Scope of Work

RFP #7391 Supply of Okonite Underground Distribution Cable and Substation Control Cables

PURPOSE

The City of Denton is providing information that will allow prospective suppliers to prepare submissions to supply **Okonite Underground Electric Distribution Cables and Substation Control Cables**. The products will be received and distributed through a centralized distribution center located at 901B Texas Street, Denton, TX 76209. Orders will be placed as needed over the contract term.

SUBMISSIONS

Submissions shall be provided using IONWAVE, with supporting documentation as required. Additional information clarifying the supplier's product may be attached to their submission. Pricing shall include all costs to deliver goods as specified in this specification. Any special fees or commissions, and all freight for delivery to the City of Denton Warehouse and unloading costs must be included in the quoted price. Item pricing shall be mutually exclusive, thus the City of Denton reserves the right to choose the best valued item from different vendors.

QUALITY CONTROL

The manufacturer shall be responsible for the quality control of the manufacturing processes to assure that all requirements of these specifications are met. However, the City reserves the right to observe, to inspect and to require additional quality control investigations, either by its personnel or an independently employed quality control investigator, at any or all stages of fabrication at the manufacturer's facilities. Failure to adequately maintain fabrication and quality of fabrication until completion shall be grounds for cancellation of the order or any part thereof.

Field failure or field repairs required due to quality control failures or manufacturing procedures shall be the responsibility of the manufacturer.

WRITTEN WARRANTY and GUARANTEES

Written guarantees shall include any limitations as to the nature of failure or time limitations. The guarantee shall begin upon receipt of the accepted units, not on the date of manufacture. Guarantees shall indicate whether or not it is made on a full replacement basis or a prorated basis and if prorated then what are the terms. Manufacturer/supplier guarantees that the goods furnished under this specification are of high quality and agrees to replace any goods found to be defective during inspection, installation, or service for a minimum period of 12 months after unit is delivered to Denton. All replacements by the manufacturer/supplier shall be free of charge F.O.B. at the same delivery point called for in the original order. Replacements must be handled in a professional and timely manner and in no case shall a replacement unit take longer than 60 days to arrive in Denton after first being submitted for replacement.

Respondent guarantees that all products quoted and furnished under this agreement will be accepted at any normally used United States approved repair and warranty shop should one be available for the manufacturer's product quoted. The City of Denton will not accept a manufacturer's product that was rejected or substandard and then sold to a broker for either resale or scrap that would not be fully warranted by the original manufacturer.

The respondent must be an approved distributor by the manufacturer of these products, and is authorized to sell the products to the City of Denton. The respondent also guarantees that the City will be represented by the Manufacturer, should an issue arise, and that all manufacturer's warranties will be in effect for the life of the contract.

Deliveries shall be made between 8:00 AM -3:00 PM Monday through Friday, excluding holidays. This location does have a forklift and dock available for offloading.

ACCEPTABLE MANUFACTURERS

The City will only accept submissions from authorized Okonite distributors as outlined in these specifications. No substitutes are accepted for line items marked as ONLY.

The City has implemented a pre-approval process for substitution commodities and services. The commodity approval form can be obtained via email (dustin.rolfe@cityofdenton.com). Supporting documentation or samples must be submitted for review by Purchasing, Engineering, field crews, QAG (Quality Assurance Group), and the manager of DME. Testing may be required and may take substantial time to review. Vendors are encouraged to submit forms and samples for consideration on the **next** solicitation for similar items.

DEVIATIONS TO SPECIFICATION

Offeror's quoting to this specification will indicate any areas where deviations are required by their design and will provide sufficient information to permit full evaluation of their product prior to submission deadlines. This data will reference the appropriate section number and be sent in letter format with their proposal. Any alternate proposal shall be approved by the City of Denton prior to the opening date. Alternates shall not be considered less than 10 days prior to opening date. Approved alternates will be sent back out in an Addendum, for all vendors to know that the alternate is acceptable. Unless specifically noted by offeror as indicated above, all quotations shall meet and include all items as detailed in this specification.

