



CITY OF CONCORD  
CONCORD, NORTH CAROLINA

FOR

**WIRE, TRANSFORMERS AND POLES**

FOR

**ELECTRIC SYSTEMS DEPARTMENT**

ANNOUNCED DATE: MONDAY, MAY 9, 2011

DUE DATE: TUESDAY, JUNE 7, 2011

TIME: 2:00 PM  
IN CONFERENCE ROOM C  
ALFRED M. BROWN OPERATIONS CENTER  
850 WARREN C. COLEMAN BOULEVARD  
P.O. BOX 308  
CONCORD, NC 28026-0308

## REQUEST FOR BID

The City of Concord will receive sealed bids, on Tuesday, June 7, 2011 at 2:00 P.M., in Conference Room C, Alfred M. Brown Operations Center, 850 Warren C. Coleman Boulevard, Concord, North Carolina 28026. Said proposals will be publicly opened and read for:

### **WIRE, TRANSFORMERS AND POLES**

Copies of the specifications if not included in the bid can be obtained by contacting the Purchasing Department, Alfred M. Brown Operations Center, 850 Warren C. Coleman Blvd., P.O. Box 308, Concord, N.C. 28026-0308. Telephone #704-920-5441, Fax # 704-785-8856.

NC General Statutes, including G.S. §143-129, and the city of Concord, NC General Specifications and Instructions to bidders will govern the RFB and award of the contract.

The City of Concord reserves the right to reject any or all bids.

Sid Talbert  
Purchasing Manager  
City of Concord, N.C.

In accordance with state law (G.S. 143.129), the award shall be made to the lowest responsible, responsive bidder, taking into consideration quality, performance, the time specified in the bid. Prices should be quoted for each line as well as a price for the total award.

Each bid must be submitted in a sealed envelope, so marked as to indicate its contents when being opened. **All bids should be marked BID# 2197 - WIRE, TRANSFORMERS AND POLES**

An authorized official of the firm must sign the bid.

The vendor will be required to submit a written request for payment. Payment will depend on projected delivery date stated in the bid for items and certified acceptable by Mr. Bob Pate – Director of Electric Systems, for City of Concord, P.O. Box 308, Concord, NC 28026-0308. Telephone (704)920-5301.

Questions concerning bid requirements or specifications should be directed to the Purchasing Manager, Alfred M. Brown Operations Center, 850 Warren C. Coleman Boulevard, P.O. Box 308, Concord, NC 28026-0308. Any changes in specifications will be in writing in form of an addendum and furnished to all bidders. Verbal information obtained otherwise will not be considered in the awarding of bids. No changes to specifications will be permitted within (5) days prior to the bid opening.

Instructions for preparation and submission of a bid/proposal are contained in the attached packet. Please note that specific forms for submission may be required. Any changes to the conditions and specifications must be in the form of a written addendum to be valid; therefore, the Purchasing Department will issue a written addendum to document on all approved changes. Any bid submitted which does not acknowledge the receipt of an issued addendum will not be considered. Bidders should have no contact with elected officials or appointed officials except the Purchasing Manager during the bidding process. Any such contact will subject bidders to immediate disqualification. Questions regarding specifications should be directed to the Purchasing Manager. A bid proposal from your firm will be appreciated.

## Bid Proposal

City of Concord  
850 Warren C. Coleman Blvd.  
P.O. Box 308  
Concord, NC 28026-0308

Gentlemen/Ladies:

The undersigned, as bidder, hereby declares the proposal is made without connection with any other person, company, or parties making a similar bid or proposal, and that it is in all respects fair and in good faith without collusion or fraud. The Bidder has carefully examined the annexed form of the specifications and instructions to the bidder and hereby declares that he will furnish the material called for in a manner prescribed in the specifications and instructions to bidders for the following prices listed.

PRICE \_\_\_\_\_

DELIVERY DATE \_\_\_\_\_

COMPANY NAME \_\_\_\_\_

AUTHORIZED SIGNATURE \_\_\_\_\_

TYPE NAME AND TITLE \_\_\_\_\_

FEDERAL ID # \_\_\_\_\_

NC CONTRACTORS LICENSE # \_\_\_\_\_

TELEPHONE # \_\_\_\_\_

**Note:**

**This signature page must be signed for your bid to be valid.**

## **GENERAL SPECIFICATIONS & INSTRUCTIONS TO BIDDERS**

### **Scope**

It is the intent of this bid invitation to obtain proposals for supplying the materials, supplies and/or equipment listed on the Proposal Sheet. You are requested to submit your bid on the enclosed Proposal Sheet and return the entire sealed package to Sid Talbert, Purchasing Manager, City of Concord (hereinafter "City"), PO Box 308, Concord, NC 28026-0308 no later than the time specified in the bid advertisement. Bidders will be required to comply with all applicable statutes, regulations, and local ordinances, ect. And those attached to and made a part of the proposal.

