

Winnebago 1 Windfarm Winnebago County, Iowa

Rammed Aggregate Pier® System

Project Team

Developer: Iberdrola Renewable Energies, USA

Geotechnical Engineer: Terracon

Structural Engineer: EAPC

General Contractor: Iberdrola Inc.

GFC Installer: Peterson Contractors, Inc.

GFC Designer: GFC-Midwest

The Geopier® system was more cost-effective and time saving than other foundation support alternatives such as over-excavation.

Project Overview

Description:

Construction of ten wind turbine towers. The towers are on octagonal footings with a width of 45 to 60 feet. Maximum design pressures are on the order of 4,165 psf and 2,180 psf for extreme and normal loading conditions. The sustained dead load pressure is 1,500 psf.

Subsurface Conditions:

The soil profile generally consisted of medium stiff to stiff silty clay or lean clay loess or weathered glacial till materials to depths of about 13 to 18 feet over stiff to very stiff sandy lean clay glacial till.

Geopier Solution:

One of the interesting details of this project was the desire of the Project Developer to maximize the feasibility of the foundation cost by reviewing Rammed Aggregate Pier® (RAP) solutions for various bearing pressures. By increasing the bearing pressure with an appropriate RAP reinforcement solution the overall cost of the concrete, steel, excavation, etc. was reduced to an optimal level. A total of 640 RAP



elements were installed. The shafts were 2.5 feet in diameter and seven to 15 feet in length. They were embedded a minimum of nine feet below the ground, or at drill depths of 21 feet.



FOR MORE INFORMATION

Contact Geopier Foundation Company at **800-371-7470**
or at **www.geopier.com**