SHIPMENT AND DELIVERY

A delivery schedule after placing an order is required with the proposal. The delivery lead-time for the Electric Distribution Cables and Substation Control Cables will be a consideration in the evaluation.

Orders will be placed as needed. The City cannot take delivery of all materials at one time.

CUT TO LENGTH PROGRAM

This program requires that the supplier be able to take stock of master reels, and then cut cable/wire to length as requested by the City for deliveries to Denton as requested below.

The City would take measurements in the field, and then contact the vendor with the lengths needed. Vendor shall cut the cable to lengths and re-spool to the required reel specifications in the specifications. Delivery shall be made within 72 hours upon receipt of lengths. Cut lengths shall be from 0% to plus 3%. No reel length shall be less than the requested length. The City shall release a minimum of three reels at one time for any cut to length order.

The City shall not be charged for any cable remaining on the master reels that are deemed too short for DME use nominally defined as 200 feet or less. The remaining cable material shall remain the property of the vendor.

The City will hold undamaged wooden reels that can be returned for the vendor to re-use. The City has limited space available for storage, and can only keep minimal quantities. The vendor must pick up the reels within 5 business days upon notification.

The City may request full reels as noted on the proposal page for each specified cable. This will allow the City to have dedicated emergency cable stock on-hand in Denton at all times as well as for specific DME special project use.

Reels shall be marked with identification tags with cut length, size of cable, DME reel name and job name.

Supplier shall propose the additional price per foot for the cut to length program costs.

Liquidated damaged will be incurred for deliveries not meeting the contractually agreed upon delivery timeframe. See Liquidated Damaged for additional information.

SAMPLES

Offeror's shall make samples available upon request by the City of Denton, prior to award with no cost to the City.

TECHNICAL SPECIFICATIONS FOR ELECTRIC DISTRIBUTION CABLES:
All quoted and supplied cables shall meet or exceed the latest requirements of the following applicable industry standards:
ICEA S-94-649-2013, ICEA T-25-425, ASTM B-3, ASTM B-8, ASTM B-230, ASTM B-231, ASTM B-609, ICEA T-32-645, ICEA T- 34-664, AEIC-CS8-2013, ASTM B-231, RUS Specification U-1, REA Bulletin 50-70 (4-1), unless otherwise noted within these specifications.

A copy of the manufacturer's current AEIC CS8-13 Qualification Report shall be provided to the City of Denton upon request.

A. 15kV, 500 AND 750 KCMIL UNDERGROUND SHIELDED POWER CABLES:

SCOPE: The specification describes the single conductor shielded power cable with an ethylene propylene rubber (**EPR**) compound. Design to operate at conductor temperatures of 105 degree Celsius normal, 140 degree Celsius for emergency, and 250 degree Celsius for short circuit conditions as defined by ANSI/ ICEA S-97-682-2013. The cable shall be suitable for three-single phase pulls and will have a separate 4/0SDBC neutral installed for use in grounded wye three-phase underground distribution installations in ducts, conduits, manholes, wet and dry locations.

CONDUCTOR: The Class B compact copper conductor shall be 37 strand for the 250 and 500, and 61 strand for the 750 sizes respectively, Compact Copper in accordance with the appropriate standards ANSI / ICEA S-97-682-2013. Copper conductors shall consist of all bare strands or tin coated strands in the outer layer in accordance with ASTM B-3 and ASTM B-496 for Compact Copper Conductors. Manufacturer must utilize and maintain a high quality control process to ensure that the outer conductor dimensions do not vary. DME will reject any manufacturer or reel that is found in which more than one size of standard nominal compression lug must be used for that particular size of conductor.

CONDUCTOR SHIELD: The conductor shield shall be black, thermosetting, semi-conducting material extruded over the conductor and shall be EPR compatible with both the conductor and the overlaying insulation. The minimum average thickness shall be 220 mils for 750, 500, and 250 cables. The conductor shield shall be easily removed from the conductor and securely bonded to the overlaying insulation. The conductor shield shall meet the requirements of the applicable ICEA and AEIC standards.