### **Marking of Bid Envelopes**

Bids must be contained in a sealed envelope, plainly marked, showing the bid name, bid number, date, time for opening bids and the bidder's name.

### **Late Bids Not Considered**

Bids received after the stipulated bid opening date and time will not be considered.

### **Compliance With Specifications**

Your bid must be in strict compliance with the specifications and offer the same or equal equipment. Exceptions are to be listed separately in a letter that will become a part of your proposal; otherwise, it is fully understood that the equipment offered is exactly as specified. The City reserves the right to allow or disallow minor deviations from the specifications in order to purchase what is best for the City from a standpoint of quality, price and service to be rendered.

### **Standard Equipment**

To protect the interest of the City, the bidder guarantees that the equipment bid is standard equipment with parts regularly used for equipment offered. There must be no parts or attachments substituted or applied contrary to the manufacturer's recommendations and standards unless expressly called for in the specifications.

### **Warranty**

In submitting a bid, the bidder warrants that all goods furnished shall be free from all defects and shall conform in all respects to the Technical Specifications established herein. Unless otherwise specified, all items shall be guaranteed for a minimum of one (1) year against defects in material and workmanship. At any time during that period, if a defect should occur in any item, that item shall be repaired or replaced by the seller at no cost to the buyer except where it can be shown that the defect was caused by misuse. The bidder expressly warrants that all items bid are fit and sufficient for their intended purpose. If the specifications contain a statement of the particular

*City of Concord North Carolina General Specifications and Instructions to Bidders.*

purpose for which the goods will be used, the goods offered by bidder shall be fit for this purpose.

**Shipping**

All prices are to be quoted f.o.b. Concord N.C. delivered unless otherwise specified. Risk of loss and/or damage shall be upon the seller until such time as the goods have been physically delivered and accepted by the buyer.

**Unit Prices to Prevail**

Prices shall be submitted on per unit basis by line item. In the event of a disparity between the unit price and the extended price, the unit price shall prevail.

**Bid Price Corrections**

All prices and notations shall be written in ink or typed. Changes or corrections made on the bid form must be initialed by the individual signing the bid. No corrections will be permitted once bids have been opened.

**Withdrawal of Bids**

Bids may be withdrawn at any time prior to the time specified for the bid opening upon written or personal request of the bidder. No bid may be withdrawn for a period of sixty (60) days after the scheduled bid opening time and date. Negligence on the part of the bidder shall not constitute a right to withdraw the bid subsequent to such bid opening.

**Use of Brand Names and References**

Unless otherwise stated, the use of manufacturer's names and product numbers are for descriptive purposes and establishing general quality levels only. They are not intended to be restrictive. Bidders are required to state exactly what they intend to furnish; otherwise it is fully understood that they shall furnish all items as stated.

**Alternate Bids**

Bid submitted as alternate which do not meet or exceed the minimum specifications shall be rejected except that minor deviations may be acceptable. The City shall be the sole judge of what is considered a minor deviation.

**Time For Delivery**

The time for delivery must be stated in calendar days on the Proposal Sheet and may be a factor in making awards, price notwithstanding.

*City of Concord North Carolina General Specifications and Instructions to Bidders.*

**Rejection of Bids**

The City reserves the right to reject any and all bids.

**Bonds**

A 5% bid bond is waived for the purchases of apparatus, supplies, materials or equipment as stated in the cover section. A 100% performance bond is also waived.

**Award**

Award shall be made to the lowest responsible bidder, taking into consideration quality, performance and time specified in the proposal for the performance of the contract. Time of delivery and prompt payment discounts will be considered in breaking tie bids.

**Brochures and Literature**

The proposal must be accompanied by descriptive literature marked, indicating the exact item(s) bid upon. The term "as specified" will not be acceptable.

**Addendums**

The City shall not be responsible for any oral instructions made by its employees or officers of the City with regard to bidding instructions, drawings, specifications or contract documents. Any changes to the specifications will be in the form of an Addendum, which will be mailed to all bidders who are listed with the Purchasing Department as having received the invitation or any other bidder who requests an Addendum.

**Responsibility of Compliance With Legal Requirements**

The bidder's products, service and facilities shall be in full compliance with any and all applicable state, federal, local, environmental and safety laws, regulations, ordinances and standards, or any standard adopted by nationally recognized testing facilities regardless of whether or not they are referred to in the invitation.

