

## Geotechnical Investigations for Antenna Support Structures

A soil investigation by a geotechnical engineering firm is recommended for each installation site to determine its unique soil and physical characteristics, and to provide data to develop design parameters, economical foundation alternatives, and installation procedure. To ensure the report furnishes useful information to the foundation designer, the geotechnical firm should be provided the following information prior to the investigation:

- A plot and site location map with structure locations and site improvements
- Structure base and anchor structural reactions
- Any special conditions or requirements or the specifications
- The minimum depth of the borings. These depths will depend upon the type of foundation being considered, the magnitude of the structural reactions, and any anticipated special site and soil conditions.

### The geotechnical report shall provide the following minimum information:

Boring logs and report shall provide:

- Date, sample method, and number and type of samples
- Elevation of tower base and anchor locations, or the difference in elevations
- Description of the soil strata according to the Unified Soil Classification System
- Depths at which strata changes occur referenced to a site datum
- Standard Penetration Test blow counts
- Soil densities
- Soil ultimate internal angle of frictions
- Soil ultimate cohesion
- Soil ultimate bearing capacities
- Elevation of free water encountered and its level after 24 hours, and recommended seasonal water elevations to be considered for the design
- Maximum depth of frost penetration
- Ultimate Soil electrical resistivity

For straight shaft drilled piles and caissons, in addition the above listed values, the following values shall be provided:

- Ultimate tip bearing capacity
- Ultimate skin friction
- Ultimate modulus of sub grade reaction
- Ultimate soil strain

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