INSULATION: The insulation shall be a premium quality, heat, moisture, ozone and corona resistant flexible thermosetting dielectric of ethylene propylene rubber (**EPR**). The insulation shall be compatible with both the conductor shield and the insulation shield. The insulation shall have the appropriate min/max diameters for each cable size, a nominally minimum average thickness of 220 mils, 133% insulation level, at the applicable voltage class and in accordance with the latest edition of ICEA S-97-682-2013. The insulation shall be free from voids, contaminants, gels and agglomerates in accordance with the latest edition of AEIC CS8 or ICEA S-97-682-2013.

INSULATION SHIELD: The insulation shield shall be black, thermosetting, semi-conducting material extruded over the insulation and shall be compatible with both the insulation and the copper tape shield. The thickness shall comply with the requirements of the latest edition of AEIC CS8-2013 or ICEA S-97-682-2013. The insulation shield shall be free stripping from the insulation, leaving it free of any significant residue of semi-conducting material. The tension necessary to remove insulation shall be between 4 and 18 pounds per 0.5-inch width when tested in accordance with AEIC CS8 or ICEA S-97-682-2013. The outer layer of the insulation shield shall be printed at regular intervals with a warning statement using contrasting color ink. Warning shall state "Semi-conducting" and "Remove when splicing or terminating".

METALLIC SHIELD: The metallic shield shall consist of a bare copper tape helically wrapped over the insulation shield. The thickness of the tape shall be at least 0.005 inches applied with a minimum overlap of 12.5% and be sized in accordance with industry standards. The shield shall meet the requirements of ICEA S-97-682-2013 and UL 1072 standards. As an alternate, the thickness of the tape can be comprised of two (2), 3 mil tapes.

JACKETING: The jacket shall be a black, non-conducting sunlight resistant, polyvinyl chloride jacket shall be extruded directly over the copper tape and fill all void spaces. The jacket shall not bond and shall be readily removable from the underlying insulation shield. The minimum average thickness of the jacket shall be 80 mils. The entire cable shall be tough but pliable enough to easily bend and train into place for permanent mounting and termination as determined by DME.

IDENTIFICATION: The jacket shall be marked by means of surface or indent print in contrasting color with the following information on the jacket at two foot intervals.

1. Manufacturer name
2. Plant ID
3. Type of Insulation, thickness and insulation level
4. Type and size of cable
5. Voltage rating
6. Year of Manufacture
7. NESC "Lighting Bolt" symbol
8. Sequential footage markings

REEL INFORMATION: The reel shall be non-returnable and substantially constructed with diameter sufficient to ensure cable protection in accordance with NEMA WC 26. The reel shall not exceed 72 inches tall and 45 inches wide. The reel shall be lagged or covered with suitable material to provide physical protection for the cable during transit, ordinary storage, and handling operation. The reels shall be shipped and stored upright to reduce cable damage and facilitate unloading at ground level. Reels shall have three-inch center spindle holes. Total cable/reel weight for 750 Copper shall not exceed 7400 lb. for a 2000ft reel and shall not exceed 6750 lb. for a 2500ft reel of 500 Copper.

The following information for identification shall be provided on a weather resistant label attached securely to each reel.

1. Name of manufacturer and reel number
2. Description of cable
3. Footage
4. Gross, tare, and net weight of cable and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the cable shall be **un**rolled. (Directional arrow shall not signify the direction in which the cable was rolled). (DME standard is set up for the cable to be unrolled off the top of the reel.)
9. Notation signifying "Do Not Lay Reel Flat"

B. 15kV ETHYLENE PROPYLENE INSULATED, #2, 1/0 AND 4/0 AL SINGLE PHASE AND THREE PHASE UNDERGROUND DISTRIBUTION CABLE W/ CONCENTRIC:

SCOPE: The specification describes the single conductor underground residential concentric neutral distribution cable, insulated with an ethylene propylene rubber (**EPR**) compound. Design to operate at conductor temperatures of 90 degree Celsius normal, 130 degree Celsius for emergency, and 250 degree Celsius for short circuit conditions as define by ANSI / ICEA S-94-649-1997. The cable shall be suitable for both single phase

and three phase underground distribution installation for direct buried, in ducts, conduits, manholes, wet and dry locations.