**Taxes**

The City of Concord is subject to 7.75% N.C. Sales & Use tax. Tax will not be shown on the proposal; however, invoices will indicate all applicable sales tax. The city is exempt from Federal Excise Tax and will provide a Federal Exemption number.

**Terms and Conditions**

Payment will be made by the City in full for all equipment delivered as soon after complete delivery and receipt of a correct invoice as can be processed in accordance with these specifications.

***City of Concord North Carolina General Specifications and Instructions to Bidders.***

Any company submitting a "No Bid" response to a bid invitation should clearly mark the outside of the envelope.

Terms and Conditions attached to the bid by the bidder and made a condition of purchase may render the bid non-responsive and may be rejected by the City.

Terms and Conditions included herein are an integral part of the bid document and shall prevail, unless changes or attachments are agreed to and initialed by the City prior to the bid opening.

**Introduction in Use of Goods: Demonstration**

A demonstration may be required of the goods bid upon. The demonstration shall be at no cost to the City. If the bidder cannot make a demonstration within twenty days of the request, his or her bid may be rejected. Performance of the equipment at the demonstration must be made with the exact equipment offered in the bid and may be completed at the same time as competitive demonstrations.

**Trade-ins**

Goods listed for trade-in, if any, may be examined after contacting the Purchasing Department. Goods listed for trade-in are represented "as is" and "where is". Such goods will be released to the successful bidder after receipt of the new equipment and in the same condition as when examined, excepting normal wear and tear.

The City reserves the right to retain goods listed as trade-in if it is deemed to be in the best interest to do so.

**Training/Safety**

When requested or required, a factory-trained representative shall be present at the time of delivery to train City personnel in the use of and/or safety aspect of the equipment or chemical. The factory representative shall effectively train the City personnel in all aspects, including assembly, disassembly, operating procedures, safety and any other training necessary for its safe and effective use. Items received without sufficient training when requested will be set aside and payment withheld until sufficient training can be completed.

Training shall include OSHA related training in the handling of hazardous materials.

MSDS sheets must be sent with each order. Failure to provide MSDS sheets prior to or at the time of delivery will result in withholding payment until such sheets are received.

*City of Concord North Carolina General Specifications and Instructions to Bidders.*

**Service**

All vehicles furnished under a bid shall receive without additional cost whatsoever the usual check-up, guarantees and adjustment identical to that which is normally furnished on vehicles sold to the general public.

**Manuals**

One parts, one service, and one operators manual shall be furnished with each type vehicle delivered if applicable to this bid.

**Bankruptcy**

Successful bidders shall execute a contract that contains the following language:

If any bankruptcy or insolvency proceedings are commenced against the contractor  
And are not dismissed within thirty (30) days after service of such proceeding on the  
Contractor, or if the contractor shall file petition in bankruptcy or for reorganization or  
To effect a plan or other arrangement with creditors, or be adjudicated bankrupt or make an assignment for  
the benefit of creditors, or be dissolved or liquidated, or shall  
Admit in writing its inability to pay its debts generally as they become due, or a receiver, trustee or  
liquidator of the contractor or of all or substantially all of the property of the contractor is appointed in any  
proceeding brought by the contractor, or if any such receiver, trustee, or liquidator is appointed in any  
proceeding against the contractor, and any such receiver, trustee or liquidator is not discharged within (30)  
days after service of such appointment on the contractor, this agreement shall be null and void.

**W-9 Form**

Prior to the first payment by the City under any contract awarded to the successful bidder, the  
successful bidder shall submit a complete and accurate W-9 form to the Purchasing Manager.

**Dissolution of Corporate Status**

Successful bidders shall execute a contract that contains the following language:

Failure to register the agent of the corporation or other business entity, if any, with the N.C.  
Secretary of State or voluntary, judicial or administrative dissolution of the corporation or other  
business entity shall automatically terminate this contract or agreement unless the bidder or  
contractor notifies the City of Concord in writing within 72 hours of the dissolution or failure to  
register the agent and makes satisfactory arrangements and/or guarantees with the City  
Purchasing Officer and City Attorney to fulfill the contractors obligations under the contract or  
agreement.

*City of Concord North Carolina General Specifications and Instructions to Bidders.*

**Concord NC Licenses and Taxes**

ALL BIDDERS SHOULD BE IN COMPLIANCE WITH THE CITY OF CONCORD PRIVILEGE LICENSE TAX ORDINANCE AND AWARD OF BID WILL BE CONTINGENT UPON RECEIPT OF COPY OF LICENSE.

It is the intent of the City of Concord to issue purchase orders for the Bid items to cover the Fiscal Year July 1, 2012 to June 30, 2012. Quantities are estimates only and the City reserves the right to purchase more or less for the entire fiscal year and extend pricing if mutually agreed upon with the vendor and the City of Concord.

