GP3®

# I-40/I-240 Interchange MSE Wall Support

## Memphis, Tennessee

**The Geopier GP3® system was chosen for subgrade reinforcement after it was determined that undercutting the required 10 to 16 feet would result in unacceptable temporary slope stability**

**Description:** Renovations to the I-40/I-240 Midtown Interchange were developed to improve safety and traffic flow in the area. Mechanically Stabilized Earth (MSE) walls were chosen for use by the general contractor due to the ease of installation and cost advantages.

**Subsurface Conditions:** The upper stratum consists of soft to firm silty clay or clayey silt which extends to a depth of about 25 to 40 feet. These soils are underlain by dense to very dense clayey sand and poorly graded sand. Perched groundwater was encountered at depths ranging from 5 to 10 feet.

**Geopier Solution:** Applied contact pressures under the new MSE walls ranged from 3,000 to 5,000 psf, exceeding the allowable bearing capacity of the soil. It was determined that deep overexcavation and replacement or subgrade improvement would be necessary to provide adequate factors of safety for bearing capacity and global stability. The Geopier GP3® system was chosen for subgrade reinforcement after it was determined that undercutting the required 10 to 16 feet would result in unacceptable temporary slope stability. The subgrade beneath three MSE walls were improved with Rammed Aggregate Pier® (RAP) elements. Walls 6, 7, 9 and 21 ranged from 15 to 25 feet in height and 150 to 1,600 linear feet in length.

## PROJECT TEAM

**Owner:**
Tennessee Dept of Transportation

**Geotechnical Engineer:**
Hall, Blake & Associates

**General Contractor:**
Ray-Bell Construction, Co.

**Geopier Installer:**
Peterson Contractors, Inc.

**Geopier Designer:**
GFC-Midsouth, LLC

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