CONDUCTOR: The conductor shall be, Compressed, Class B stranded, Aluminum in accordance with the requirements of ANSI / ICEA S-94-649-2013. Aluminum conductors shall be in accordance with ASTM B230 and B231. The 4/0 and 1/0 conductors shall consist of 19 strands of aluminum, strand filled and shall be completely chemically compatible with the conductor and conductor shield. The #2 single phase and the #2 triplex three phases shall consist of 7 strands of aluminum, strand filled and shall be completely chemically compatible with the conductor and conductor shield. DME will reject any manufacturer or reel that is found in which more than one size of standard nominal compression lug must be used for that particular size of conductor.

CONDUCTOR SHIELD: The conductor shield shall be black, thermosetting, semi-conducting material extruded over the conductor and shall be EPR compatible with both the conductor and the overlaying insulation. The conductor shield shall be easily removed from the conductor and securely bonded to the overlaying insulation. The conductor shield shall have a minimum average of 15 mils.

INSULATION: The insulation shall be a premium quality, heat, moisture, ozone and corona resistant flexible thermosetting dielectric of ethylene propylene rubber (**EPR**). The insulation shall be compatible with both the conductor shield and the insulation shield. The insulation shall have a minimum average thickness of 220 mils, 133% insulation level, at the applicable voltage class and in accordance with the latest edition of ICEA S-94-649-2013. The insulation shall be free from voids, contaminants, gels and agglomerates in accordance with the latest edition of AEIC CS8 and ICEA S-94-649-2013.

INSULATION SHIELD: The insulation shield shall be black, thermosetting, semi-conducting material extruded over the insulation and shall be compatible with both the underlying insulation and the copper concentric neutral. The shield shall have a minimum thickness of 30 mils and a maximum of 70 mils and comply with the requirements of the latest edition of AEIC CS8 or ICEA S-94-649-2013. The insulation shield shall be free stripping from the insulation, leaving it free of any significant residue of semi-conducting material. The tension necessary to remove insulation shall be between 6 and 18 pounds per 0.5-inch width when tested in accordance with AEIC CS8 or ICEA S-94-649-2013.

The outer layer of the insulation shield shall be printed at regular intervals with a warning statement using contrasting color ink. Warning statement shall state “Semi-conducting” and “Remove when splicing or terminating.”

METALLIC SHIELDING: The metallic shield structure shall consist of annealed, uncoated solid copper wires where the total conductivity is either one third or one times the conductivity of the phase conductor as DME specifies. The neutral wires shall have moisture blocking agents applied and be helically wound with equal spacing and with a lay length of between 6 and 10 times the diameter over the concentric neutral.

<u>The size and number of concentric wires shall be:</u>

#2 - 1/3 neutral for each cable reel (3- Phase **triplex** Run) of 6- #14 AL concentric wires

#2 - Full neutral consisting of 10- #14 AL concentric wires

1/0 – Full neutral consisting of 16- #14 AL concentric wires (<u>Not</u> normally used)

4/0 - 1/3 neutral consisting of 12- #14 AL concentric wires

JACKETING: A low-density polyethylene jacket material compatible with the insulation shielding shall be extruded directly over and filling the void spaces between the concentric neutral wires. The jacket shall not bond

and shall be readily removable from the underlying insulation shield and concentric neutrals. The minimum average thickness of the jacket shall be 50 mils. The entire cable shall be tough but pliable enough to easily bend and train into place for permanent mounting and termination.