Bid is to be valid for 60 days from date of bid opening.

## **SPECIFYING STANDARD**

### **SINGLE CONDUCTOR ETHYLENE-PROPYLENE RUBBER (EPR) SHIELDED POWER CABLE RATED 5000 VOLTS THROUGH 35000 VOLTS TYPE MV-105 REVISED 4/22/2009**

**SCOPE:** This specification covers single conductor shielded power cable insulated with an ozone and discharge resistant, flexible, rubber-like thermosetting dielectric.

\* The cable shall be suitable for use in wet and dry locations in conduit, underground duct systems, direct buried and aerial installations. The cable shall be rated 105C for normal operations, 140C for emergency overload operation and 250C for short circuit condition. Emergency overload operation may occur for periods up to 1500 hours cumulative during the life of the cable.

**OPERATING EXPERIENCE:** The medium voltage power cable shall have a performance record demonstrating a minimum of thirty (30) years successful operating experience in utility and industrial power cable applications. The performance record shall be supplied with the vendors proposal.

**BASIC CONSTRUCTION:** 1/C Class B compact round copper conductor, triple tandem extruded semi-conducting ethylene-propylene rubber strand shield, (EPR) insulation, extruded semi-conducting ethylene-propylene rubber insulation shield, copper shield tape and a jacket overall.

**INDUSTRY STANDARDS:** Cable shall meet or exceed the latest editions of the following industry specifications:

|                                 |                       |
|---------------------------------|-----------------------|
| ICEA S-97-682-2000 (up to 35kV) | AEIC CS-8-00          |
| ASTM B-496                      | UL-1072 (Type MV-105) |

#### **1.0 CONDUCTOR**

- 1.1 Un-coated soft copper wire, Class B, stranded compact concentric round. Copper per ASTM B-496.
- 1.2 A design option is available on special order to furnish a coated copper conductor in accordance with the appropriate ASTM specification.
- 1.3 Conductors shall meet the electrical resistance requirements of ICEA S-97-682-2000 Section 2.5.

- 1.4 As an alternate construction, a copper compact round conductor may be filled with a material to prevent possible water migration along the conductor during installation or operating service life. The surface of the conductor shall be free of any strand filling material.

**2.0 CONDUCTOR SHIELD**

- 2.1 Extruded layer of semi-conducting EPR thermosetting compound with a volume resistivity not in excess of 10 ohm meters at 90C shall be applied over the conductor. The compound shall have a minimum elongation after an air oven test at 121C for 168 hours of 100% and a brittleness temperature not warmer than -50C.
- 2.2 The shield shall be clean stripping from the conductor and inseparably bonded to the overlying insulation.
- 2.3 On conductor sizes greater than 1000 MCM there shall be the option of applying one layer of semi-conductive tape with an overlap under the extruded semi-conducting EPR thermosetting compound.
- \* 2.4 The thickness of the extruded conductor shield shall be as shown in Table I. The thickness of the shield is measured and controlled by means of a laser detector.

TABLE I

| Conductor Size<br>AWG/kcmil | Conductor Shield Thickness |                        |
|-----------------------------|----------------------------|------------------------|
|                             | Min. Point<br>(mils)       | Min. Average<br>(mils) |
| 8 - 4/0                     | 12                         | 15                     |
| 250 - 500                   | 16                         | 20                     |
| 600 - 1000                  | 20                         | 25                     |

- 2.5 The thicknesses in Table I may be reduced by 50% for compact round conductors in accordance with ICEA S-97-682-2000, Section 3.2.1.

### 3.0 INSULATION

- 3.1 The insulation shall be ethylene propylene rubber, ICEA CLASS III, a red colored flexible thermosetting dielectric based on an ethylene propylene elastomer. The ethylene shall not exceed 72% by weight of ethylene nor shall the insulation compound contain any polyethylene, both features to limit the degree of susceptibility to treeing experienced by highly crystalline materials. The insulation shall be compounded by the cable manufacturer in its own facility using a closed system to insure maximum cleanliness. All ingredients will be mixed, screened through a mesh screen pack and then treated with the accelerator to cross linking agent to insure complete blending and uniformity of the final compound.
- 3.2 The minimum average insulation thickness shall be not less than Table II. The minimum thickness at any cross-section of the insulation shall be not less than 90% of the specified minimum average thickness.
- 3.3 The EPR insulation shall be triple-tandem extruded with the conductor and insulation shield to prevent intersurface contamination. The extrusion operation shall be performed by three separate in line extruder heads thereby permitting the measurement and accurate individual control of the wall thickness of each layer of compound as the cable is being manufactured.

