SECTION 260526 – GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Grounding electrodes and conductors.
B. Equipment grounding conductors.
C. Bonding.

1.2 REFERENCES

A. ANSI/NFPA 70 – National Electrical Code.

1.3 GROUNDING SYSTEM DESCRIPTION

A. The system shall consist of a series of driven ground rod electrodes interconnected with bare stranded ground conductor.
B. All building footer and slab rebar greater than ½" shall be bonded to the ground conductor. Bond at 20 ft intervals and at each corner. IAW NEC. Connections to rebar may be made with suitable sized ground clamps.
C. All connections shall be by exothermic welds (Cadweld or equal) installed according to the manufacturer's instructions.
D. Tests shall be performed to determine the grounding grid resistance to ground. The test method shall be as described in NETA Standard ATS-1987, "Acceptance Testing Specification for Electrical Power Distribution Equipment and Systems." A three-point fall-of-potential test shall be used using two auxiliary electrodes for the measurement. Test reports shall be provided describing the testing procedure and results. The grid-to-ground resistance shall be no greater than 5 ohms. If necessary, additional rods shall be added to achieve the 5-ohm ground. When the Contractor has obtained satisfactory results, he shall submit test reports to the Engineer for approval. After approval, the contractor shall bond the service entrance ground grid to the service entrance enclosure ground bus. The Owner or Owner's representative shall have the opportunity to inspect all exothermic welds.
E. All ground cables shall have a minimum of 24" of ground cover.

1.4 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 5 ohms maximum.

1.5 SUBMITTALS

A. Product Data: Provide for grounding electrodes and connections.
B. Test Reports: Indicate overall resistance to ground (and resistance of each electrode).
C. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation and installation of exothermic connectors.

1.6 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 260500.
B. Accurately record actual locations of grounding electrodes.

1.7 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.
B. Furnish products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS

2.1 ROD ELECTRODE

A. Manufacturers:
   1. ITT Blackburn Co.
   2. Copperweld, Bimetallic.
   3. American Electric - Blackburn.
B. Material: Copper-clad steel.
C. Diameter: 3/4 inch.
D. Length: 10 feet.

2.2 MECHANICAL CONNECTORS

A. Manufacturers:
   1. Burndy Corp.
   2. O-Z/Gedney.
B. Material: Bronze.

2.3 EXOTHERMIC CONNECTIONS

A. Manufacturers:
   1. Cadweld.

2.4 WIRE

A. Material: Bare stranded copper.
B. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.2 INSTALLATION

A. Install Products in accordance with manufacturer's instructions.
B. Install rod electrodes at locations indicated. Install additional rod electrodes as required to achieve specified resistance to ground spaced at minimum 10 ft.
C. Provide bonding to meet Regulatory Requirements.
D. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

3.3 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
B. Use suitable test instrument to measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall-of-potential method.

END OF SECTION 260526