LONGITUDINAL WATER BLOCK TEST: Longitudinal water penetration shall be tested in accordance with the latest edition of ICEA T-34-664 except that the minimum requirements are 15 psig for 1 hour during qualification testing and 15 psig for 15 minutes during production testing. The commonly used pass/fail criterion for this test is that the cable samples will not show evidence of leakage after 1 hour at 15-psig pressure.

Leakage would be evident by the presence of color dye or wetness of the paper towel, or both.

IDENTIFICATION: The jacket shall be marked by means of surface or indent print in contrasting color with the following information on the jacket at two foot intervals.

1. Manufacturer name
2. Plant of Manufacture ID
3. Type of Insulation, thickness and insulation level
4. Type and size of cable
5. Voltage rating
6. Year of Manufacture
7. NESC "Lighting Bolt" symbol
8. Sequential footage markings (2-foot intervals minimum)

3-Red strips not less than one-eighth inch wide shall be extruded longitudinally in the jacket at 120-degree intervals (Total of 3- longitudinal red stripes).

#2 Three-phase primary cable shall have phase markings – A, B, C longitudinally along the length of the cables.

REEL INFORMATION: The reel shall be non-returnable and substantially constructed with diameter sufficient to ensure cable protection in accordance with NEMA WC 26. The reel shall not exceed 72 inches tall and 45 inches wide. The reel shall be lagged or covered with suitable material to provide physical protection for the cable during transit, ordinary storage and handling operation. The reels shall be shipped and stored upright to reduce cable damage and facilitate unloading at ground level. The following information for identification shall be provided on a weather resistant label attached to each reel.

1. Name of manufacturer and reel number
2. Description of cable
3. Footage
4. Gross, tare, and net weight and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the cable shall be **un**rolled. (Directional arrow shall not signify the direction in which the cable was rolled.) (DME standard is set up for the cable to be unrolled off the top of the reel.)

9. Notation signifying “Do Not Lay Reel Flat”

Physical and Electrical Requirements of Thermosetting Ethylene Propylene Rubber based Insulation:

PHYSICAL REQUIREMENTS	**GUARANTEED VALUE**
Unaged	
Tensile strength, psi, min.	1200
Elongation at rupture, %, min.	250
Tensile Stress at 200% elongation, psi, min. at room temperature	1000
Modulus, psi, min. @ 130°C	300
After Air Oven Aging at 121°C for 7 days (168 hours)	
Elongation at rupture, % of unaged value, min	85
Hot Creep Test at 150°C	
Elongation, %, max	50
Set, %, max.	5
Heat distortion after 1 hour in air oven at 121°C	
Percent max	10
Ozone Resistance	
Per ASTM D2802	No Cracks
Tensile stress, % of unaged value, min	90
0.0005% Concentration, 52°C, 24 hours	No Cracks
Cold Bend	
-55°C	No Cracks
Heat Deformation Test per ASTM D2220	
% Max. distortion on buffed samples of insulation conditioned for 5 minutes and under load for 15 minutes	No Cracks

ELECTRICAL REQUIREMENTS	**GUARANTEED VALUE**
Mechanical Water Absorption After 7 days (168 hours) in water at 82°C	
mg/sq. in., max.	5.0
Electrical Characteristics at Room Temperature (15.6°C)	
SIC at 80 V/mil, max.	3.0
% Dissipation Factor at 80 V/mil, max.	0.5
Insulation Resistance (K), min.	50,000
Electrical Stability in 90°C Water at 80 V/mil	
Dielectric Constant after 24 hours, max.	3.0
Dielectric Constant after 26 weeks, max.	3.1
Dissipation Factor after 24 hours, max.%	0.75
Dissipation Factor after 26 weeks, max. %	0.75
Stability Factor after 26 weeks, max.	0.2
Moisture Resistance:	

% change in SIC, 75°C water max.:	
1 – 14 days	3.0
7 – 14 days	1.5

C. 600 VOLT SECONDARY, QUADRUPLEX, TRIPLEX, AND DUPLEX XLP - INSULATED SERVICE CABLES:

SCOPE: Duplex cables will be used for street lighting and outdoor lighting. Quadruplex and triplex will be used to supply power, usually from a pad-mounted transformer to the customer's service weather head where connection to the service entrance cable is connected. Insulated XLP service cables to be **used at voltages of 600 volts or less**, phase-to-phase and at temperatures rated a minimum of 90° C.