TABLE II  
For 133% Insulation Level

| <u>Rated Voltage Phase To Phase, (Kv)</u> | <u>Conductor Size (AWG/kcmil)</u> | <u>Minimum Average Insulation Thickness (Mils)</u> | <u>5 Minute AC Withstand (Kv)</u> |
|---|-----------------------------------|--|-----------------------------------|
| 5   | 8 to 1000                         | 115  | 23                                |
|   | Above 1000                        | 140  | 23                                |
| 8   | 6 to 1000                         | 140  | 28                                |
|   | Above 1000                        | 175  | 28                                |
| 15  | 2 to 1000                         | 220  | 44                                |
| 25  | 1 to 2000                         | 320  | 64                                |
| 28  | 1 to 2000                         | 345  | 69                                |
| 35  | 1/0 to 2000                       | 420  | 84                                |

#### **4.0 INSULATION SHIELD**

- 4.1 The insulation shield shall be an extruded semi-conducting EPR compound with a volume resistivity not in excess of 10 ohm-meters at 90C when tested per ICEA S-97-682-2000.
- 4.2 The extruded shield shall be clean stripping and shall have a peel strength from the insulation between 4 to 18 lbs./0.5 inch width when tested per ICEA S-97-682-2000. This compound shall have a minimum elongation after an air oven test at 121C for 168 hours of 100% and a brittleness temperature not warmer than -50C.
- \* 4.3 The thickness of the extruded shield shall be in accordance with the following:

| Calculated<br>Minimum<br>Dia. Over Insulation<br>Inches | Insulation Shield Thickness<br>(mils) |            |
|---|---------------------------------------|------------|
|   | Min. Point                            | Max. Point |
| 0 - 1.000   | 24                                    | 60         |
| 1.001 - 1.500   | 32                                    | 60         |
| 1.500 - 2.000   | 40                                    | 75         |
| 2.001 & Over  | 40                                    | 90         |

- 4.4 The outer surface of the insulation shield shall be continuously printed with contracting colored ink - "Semi-conducting - Remove When Splicing or Terminating."

#### **5.0 METALLIC SHIELD**

- 5.1 The extruded shield shall be covered with an uncoated copper tape. It shall be applied helically with a 12-1/2% minimum overlap.

#### **6.0 JACKET**

- 6.1 The overall jacket shall be black polyvinyl chloride (PVC).
- 6.2 A design option is available on special order to furnish a black chlorosulfonated polyethylene jacket.
- 6.3 The jacket thickness shall be as shown in Table III.

TABLE III

| <u>Cable Core Diameter (inches)</u> | <u>Jacket Thickness Minimum Point (mils)</u> |
|-------------------------------------|--|
| 0 - 0.425                           | 40   |
| 0.426 - 0.700                       | 55   |
| 0.701 - 1.500                       | 70   |
| 1.501 - 2.500                       | 100  |
| 2.501 & Larger                      | 125  |

**7.0 IDENTIFICATION**

- 7.1 A permanent market tape indicating "The Manufacturer, plant number, year of manufacture, and sequential footage number" repeated each foot shall be inserted under the copper shielding tape.
- 7.2 The following identifying legend shall be printed on the jacket with contrasting ink repeated at two (2) foot intervals with unmarked surfaces not exceeding six inches.

|                   |          |       |             |
|-------------------|----------|-------|-------------|
| Manufacturer Name | Plt (A)  | (B)   | (C)         |
|                   | Shld.    | (D)Kv | (E)% Insul. |
| Level             | (F) Mils | (UL)  | MV-105      |

- (A) Plant Number
- (B) Conductor Size - either AWG or kcmil
- (C) Cu or Al
- (D) Voltage
- (E) 133%
- (F) Insulation Thickness

- 7.3 The sequential footage number repeated at two foot intervals shall be printed on the jacket.

**8.0 PRODUCTION TESTS**

- 8.1 Conductors shall meet the electrical resistance requirements of ICEA-97-682-2000 Section 2.4.
- 8.2 Insulation resistance test shall be performed in accordance with the requirements of ICEA S-97-682-2000, Part 10.5.1. Each cable shall have an insulation resistance not less than that corresponding to the insulation resistance constant of at least 50,000 megohms-1000 ft. at 15.6C.

