

IMPACT® PIER SYSTEM

The Impact Pier System has become the standard method of constructing Rammed Aggregate Piers in New England. This technology has allowed the construction of RAP elements in almost any type of soil conditions. On sites with a high ground water table, urban fill, soft clays, loose sands, varied clays, peat, organics or any combination of the above, the Impact Pier System has usually proven to be the most cost effective method to support buildings, structures and embankments on bad ground. Helical Drilling is the exclusive licensee for this ground improvement technology in Massachusetts, Connecticut, Rhode Island, New Hampshire, Maine and Vermont.

How Impact Pier Works

The unique installation process displaces soil during installation and utilizes vertical impact ramming energy to construct vertical displacement Rammed Aggregate Piers, which exhibit unsurpassed strength and stiffness. The cavity is created to full depth by pushing a specially designed mandrel and tamper foot using a relatively large static force augmented by dynamic impact energy. Tamper foot diameters vary from 12 to 16 inches and depths normally range from about 10 to 55 feet, depending on design requirements. This method eliminates spoils, as all penetrated soils are displaced laterally. A sacrificial cap prevents soil from entering the tamper foot and mandrel.

After driving to design depth, the hollow mandrel serves as a conduit for the placement of aggregate. The aggregate is placed inside the mandrel and the mandrel is lifted, leaving the sacrificial cap at the bottom of the pier. The tamper foot is lifted approximately three feet and then driven back down two feet, forming a one-foot thick compacted lift.

Compaction is achieved through static force and dynamic impact energy from the hammer. The impact hammer densifies aggregate vertically and the beveled tamper foot forces aggregate laterally into cavity sidewalls. This results in excellent coupling with surrounding soils and reliable settlement control and superior strength and stiffness.

Construction Advantages

Construction Advantages of Impact Pier technology include:

- Avoids casing and allows for construction of aggregate piers in caving soils and soils with high groundwater conditions
- Eliminates/Minimizes spoils for sites with Contaminated Soils
- Provides Deep Treatment for Liquefaction Mitigation
- Displacement Method densifies surrounding soils
- Rapid installation
- Low vibration relative to piles
- Reliable and Cost Effective
- Can be used with Grout for environmentally sensitive sites
- Grout is added to provide added strength in weak soil
- Provides equivalent stiffness to Geopier elements

Geopier® System
Impact Pier® System
Applications

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