TECHNICAL SPECIFICATIONS FOR ELECTRIC DISTRIBUTION CABLES:

B – 230 Aluminum Wire, 1350 – H 19 for Electrical Purposes

B – 231 Aluminum Conductors, Concentric -Lay - Stranded

B – 399 Concentric-Lay-stranded, 6201-T81 Aluminum Alloy Conductors.

B – 786 19-Wire Combination Unilay-Stranded Aluminum 1350, Conductors for Subsequent Insulation.

All Quadruplex, Triplex and Duplex shall meet or exceed all applicable requirements of ANSI/ICEA S-76-474.

All 600 volt secondary UD cable shall meet or exceeds all applicable requirements of ICEA S-66-524 for cross-linked polyethylene insulated conductors and UL standard 854 for Type USE –2.

CONSTRUCTION: Conductor shall be stranded, compressed 1350-H19 aluminum. Insulated with Polyethylene (XLP) insulation. The phase conductors shall be black and the neutral shall have a triple yellow extruded stripe.

REEL INFORMATION: The reels shall be non-returnable and substantially constructed with diameter sufficient to ensure conductor protection in accordance with NEMA WC 26. The reel shall not exceed 72 inches tall and 45 inches wide. The reel shall be lagged or covered with suitable material to provide physical protection for the conductor during transit, ordinary storage, and handling operation. The reels shall be shipped and stored upright to reduce conductor damage and facilitate unloading at ground level. Reels shall have three-inch center spindle holes.
The following information for identification shall be provided on a weather resistant label attached securely to each reel.

1. Name of manufacturer and reel number
2. Description of conductor
3. Footage
4. Gross, tare, and net weight of conductor and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the conductor shall be **un**rolled. (Directional arrow shall not signify the direction in which the conductor was rolled). (DME standard is set up for the conductor to be unrolled off the top of the reel.)
9. Notation signifying "Do Not Lay Reel Flat"

INSULATION XLP: The insulation shall be black, cross-linked polyethylene (XLP).

IDENTIFICATION: The insulation shall be marked by means of surface or indent print in contrasting color with the following information on the insulation at two foot intervals.

1. Manufacturer name
2. Plant ID
3. Type of Insulation, thickness and insulation level
4. Type and size of conductor
5. Voltage rating
6. Year of Manufacture
7. Phase I.D. on 4/0, 2/0 and #2 Quadruplex secondary conductor shall have phase markings A, B, C longitudinally along the length of the cables.

D. XLP INSULATED 600 - VOLT SECONDARY, 500, 250, 4/0, 2/0, AND #2 AWG COMPRESSED COPPER CONDUCTORS:

SCOPE: These cables may be installed in wet or dry locations, indoor, in raceways, underground ducts. Insulated XLP cables to be used at voltages of 600 volts or less phase-to-phase and at temperatures rated a minimum of 90° C in wet or dry locations in accordance with ICEA specifications.

TECHNICAL SPECIFICATIONS FOR ELECTRIC DISTRIBUTION CABLES:
ASTM B – 8 Concentric – Lay Stranded Copper Conductors
ANSI / ICEA S – 70 – 547 – Covered line wire – copper
ASTM B – 3 Soft or Annealed Copper Wire
Insulation shall meet or exceed all requirements of ICEA S – 66 – 524, NEMA WC – 7 A and UL Standards.

CONSTRUCTION: The conductor shall be, soft – drawn concentrically stranded copper. Insulated with Polyethylene (XLP) insulation.