- 8.3 A high voltage ac test is performed in accordance with Part 4.3.2.2.2 of ICEA S-97-682-2000 at the ac test voltages given in Table II. Production certification for each order shall be the compliance with ICEA S-97-682-2000 and UL 1072 and shall be provided with each order at the time of shipment.
- 8.4 Shield resistance is measured and recorded from end to end on the completed cable.
- 8.5 Corona Test: Each reel of completed shielded power cable shall comply with maximum partial discharge of 5 picocoulombs at 200 volts/mils. The partial discharge test shall be performed in accordance with the procedures of Section F of AEIC CS6 and an X-Y graph will be recorded showing the corona test results.
- 8.6 Water block test: A water penetration production test for filled strand cable construction is performed on each mast length of insulated conductor. The test procedure shall be in accordance with ICEA T-31-610

## **9.0 QUALITY ASSURANCE**

The Medium Voltage Cable shall be manufactured and tested under the control of a Quality Assurance program which meets the requirements of Section 10CFR50, Appendix B, of the Federal Register as defined in ANSI N45.2. Additionally, the cable shall be manufactured and tested under the control of a Quality Assurance system which conforms to the requirements of ISO 9000. The Quality Assurance system shall demonstrate compliance with the above criteria by having passed yearly quality audits conducted by outside independent organizations.

## **10.0 WARRANTY**

Cable manufacturer shall warranty each reel of cable to be free from defects in material, design, and workmanship and provide reliable performance for the application and a 25 year life.

In the event the cable is defective in manufactory as mutually determined by the cable manufacturer and the City of Concord, the supplier shall supply another cable for the defective portion in its entire length to be delivered free of charge to the delivery point stated in the original order.

## 15 kV SHIELDED POWER CABLE REQUIREMENTS

| <u>CODE</u> | <u>DESCRIPTION</u>   | <u>QUANTITY<br/>PLUS/MINUS</u> |
|-------------|--|--------------------------------|
| 179.90      | Number 1/0-19 Strand Bare Copper,<br>Extruded Semi-Conducting Strand<br>Screen, 220 mil Insulation Screen<br>Over Insulation, .005 Bare Copper<br>Shielding Tape Hellically Applied with<br>Overlap, .08 Jacket, O.D. 1.11" delivered<br>on a flatbed trailer, side loaded, 2,000 feet<br>per reel, reel size-50x32x24.<br><b>Do Not Lay Flat.</b>   | 50,000 feet                    |
| 180.20      | 500 MCM 1/C 37-Strand Bare Copper,<br>Extruded Semi-Conducting Strand<br>Screen, 220 mil Insulation Screen<br>Over Insulation, .005 Bare Copper<br>Shielding Tape Hellically applied<br>with overlap, .08 Jacket, O.D. 1.49" delivered<br>on a flatbed trailer, side loaded, 1,200 feet<br>per reel, reel size 50x32x24..<br><b>Do Not Lay Flat.</b> | 30,000 feet                    |
| 180.30      | 750 MCM 1/C 61-Strand Bare Copper,<br>Extruded Semi-Conducting Strand<br>Screen, 220 mil Insulation Screen<br>Over Insulation, .005 Bare Copper<br>Shielding Tape Hellically Applied<br>with overlap, .110 Jacket, O.D. 1.73" delivered<br>on a flatbed trailer, side loaded, 1200 feet<br>per reel, reel size 58x32x24.<br><b>Do Not Lay Flat.</b>  | 30,000 feet                    |

Notes:

1. Releases will be by telephone call as needed.
2. All reels to be supplied with both ends of wire exposed to outside of reel
3. Bidders on this 15 KV cable must fill out the included addendum questionnaire.

**Addendum Questionnaire for 15 Kv Cable Bidders**

1. As the successful bidder, would you be willing to stock the following quantities of our 15 KV cable at your facility, even if there is no guarantee it will be purchased within a certain time frame?

\_\_\_\_\_

1/0: 6000 ft (3-2000 ft reels)

500: 3600 ft (3-1200 ft reels).

750: 3600 ft. (3-1200 ft reels).

2. Would there be a “stocking charge” assessed to stock this cable? \_\_\_\_\_

If so, how much would it cost? \_\_\_\_\_

3. Would you stock this at your warehouse facility or would you depend on the manufacturer to stock it at the factory? \_\_\_\_\_

4. What would be the delivery time from your facility to the Brown operations center?

\_\_\_\_\_

**15 kV SHIELDED POWER CABLE  
BID SHEET**

| CODE   | WIRE SIZE | QUANTITY<br>PLUS/MINUS | UNIT PRICE<br>PER 1000 FT. | EXTENSION |
|--------|-----------|------------------------|----------------------------|-----------|
| 179.90 | MCM 1/0   | 50,000                 | _____                      | _____     |
| 180.20 | 500 MCM   | 30,000                 | _____                      | _____     |
| 180.30 | 750 MCM   | 30,000                 | _____                      | _____     |

**Required:**  
**Cable Manufacturer Name** \_\_\_\_\_

**Initial bid price baseline:**  
Initial bid price must be based on the following March 2011 average:  
Copper (Comex HG 1<sup>st</sup> Pos)            \$4.3195/lb

