The Geopier Armorpact™ system creates strong and stiff Rammed Aggregate Pier® (RAP) elements in very weak soils. The patented system is a cost effective solution for supporting buildings and structures in soft clay and organic soils. Construction begins by inserting a driving mandrel within the patented Armorpact sleeve and driving the sleeve to the design depth. Aggregate is then placed within the confining sleeve and compacted with the mandrel. Applied loads are supported by the densely compacted aggregate that is laterally confined by the sleeve.

The Geopier Armorpact system provides high stiffness and resistance to bulging in soft and organic soils to deliver excellent settlement control and support capacity in soft and organic soils. The displacement method is ideal for contaminated sites where spoils or over-excavation is cost prohibitive or not an option. The Armorpact system also provides cost-effective solutions for soils where temporary casing may increase construction costs or low design capacities for other systems yield expensive solutions. The Armorpact system provides unsurpassed strength, stiffness and superior levels of performance for foundation settlement control and support at challenging soft or organic soil sites.

**ADVANTAGES OF THE ARMORPACT SYSTEM**

- **PRACTICAL** Vertically ramming thin lifts of aggregate within the patented Armorpact sleeve is the key to providing strength and stiffness. The Armorpact system eliminates casing and allows for displacement RAP construction in soft and organic soils.
- **ECONOMICAL** Often results in cost savings compared to traditional deep foundation alternatives.
- **EFFICIENT** The patented displacement installation eliminates casing risk in soft and organic soils and accelerates installation rates.
- **STRONG AND STIFF** Vertical impact ramming within a stiff confining sleeve results in high stiffness and high strength RAP elements that provide support capacity and settlement control even in very soft soils.
- **FAST** Rapid installation process means shorter construction schedules.
- **ENGINEERED** Projects are engineered in-house by Geopier Professional Engineers, allowing for rapid response when design or construction changes arise.
THE CONSTRUCTION PROCESS

The patented Geopier Armorpact installation process displaces soil during installation and utilizes vertical impact ramming energy to construct Rammed Aggregate Pier elements that exhibit unsurpassed strength and stiffness in soft soils. RAP solutions are designed to provide total and differential settlement control and increase bearing support to meet project requirements.

1. The Armorpact sleeve is placed on the specially designed tapered mandrel and is driven into the ground using a strong static force augmented by high frequency vertical impact energy. Depths normally range from about 10 to 20 feet, depending on design requirements. The displacement process eliminates spoils.

2. After driving to design depth, the confining sleeve remains in place. Aggregate is placed and densified inside the sleeve. Compaction is achieved through static down force and dynamic vertical ramming from the hammer and mandrel. The process densifies aggregate vertically and forces the aggregate and confining sleeve laterally, expanding into the soft matrix soil. This results in lateral stress increase that, combined with the high stiffness element, provides excellent settlement control with superior strength and stiffness in soft clay and organic soils.

3. Following installation, RAP elements support shallow foundations, floor slabs and mats; reduce liquefaction potential; and improve stability support of embankments, walls and tank pads. The applied stresses are attracted to the stiff RAP elements, resulting in engineered settlement control.

APPLICATIONS

Geopier systems have become preferred replacements for massive over-excavation and replacement or deep foundations, including driven piles, drilled shafts or augered cast-in-place piles. Local Geopier engineers and representatives work with you and your specific soil conditions and loads to engineer a project-specific practical solution to improve your ground. With multiple systems we are able to engineer support for virtually any soil type and groundwater condition across many applications, including:

- Foundations
- Floor Slabs
- Industrial Facilities
- Storage Tanks
- Liquefaction Mitigation
- MSE Walls/Embarkment Support
- Slope Stabilization
- Transportation
- Wind Turbines
- Uplift & Lateral Load Resistance

Geopier Foundation Company developed the Rammed Aggregate Pier® (RAP) system to provide an efficient and cost effective Intermediate Foundation® solution for the support of settlement sensitive structures. Through continual research and development, we’ve expanded our system capabilities to offer you more. Our design-build engineering support and site specific modulus testing combined with the experience of providing settlement control for thousands of projects provides an unmatched level of support and reliability to meet virtually all of your ground improvement challenges.