

HIGH MOUNT FOUNDATIONS:

(10-29-13)

Description

High mount foundations for high mount standards consist of drilled piers or footings with pedestals, conduit and anchor rod assemblies. Construct high mount foundations in accordance with the contract and either Standard Drawing No. 1402.01 of the *2012 Roadway Standard Drawings* or the accepted submittals. Define “high mount standard foundation” as a drilled pier including the conduit and anchor rod assembly that meets Standard Drawing No. 1402.01.

Materials

Use high mount foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

High Mount Standard Foundations

Construct high mount standard foundations for the wind zone and high mount heights shown in the plans unless the following assumed site conditions are not applicable to high mount locations:

- (A) Soil with unit weight (γ) \geq 120 lb/cf and friction angle (ϕ) \geq 30°,
- (B) Groundwater at least 7 ft below finished grade and
- (C) Slope of finished grade 6:1 (H:V) or flatter.

A subsurface investigation and high mount foundation design are required if the Engineer determines these assumed site conditions do not apply to a high mount location and the high mount cannot be moved. Subsurface conditions requiring a high mount foundation design include but are not limited to weathered or hard rock, boulders, very soft or loose soil, muck or shallow groundwater. No extension of completion date or time will be allowed for subsurface investigations or high mount foundation designs.

Subsurface Investigations

Use a prequalified geotechnical consultant to perform one standard penetration test (SPT) boring in accordance with ASTM D1586 at each high mount location requiring a subsurface investigation. Rough grade high mount locations to within 2 ft of finished grade before beginning drilling. Drill borings to 2 drilled pier diameters below anticipated pier tip elevations or refusal, whichever is higher.

Use the computer software gINT version V8i or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide boring logs sealed by a geologist or engineer licensed in the state of North Carolina.

High Mount Foundation Designs

Design high mount foundations for the wind zone and high mount heights shown in the plans and the slope of finished grade and subsurface conditions at each high mount location. Design drilled piers, footings and pedestals in accordance with the 6th Edition of the *AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*.

Design drilled piers for side resistance only in accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version 6.0 or

later manufactured by Ensoft, Inc. to analyze drilled piers. Provide drilled pier designs with a horizontal deflection of less than 0.5" at top of piers.

Design footings in accordance with Section 4.4 of the *AASHTO Standard Specifications for Highway Bridges*. Do not use an allowable bearing pressure of more than 3,000 lb/sf for footings.

Submit boring logs, working drawings and design calculations for acceptance in accordance with Article 105-2 of the *2012 Standard Specifications*. Submit working drawings showing plan views, required foundation dimensions and elevations and typical sections with reinforcement, conduit and anchor rod assembly details. Include all boring logs, design calculations and LPILE output for high mount foundation design submittals. Have high mount foundations designed, detailed and sealed by an engineer licensed in the state of North Carolina.

Construction Methods

Grade a 3 ft diameter level work area around high mount locations with cut and fill slopes as shown on Standard Drawing No. 1402.01. Construct drilled piers, footings and pedestals and install anchor rod assemblies for high mount foundations in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

Measurement and Payment

High Mount Foundations will be measured and paid in cubic yards. High mount standard foundations will be measured as the cubic yards of concrete shown on Standard Drawing No. 1402.01 for the high mount height and wind zone shown in the plans. All other high mount foundations will be measured as the cubic yards of foundation concrete for drilled piers, footings and pedestals shown on the accepted submittals. The contract unit price for *High Mount Foundations* will be full compensation for providing labor, tools, equipment and foundation materials, stabilizing or shoring excavations and supplying concrete, reinforcing steel, conduit, anchor rod assemblies and any incidentals necessary to construct high mount foundations. Subsurface investigations and high mount foundation designs required by the Engineer will be paid as extra work in accordance with Article 104-7 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item

High Mount Foundations

Pay Unit

Cubic Yard