## ALUMUNUM WIRE REQUIREMENTS

| <u>CODE</u> | <u>DESCRIPTION</u>  | <u>QUANTITY<br/>PLUS/MINUS</u> |
|-------------|---|--------------------------------|
| 169.80      | 4/0 - 3 conductor aluminum<br>insulated underground stranded<br>wire Sweetbriar/Hi Score with<br>with reduced neutral 600 volt,<br>1,000 feet per reel.     | 100,000 feet                   |
| 169.95      | 4/0 - 4 conductor aluminum<br>insulated underground stranded<br>wire 3 black, 1 yellow stripe neutral<br>HI-Score Earlham 600 volt,<br>1,000 feet per reel. | 1,000 feet                     |
| 170.70      | 350 MCM 3 conductor aluminum<br>insulated underground stranded wire<br>Reduced Neutral HI-Score Wesley 600 Volt,<br>1,000 feet per reel.                    | 40,000 feet                    |
| 170.55      | 350 MCM 4 conductor aluminum<br>insulated underground stranded wire<br>Reduced Neutral HI-Score<br>Slippery Rock 600 volt,<br>1,000 feet per reel.          | 20,000 feet                    |
| 169.75      | Number 2 3 conductor aluminum<br>insulated underground stranded wire<br>Reduced Neutral HI-Score<br>Stephens 600 Volt,<br>1,000 feet per reek,              | 25,000 feet                    |

Notes:

1. Releases will be by telephone call as needed.
2. Reels are to be supplied with both ends of wire exposed to outside of reel.
3. Wire to have sequential footage printed on jacket in at two foot intervals.

**ALUMINUM WIRE  
BID SHEET**

| CODE   | WIRE SIZE                           | QUANTITY<br>PLUS/MINUS | UNIT PRICE<br>PER 1000 FT. | EXTENSION |
|--------|-------------------------------------|------------------------|----------------------------|-----------|
| 169.80 | 4/0 - 3<br>Conductor<br>Aluminum    | 100,000                | _____                      | _____     |
| 169.95 | 4/0 - 4<br>Conductor<br>Aluminum    | 1,000                  | _____                      | _____     |
| 170.70 | 350 MCM<br>3 Conductor<br>Aluminum  | 40,000                 | _____                      | _____     |
| 170.55 | 350 MCM<br>4 Conductor<br>Aluminum  | 20,000                 | _____                      | _____     |
| 169.75 | Number 2<br>3 Conductor<br>Aluminum | 25,000                 | _____                      | _____     |

**Required:**

**Wire Manufacturer Name:** \_\_\_\_\_

**Initial bid price baseline:**

Initial bid price must be based on the following March 2011 average:

Aluminum (MW US Transaction)    \$1.2234/lb

City of Concord  
Specification for Pole-Mounted  
Distribution Transformers

**Spec. No. OH1**

**Revised: 4/25/11**

**Scope:**

This specification covers the electrical characteristics and mechanical features for single-phase and three-phase, 60 Hz, mineral oil-filled, self-cooled, CSP, pole-mounted transformers. All transformers in this specification shall be designed, manufactured, and tested in general accordance with the latest revision of ANSI C57.12.20, and other applicable standards. **All transformer designs are to be DOE- compliant.**

**Ratings:**

KVA: Single-phase: 10, 15, 25, 50, 75  
Three-phase: 30, 45, 75, 150

Temp. Rise: 65°C

BIL: 95 KV for H.V., 30 KV for L.V.

High Voltage: 12470Grd Y/ 7200V

Low Voltage: 1-phase- 240/120  
3-phase- 208Y/120 or 480Y/277

**Bushings and Terminals:**

Transformers are to be supplied with top cover-mounted primary bushings (one on single-phase units; three on three-phase units) with eye-bolt terminal connectors. Each primary bushing is to be provided with a handwheel type one-piece hinged snap-on wildlife protector (Howard Industries No. 2149, Central Moloney No. 703803, or equivalent).

Secondary bushings are to be tank sidewall mounted bushings (three on single-phase units; four on three-phase units), and are to be supplied with eye-bolt terminal connectors.

**Accessories and Features:**

1. All transformers are to be supplied with a CSP protection package, consisting of an internal primary protective fuse link for each phase, one or three direct-mounted 10 kv MOV polymer surge arresters with snap-on wildlife protective covers, and a secondary oil-immersed breaker with external operating handle and emergency override switch for temporary overloads.
2. All transformers are to be supplied with an automatic pressure relief device, per ANSI C57.12.20-6.2.7.1.
3. No taps are to be provided.
4. All units are to be supplied with a removable neutral grounding strap, externally bolted to the tank wall.
5. Tanks are to be finished in zinc-rich primer and ANSI Light Gray No.70 alkyd finish coat per ANSI C57.12.28, completely covering exterior of the tank and extending down inside the tank to a point well below the marked 25° C oil level.