REEL INFORMATION: The reels shall be non-returnable and substantially constructed with diameter sufficient to ensure conductor protection in accordance with NEMA WC 26. The reel shall not exceed 72 inches tall and 45 inches wide. The reel shall be lagged or covered with suitable material to provide physical protection for the conductor during transit, ordinary storage, and handling operation. The reels shall be shipped and stored upright to reduce conductor damage and facilitate unloading at ground level. Reels shall have three-inch center spindle holes.
The following information for identification shall be provided on a weather resistant label attached securely to each reel.

1. Name of manufacturer and reel number
2. Description of conductor
3. Footage
4. Gross, tare, and net weight of conductor and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the conductor shall be **un**rolled. (Directional arrow shall not signify the direction in which the conductor was rolled). (DME standard is set up for the conductor to be unrolled off the top of the reel.)
9. Notation signifying "Do Not Lay Reel Flat"

INSULATION XLP: The insulation shall be black, cross-linked polyethylene (XLP).

IDENTIFICATION: The insulation shall be marked by means of surface or indent print in contrasting color with the following information on the insulation at two foot intervals.

1. Manufacturer name
2. Plant ID
3. Type of Insulation, thickness and insulation level
4. Type and size of conductor
5. Voltage rating
6. Year of Manufacture

E. <u>BARE 600 VOLT SECONDARY, 4/0, AWG COMPRESSED - SINGLE SDBC COPPER CONDUCTORS:</u>

SCOPE: The soft – drawn conductor of greater flexibility for uninsulated hook up, jumpers and grounds in electrical construction.

TECHNICAL SPECIFICATIONS FOR ELECTRIC DISTRIBUTION CABLES:
ASTM B – 8 Concentric – Lay Stranded Copper Conductors
ASTM B – 3 Soft or Annealed Copper Wire

CONSTRUCTION: The conductor shall be, soft – drawn concentrically stranded copper

REEL INFORMATION: The reels shall be non-returnable and substantially constructed with diameter sufficient to ensure conductor protection in accordance with NEMA WC 26. The reel shall not exceed 72 inches tall and 45 inches wide. The reel shall be lagged or covered with suitable material to provide physical protection for the conductor during transit, ordinary storage, and handling operation. The reels shall be shipped and stored upright to reduce conductor damage and facilitate unloading at ground level. Reels shall have three-inch center spindle holes.

The following information for identification shall be provided on a weather resistant label attached securely to each reel.

1. Name of manufacturer and reel number
2. Description of conductor
3. Footage
4. Gross, tare, and net weight of conductor and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the conductor shall be **<u>un</u>**<u>rolled.</u> (Directional arrow shall <u>not</u> signify the direction in which the conductor was rolled). (DME standard is set up for the conductor to be unrolled off the top of the reel.)
9. Notation signifying “Do Not Lay Reel Flat”

F.<u>SUBSTATION CONTROL CABLES:</u>

SCOPE: Electrical substation VNTC PVC/Nylon/PVC, unshielded control cable for instrumentation and 600V power within substations.

TECHNICAL SPECIFICATIONS FOR SUBSTATION CONTROL CABLES:
ASTM B3 and B8

CONSTRUCTION: The conductor shall be 10AWG and 12AWG as specified in various conductor counts that are fully annealed stranded bare copper with a flame retardant Polyvinyl Chloride (PVC) with clear Polyamide (nylon) that shall be lead-free, and sunlight resistant. Unshielded Tray type cable that is UL listed, and rated for 600V for a 90C dry/ wet rating with a THHN/THWN-2 type of insulation.

REEL INFORMATION: The reels shall be non-returnable and substantially constructed with diameter sufficient to ensure conductor protection in accordance with NEMA WC 26. The reel shall not exceed 48 inches tall and 36 inches wide, nominal 3,000 foot length reels are preferred by DME. The reel shall be lagged or covered

with suitable material to provide physical protection for the conductor during transit, ordinary storage, and handling operation.

