

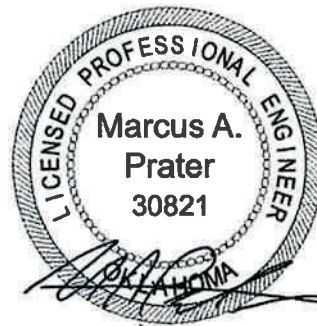
ADDENDUM 1

Oklahoma City Airport Trust
Oklahoma City, Oklahoma

Switch 49970 Replacement Mike Monroney Aeronautical Center Project No. OCAT WRWA 2429

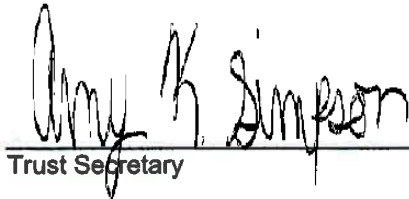
APPROVAL RECOMMENDED:


Director of Airports



8/16/2024

ATTEST:


Trust Secretary



OKLAHOMA CITY AIRPORT TRUST:


Trust Chairman

REVIEWED for form and legality.


Assistant Municipal Counselor/
Attorney for the Trust

ADDENDUM 1

AUGUST 16, 2024

SWITCH 49970 REPLACEMENT MIKE MONRONEY AERONAUTICAL CENTER PROJECT NO. OCAT WRWA 2429	FRANKFURT-SHORT-BRUZA ASSOCIATES, P.C. 5801 BROADWAY EXTENSION SUITE 500 OKLAHOMA CITY, OKLAHOMA, 73118
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Items in this addendum take precedence over the original bid documents. Items not specifically revised remain in effect.

SPECIFICATIONS

ITEM 1-1 Section 260513 is revised to include aluminum conductors under Paragraph 2.2.C.

DRAWINGS

ITEM 1-2 Sheet ES101 is revised to edit Keynotes #10 and #11 to allow aluminum conductors and concentric neutral.

END OF ADDENDUM 1

SECTION 260513 - MEDIUM-VOLTAGE CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cables.
 - 2. Connectors.
 - 3. Separable insulated connectors.
 - 4. Medium-voltage tapes.
 - 5. Arc-proofing materials.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cable. Include splices and terminations for cables and cable accessories.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with IEEE C2 and NFPA 70.
- C. Source Limitations: Obtain cables and accessories from single source from single manufacturer.

2.2 CABLES

- A. Cable Type: Type MV 105.
- B. Conductor Insulation: Ethylene-propylene rubber.
 - 1. Voltage Rating: 15 kV.
 - 2. Insulation Thickness: 133 percent insulation level.
- C. Conductor: Copper or Aluminum.
- D. Comply with UL 1072, AEIC CS8, ICEA S-93-639/NEMA WC 74, and ICEA S-97-682, and ICEA S-94-649.
- E. Conductor Stranding: Concentric lay, Class B.

- F. Strand Filling: Conductor interstices are filled with impermeable compound.
- G. Shielding: Copper tape, Solid copper wires, helically applied over semiconducting insulation shield.
- H. Shielding and Jacket: Corrugated copper drain wires embedded in extruded, chlorinated, polyethylene jacket.
- I. Cable Jacket: Sunlight-resistant PVC.

2.3 CONNECTORS

- A. Comply with ANSI C119.4 for connectors between aluminum conductors or for connections between aluminum to copper conductors.
- B. Copper-Conductor Connectors: Copper shear bolt connectors.

2.4 SEPARABLE INSULATED CONNECTORS

- A. Description: Modular system, complying with IEEE 386, with disconnecting, single-pole, cable terminators and with matching, stationary, plug-in, dead-front terminals designed for cable voltage and for sealing against moisture.
- B. Terminations at Distribution Points: Modular type, consisting of terminators installed on cables and modular, dead-front, terminal junctions for interconnecting cables.
- C. Load-Break Cable Terminators: Elbow-type units with 200 A load make/break and continuous-current rating; coordinated with insulation diameter, conductor size, and material of cable being terminated. Include test point on terminator body that is capacitance coupled.
- D. Dead-Break Cable Terminators: Elbow-type unit with 600 A continuous-current rating; designed for de-energized disconnecting and connecting; coordinated with insulation diameter, conductor size, and material of cable being terminated. Include test point on terminator body that is capacitance coupled.
- E. Dead-Front Terminal Junctions: Modular bracket-mounted groups of dead-front stationary terminals that mate and match with above cable terminators. Two-, three-, or four-terminal units as indicated, with fully rated, insulated, watertight conductor connection between terminals and complete with grounding lug, manufacturer's standard accessory stands, stainless steel mounting brackets, and attaching hardware.
 - 1. Protective Cap: Insulating, electrostatic-shielding, water-sealing cap with drain wire.
 - 2. Portable Feed-Through Accessory: Two-terminal, dead-front junction arranged for removable mounting on accessory stand of stationary terminal junction.
 - 3. Grounding Kit: Jumpered elbows, portable feed-through accessory units, protective caps, test rods suitable for concurrently grounding three phases of feeders, and carrying case.
 - 4. Standoff Insulator: Portable, single dead-front terminal for removable mounting on accessory stand of stationary terminal junction. Insulators suitable for fully insulated isolation of energized cable-elbow terminator.

