



Midco Indoor Aquatic Center at Spellerberg Park

Sioux Falls, South Dakota

The Geopier X1® system was used to increase soil bearing capacity and settlement control to support the foundation and deep pools while expediting the overall construction schedule.

Description: Construction consisted of a 54,350 square foot, 2-story, multi-use indoor aquatic center. The facility includes a large competition pool with diving area (12 feet deep), recreation pool, lazy river, therapy pool, locker rooms, concession area, multi-purpose room, offices and mechanical/support rooms. Column and wall loads of 200 kips and 30 kif, respectively, were used in design.

Subsurface Conditions: The subsurface soils consisted of up to 2 feet of existing clay fill or topsoil overlying soft to firm lean clay (loess) followed by firm to very stiff lean/fat clay with sand (glacial till) and stiff to very stiff fat clay and silt (alluvium) to the maximum depth explored of 51 feet. Groundwater was measured at depths of 8 to 11 feet below ground surface.

Geopier Solution: Helical piles and overexcavation replacement solutions were considered by the geotechnical engineer, but Geopier's X1® solution



offered increased soil bearing capacity and superior settlement control for support of foundations and deep pools, as well as an expedited overall construction schedule.

The spread footings were designed to support soil bearing pressure of up to 3,000 psf. The wall footings for the competition pool were designed at 18 feet wide, helping control total settlement to 1 inch (project design criteria).

Over 830 Rammed Aggregate Piers® (RAP) were installed in 21 days. The Geopier solution was verified with a modulus test during production that confirmed a stiffness of 3over 350 pci.

PROJECT TEAM

Owner:

City of Sioux Falls Parks and Recreation
Department

Geotechnical Engineer:

GeoTek Engineering & Testing Services,
Inc.

Structural Engineer:

TSP

General Contractor:

Sioux Falls Constructions

Geopier Installer:

Peterson Contractors Inc.

Geopier Designer:

Ground Improvement Engineering