

SECTION 33 79 00

SITE GROUNDING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Rod electrodes.
2. Exothermic connections.
3. Mechanical connectors.
4. Wire.

B. Related Sections:

1. Division 03 - Cast-In-Place Concrete: Product and execution requirements for concrete used in concrete wells.

1.02 REFERENCES

A. Institute of Electrical and Electronics Engineers:

1. IEEE 80 - Guide for Safety in AC Substation Grounding.
2. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
3. IEEE C2 - National Electrical Safety Code.

B. International Electrical Testing Association:

1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.03 SYSTEM DESCRIPTION

- A. Not less than 9-3/4 inches x 10 feet, vertical rod electrodes at intersections of horizontal electrode grid.
- B. Provide horizontal electrode grid with #4/0 copper wire. Total length of grid shall be a minimum of 120 linear feet.

1.04 PERFORMANCE REQUIREMENTS

- A. Overall Resistance to Ground: 5 ohms.

1.05 SUBMITTALS

- A. Division 01 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate layout and installation details of grounding components.
- C. Product Data: Submit data for grounding electrodes and connectors.
- D. Test Reports: Indicate overall resistance to ground.

- E. Acceptance or no exceptions taken by the County's Representative on any substitution proposed by the Developer Design/Builder shall not be construed as relieving the Developer Design/Builder from compliance with the project's specifications and performance requirements nor departure there from. The Developer Design/Builder remains responsible for details and accuracy for confirming and correlating quantities and dimensions and for the selection of fabrication processes, techniques and assembly, coordination of his work with that of all other trades and making any needed modifications consequent to the substitution at his own cost and for performing the work in a safe manner.

1.06 CLOSEOUT SUBMITTALS

- A. Division 01 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of electrodes and connections.

1.07 QUALITY ASSURANCE

- A. Maintain one copy of each document on site.
- B. Conform to IEEE 142.
- C. Substation Grounding: Conform to IEEE 80.

1.08 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 ROD ELECTRODES

- A. Product Description: Copper-clad steel ground rods.
- B. Diameter: 3/4 inch.
- C. Length: 10 feet.

2.02 EXOTHERMIC CONNECTIONS

- A. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

2.03 MECHANICAL CONNECTORS

- A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

2.04 WIRE

- A. Material: Stranded copper.
- B. Horizontal Electrodes: 4/0 AWG, minimum size.
- C. Connections to Electrodes: 2/0 AWG, minimum size.

- D. Bonding Other Objects: 2/0 AWG, minimum size.
- E. Grounding Boxes: Bronze.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Division 01 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify final backfill and compaction has been completed before driving rod electrodes.
- C. Verify trenching is completed before installing horizontal electrodes.

3.02 INSTALLATION

- A. Install rod electrodes in vertical position with top at least 12 inches below finished grade.
- B. Install interconnecting wire 2 feet below finished grade level.

3.03 FIELD QUALITY CONTROL

- A. Division 01 - Quality Requirements and Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.13. Make final grounding system measurements three or four days after chemical treatment.

3.04 DEMONSTRATION

- A. Division 01 - Execution and Closeout Requirements: Requirements for demonstration and training.
- B. Demonstrate location of each accessible grounding connection and each chemical treatment well.

END OF SECTION