- F. Tool Set: Shotgun hot stick with energized terminal indicator, fault-indicator test tool, and carrying case.

2.5 MEDIUM-VOLTAGE TAPES

- A. Description: Electrical grade, insulating tape rated for medium voltage application.
- B. Ethylene/propylene rubber-based, 30 mil splicing tape, rated for 130 deg C operation. Minimum 3/4 inch wide.

2.6 ARC-PROOFING MATERIALS

- A. Description: Fire retardant, providing arc flash protection.
- B. Tape for First Course on Metal Objects: 10 mil thick, corrosion-protective, moisture-resistant, PVC pipe-wrapping tape.
- C. Arc-Proofing Tape: Fireproof tape, flexible, conformable, intumescent to 0.3 inch thick, and compatible with cable jacket.
- D. Glass-Cloth Tape: Pressure-sensitive adhesive type, 1 inch wide.

2.7 SOURCE QUALITY CONTROL

- A. Test and inspect cables according to ICEA S-97-682 and ICEA S-94-649 before shipping.
- B. Test strand-filled cables for water-penetration resistance according to ICEA T-31-610, using a test pressure of 5 psig.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install cables according to IEEE 576.
- B. Proof conduits prior to conductor installation by passing a wire brush mandrel and then a rubber duct swab through the conduit. Separate the wire brush and the rubber swab by 48 to 72 inch on the pull rope.
 - 1. Wire Brush Mandrel: Consists of a length of brush approximately the size of the conduit inner diameter with stiff steel bristles and an eye on each end for attaching the pull ropes. If an obstruction is felt, pull the brush back and forth repeatedly to break up the obstruction.
 - 2. Rubber Duct Swab: Consists of a series of rubber discs approximately the size of the conduit inner diameter on a length of steel cable with an eye on each end for attaching the pull ropes. Pull the rubber duct swab through the duct to extract loose debris from the duct.

- C. Pull Conductors: Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
 - 1. Where necessary, use manufacturer-approved pulling compound or lubricant that does not deteriorate conductor or insulation.
 - 2. Use pulling means, including fish tape, cable, rope, and basket-weave cable grips, that do not damage cables and raceways. Do not use rope hitches for pulling attachment to cable.
 - 3. Use pull-in guides, cable feeders, and draw-in protectors as required to protect cables during installation.
 - 4. Do not pull cables with ends unsealed. Seal cable ends with rubber tape.
- D. In manholes, handholes, pull boxes, junction boxes, and cable vaults, train cables around walls by the longest route from entry to exit; support cables at intervals adequate to prevent sag.
- E. Install sufficient cable length to remove cable ends under pulling grips. Remove length of conductor damaged during pulling.
- F. Install cable splices at pull points and elsewhere as indicated; use standard kits. Use dead-front separable watertight connectors in manholes and other locations subject to water infiltration.
- G. Install separable insulated-connector components as follows:
 - 1. Protective Cap: At each terminal junction, with one on each terminal to which no feeder is indicated to be connected.
 - 2. Portable Feed-Through Accessory: At each terminal junction, with one on each terminal.
 - 3. Standoff Insulator: At each terminal junction, with one on each terminal.
- H. Arc Proofing: Unless otherwise indicated, arc proof medium-voltage cable at locations not protected by conduit, cable tray, direct burial, or termination materials. In addition to arc-proofing tape manufacturer's written instructions, apply arc proofing as follows:
 - 1. Clean cable sheath.
 - 2. Wrap metallic cable components with 10 mil pipe-wrapping tape.
 - 3. Smooth surface contours with electrical insulation putty.
 - 4. Apply arc-proofing tape in one half-lapped layer with coated side toward cable.
 - 5. Band arc-proofing tape with two layers of 1 inch wide half-lapped, adhesive, glass-cloth tape at each end of the arc-proof tape.
- I. Ground shields of shielded cable at terminations, splices, and separable insulated connectors. Ground metal bodies of terminators, splices, cable and separable insulated-connector fittings, and hardware.
- J. Identify phase and circuit number of each conductor at each splice, termination, pull point, and junction box. Arrange identification so that it is unnecessary to move the cable or conductor to read the identification.

3.2 FIELD QUALITY CONTROL

- A. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS. Certify compliance with test parameters.
 2. After installing medium-voltage cables and before electrical circuitry has been energized, test for compliance with requirements.
 3. Perform direct-current High Potential test of each new conductor according to NETA ATS, Ch. 7.3.3. Do not exceed cable manufacturer's recommended maximum test voltage.
- B. Medium-voltage cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION

