

Additionally, a frost depth of 33 inches below grade had to be considered in the pile design, introducing concerns related to frost heave acting on the post foundations. These combined factors exacerbated pile capacity challenges.

To address the low capacities and frost heave, an alternative installation approach was pursued. This method involved pre-drilling each pile location with a large diameter drill, backfilling and compacting the borehole with well-graded sand, then installing the piles through this improved soil column. In practice, this method proved cumbersome, slow, and difficult to execute, especially given the high water table and site conditions. The approach resulted in substantial schedule delays and significant cost overruns.

SOLUTION:

IDEAL Group was engaged to evaluate the geotechnical constraints, construction challenges, and schedule impacts, and to engineer a foundation solution that would reduce risk, cost, and installation time.

IDEAL designed, manufactured, and supplied a proprietary Frost Protected Grouted Solar Foundation system that enabled each pile to be installed in a single-step process while eliminating frost-heave concerns. The piles were engineered with a large diameter to address lateral and tensile demands, and were outfitted with pre-fabricated frost protection. This allowed the piles to be rapidly advanced and fully grouted directly into the existing poor soils without the need for pre-drilling or multi-step ground improvement.

By combining engineering, manufacturing, procurement, and construction consulting under one integrated workflow, Ideal delivered a streamlined, predictable foundation program that reduced cost, mitigated risk, accelerated the project schedule, and ensured long-term performance for the client. Our decades of geotechnical and construction expertise on complex sites enabled us to engineer and execute the right foundation solution for the project's demanding conditions.