The following information for identification shall be provided on a weather resistant label attached securely to each reel.

1. Name of manufacturer and reel number
2. Description of conductor
3. Footage – nominal 3,000foot length reels are preferred by DME
4. Gross, tare, and net weight of conductor and reel weight
5. Production order number
6. City of Denton purchase order number
7. Date of manufacture
8. A directional arrow on both sides of the reel that shows which way the conductor shall be **un**rolled. (Directional arrow shall not signify the direction in which the conductor was rolled). (DME standard is set up for the conductor to be unrolled off the top of the reel.)
9. Notation signifying "Do Not Lay Reel Flat"

The City of Denton will not award to or consider any cable manufacturer that are not pre-approved. Any new manufacturer that wishes to be considered for future awards must satisfactorily go through the Denton Municipal Electric Commodity/Supplier Approval Request Form and process. If your company would like to be considered for future solicitations, please submit the DME Commodity/Supplier Approval Request form to the City of Denton Purchasing Department. Forms can be requested via email at purchasing@cityofdenton.com.

ACCEPTABLE HV and LV DISTRIBUTION, and SUBSTATION CONTROL CABLE MANUFACTURER

1. Okonite

For this Proposal, DME will only accept proposals for the specific manufacturer listed in the above approved manufacturers list.

The City has implemented a pre-approval process for substitution commodities and services. The commodity approval form can be obtained via email (dustin.rolfe@cityofdenton.com). Supporting documentation or samples must be submitted for review by Purchasing, Engineering, field crews, QAG (Quality Assurance Group), and the manager of DME. Testing may be required and may take substantial time to review. Vendors are encouraged to submit forms and samples for consideration on the **next** solicitation for similar items.

GENERAL RESPONSIBILITIES AND REQUIREMENTS

1. Safety and Environmental Hazards

The City does not warrant or guarantee against the possibility that safety or environmental hazards or potential hazards (including premises and special defects) may exist at the City's facilities. The Contractor shall be responsible for identifying any hazardous conditions and notifying the City of these conditions in writing no later than 30 days after contract award and prior to initiation of service delivery on the property. This will be accomplished by the Contractor conducting an environmental assessment and an occupational health, and safety inspection of the service bay or field service areas by competent, qualified and appropriately licensed practitioners. The costs of these inspections and any subsequent corrective action will be negotiated between the City and the Contractor.

All contractors to the City of Denton are required to ensure absolute safety standards are applied and enforced. The City of Denton will not be responsible for individual contractor safety, and the awarded contractor shall not hold the City of Denton responsible. Known hazards shall immediately be reported and all safety

precautions shall be taken to prevent potential safety issues from occurring.

2. Contractor Standards of Performance

Monthly Time Standards - Contractors shall fully understand that the City relies on the product or service of the RFP to provide vital municipal services, and the availability and reliability of the equipment is of the essence. With this in mind, the Contractor shall meet the following performance standards at all times. Labor disputes, strikes, and other events, except those beyond the Contractor's control such as acts of God, shall not relieve the Contractor from meeting these standards. For service category, the Contractor must ensure the given level of service is achieved, within the designated number of working hours.

Contractor shall deliver goods or services within specified delivery times for 95% of all orders.

3. Performance Liquidated Damages

The Contractor shall incur contractual payment losses, as initiated by the City for performance that falls short of specified performance standards as outlined below:

- Meet delivery dates as agreed upon in the contract for cut to length items

The Contractor shall be assessed a one (1%) percent fee each week when any one of the performance standards outlined above are not met in full. The Contractor shall be assessed a two (2%) percent profit fee each week when any two (2) or more performance standards outlined above are not met in full. At the end of each month, the City will review the monthly reports and determine the percentage of penalty to be assessed to the Contractor’s monthly profit margin.

Supplier shall incur a $1,500/day fee for each day cut to length cable is delayed past the contractual time requirements.