MEDIUM VOLTAGE CABLE SPECIFICATIONS

I. SCOPE OF WORK / SPECIFICATIONS

PART 1 - GENERAL:

The following specifications detail medium voltage cable for use on the 12,470V campus primary distribution system. The cable will be installed in concrete encased duct bank. The following specification covers the construction requirements of the cable to be furnished.

PART 2 - PRODUCTS & STANDARDS:

INDUSTRY STANDARDS

The cable shall be manufactured and tested in accordance with the latest editions of the following industry standards as applicable:

ASTM: B-8 Concentric Lay Stranded Copper Conductor Tinned Soft or Annealed Copper Wire.
AEIC: Association of Edison Illuminating Companies (AEIC CS6).
ICEA: Insulated Cable Engineers Associations (ICEA S-68-516) EPR Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
IEEE: Institute of Electrical and Electronic Engineers, Inc.
NEC: National Electrical Code
UL: Underwriters Laboratories, Inc. UL-1072, "Standard for Medium-Voltage Power Cables"

APPLICATION

The cables described and specified herein shall be suitable for use in wet and dry locations, underground duct systems, and aerial installations under approved installation practice as recommended by the cable manufacturer and the NEC. All cables shall be rated 105 deg. C for normal operation, 140 deg. C for emergency overload operation, and 250 deg. C for short-circuit condition.

All cables specified shall comply with the following standards as applicable per the National Electrical Code as adopted by Chapter 5 of the OSE Manual:

- Ampacities — Article 310, Article 318-13
- Wiring Methods — Article 300 & 710
- Cable Trays — Article 318
- Bending Radius — Article 300-34, Article 334-11
- Cable Type MV-105 — Article 326

IDENTIFICATION

Each conductor and/or outer jacket shall be painted with the following legend at a maximum of two-foot intervals:

- Manufacturer's Name
- Conductor Size-AWG, kcMil and Type (CU)
- Voltage
- Identification of Insulation
- Year of Manufacture
- UL Cable Type – (MV-105)

SINGLE CONDUCTOR CONSTRUCTION REQUIREMENTS
Cables shall be UL Listed as Type MV-105 for use in accordance with the National Electric Code.

CONDUCTORS
Conductors shall be Class B concentric compressed stranded bare soft copper per ASTM B-8 or compact stranded bare copper per ASTM B-496.

EXTRUDED STRAND SCREEN
Each conductor shall be covered with an extruded, thermosetting, semi-conducting screen, uniformly applied over the surface of the conductor meeting the requirements of ICEA S-68-516 and UL 1072.

INSULATION
The insulation over the strand screen of each conductor shall be ethylene-propylene rubber (EPR). Cables shall be insulated to 15 kV, 133% insulation level. Minimum average insulation thickness shall be 220 mils per the requirements of ICEA S-68-516, UL 1072 and AEIC CS-6.

INSULATION SHIELDING
Each conductor shall have an extruded thermosetting, semi-conducting insulation screen applied over the insulation meeting the requirements of ICEA S-68-516, UL 1072 and AEIC CS-6.

METALLIC TAPE SHIELD
Each conductor shall have a 5 mil bare copper tape helically applied with 25% minimum overlap.

CORONA TEST
All corona tests shall be performed by the cable manufacturer within their manufacturing facilities and in accordance with the procedures of section F of AEIC CS-6. Cable must pass standard AEIC Corona Test.

JACKET FOR SINGLE CONDUCTOR CABLES
The overall jacket shall be flame-retardant PVC or CPE. The minimum average thickness shall be 80 mils.

PART 3 – TESTING AND TECHNICAL DATA

TESTING OF FINSIHED CABLE
Final testing of the finished cable shall be in accordance with the latest edition of ICEA S-68-516, UL 1072 and shall include the electrical and partial discharge tests of AEIC CS-6, latest edition.

WARRANTY
The cable manufacturer shall explicitly warrant each reel of cable to be free from defects in material, design and workmanship to provide reliable performance for a 25 year life. The warranty assumes the cable is installed, spliced, terminated and maintained in accordance with the manufacturer's recommendations. When the manufacturer and the Owner mutually determine a portion or all of the cable is defective, the supplier shall furnish a replacement

for the defective cable. The replacement cable shall comply with this specification and be delivered to the original delivery point free of any charge to the Owner or the State of South Carolina.

CU STANDARD CABLE SIZE CIRCUIT CONFIGURATIONS:
Primary Circuit Feeders: (3) 350 kcmil MV-105 15Kv Shielded CU, 133% with (1) 4/0 XHHW CU, white insulation.

Standard Transformer Loop Feeders: (3) 1/0 kcmil MV-105 15Kv Shielded CU, 133% with (1) 1/0 XHHW CU, white insulation.

Heavy Transformer Loop Feeders: (3) 2/0 kcmil MV-105 15Kv Shielded CU, 133% with (1) 2/0 XHHW CU, white insulation.