

GEOPIER®

RIGID INCLUSION TECHNOLOGY

Success Story



Geopier® Rigid Inclusions Used to Support Wastewater Treatment Facility



CLIENT'S CHALLENGE

A new secondary clarifier was proposed at location underlain by fill, organics, and clay. A Geopier rigid inclusion solution was necessary limit total and differential settlement to 1 inch and ½-inch, respectively, and to eliminate the need for costly over-excavation of the organics, which would have required significant dewatering efforts.

Brandon WWTF

📍 Brandon, Vermont

SUBSURFACE CONDITIONS

Subsurface conditions consisted of variable fill underlain by a layer of organics, followed by a heavily over-consolidated clay crust to moderately over-consolidated lower clay stratum, followed by till. Groundwater was at about 10 feet below ground, resulting in bottom of organics at up to 15 feet below the water table.

Town of Brandon VT

Owner

Naylor & Breen Builders, Inc.

General Contractor

Knight Consulting Engineers

Geotechnical Engineer

GEOPIER® SOLUTION

Geopier Armorpack® rigid inclusions were selected as the most technically feasible and cost effective solution for the project. The Armorpack elements were efficiently installed to fully penetrate the fill and organics layer, and terminated after slightly penetrating the heavily over-consolidated clay crust. This design allowed for the structure loads to be transferred rather uniformly to the clay crust, thus transferring the loads through the fill and organics to the reliable clay crust bearing stratum.

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A significant added benefit to the Armorpack design for this project was the ease of cutting off the elements at the target of 6 to 12 inches below the bottom of structure elevation, which was about 15 feet below the surrounding ground surface. The Armorpack shells were driven to the target bearing elevation, and the upper portion of the element above the shell was built with loosely-placed stone. This allowed for simple excavation through the stone to the target subgrade elevation. The use of a simple hand operated cutoff saw was an effective means for removing the remaining Armorpack shell “stub” to achieve accurate rigid inclusion top of pier elevations.