6. Transformers shall be stenciled with their KVA rating in 2 1/2" figures. The stencil shall be under the secondary terminals, and shall be diametrically opposite the hanger brackets.
7. Transformers are to be supplied with a standard diagrammatic nameplate, which indicates both the date of manufacture and labeling indicating the use of non-PCB dielectric fluid.
- 8 Units are to be supplied with one set of hanger brackets and one set of lifting lugs.
9. Provisions are to be made for tank grounding.
10. The proper liquid level shall be clearly marked inside the tank.

**Delivery standards:**

Transformers will be securely strapped to pallets, and delivered FOB destination. The delivery of all units shall be on a flat-bed truck, side loaded for side access by City warehouse personnel. The City shall be notified 24 hours in advance of all deliveries. Persons to be contacted for delivery notification and/or directions may be either Carson Carroll (704-920-5448) or Ken Scott (704-920-5319). Normal receiving hours are 7:30 a.m.-2:30 p.m. Monday thru Friday.

**Bid requirements:**

- 1.All quotations shall contain estimated delivery times.
- 2.All quotations shall contain guaranteed average no-load losses, full-load losses, and total losses for each type transformer, as defined under the latest version of ANSI C57.12.90.
3. Dimensional drawings (plan and profile) for all units shall be included with the quotation.
4. Any exceptions to these specifications shall be clearly noted as a separate line item, and should not depend on the vendor's standard 'Terms and Conditions' to be noted.
5. Certified test results must be supplied for each transformer in this bid.
6. As a condition of the annual bid, the City reserves the right to either increase or decrease quantities of each type of transformer at the quoted price, during the contract period.

**Loss Evaluation Criteria:**

Transformers will be evaluated for "Total Cost of Ownership (TOC)", based on the following formulas:

Transformers Less Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$0.73 x Full Load Losses)**

Transformers Equal To Or Greater Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$1.00 x Full Load Losses)**

Each transformer may not exceed the variances allowed by ANSI Standard C57.12.00, Table 16:

- (1) 110% of the quoted no load losses, and/or
- (2) 106% of the quoted total losses

All transformers will be evaluated for total ownership cost based on the above formulas and factors. Bid awards will be based on combination of TOC evaluations, initial costs, delivery dates, quality, and past performance..

City of Concord  
Specification for Single-Phase  
Pad-Mounted Distribution Transformers

**Spec. No. PM1**

**Revised: 4/25/11**

**Scope:**

This specification covers the electrical characteristics and mechanical features for single-phase, type 2, 60 Hz., mineral oil-filled, self-cooled, pad-mounted, loop-feed, dead-front, compartmental-type distribution transformers. All transformers in this specification shall be designed, manufactured, and tested in general accordance with the latest revision of ANSI C57.12.25, and other applicable standards. **All transformer designs are to be DOE-Compliant.**

**Ratings:**

KVA: 25, 50, 75, 100, 167

Temp. Rise: 65°C

BIL: 95 KV for H.V., 30 KV for L.V.

High Voltage: 12470Grd Y/ 7200 V

Low Voltage: 240/120 V

**High Voltage Terminals:**

Two (2), dead front, externally clamped, universal type 200 amp loadbreak bushing wells, which are internally connected for loop-feed operation. Bushing wells shall be a Type-2 arrangement, according to ANSI C57.12.25 Figs. 2A and 2B. A single accessory parking stand shall be supplied .

**Low Voltage Terminals:**

The three (3) low voltage terminals are to be supplied with either 5/8"-11(for 25-75 KVA) or 1"-14 (for 100-167 KVA) threaded stud bushings, as specified in ANSI Standard C57.12.25 Fig.4C. A Type-2 bushing arrangement shall be utilized, as shown in ANSI C57.12.25 Figs. 2A & 2B.

**High Voltage Fusing:**

Each transformer shall be equipped with a primary oil-immersed bay-o-net type dual-sensing expulsion fuse, sized to remove the transformer from the line in case of severe overload or internal faults. A drip guard is to be supplied as part of the fuse assembly.

**Other features:**

- 1 Provisions for oil fill (vent) plug, oil level plug, and oil drain plug..
- 2 Self-actuating pressure relief valve.
3. Tamper-resistant design which meets ANSI C57.12.28 with recessed, captive penta-head bolt design.
4. Transformer is to be supplied with standard diagrammatic nameplates, which indicates both the date of manufacture and labeling indicating the use of non-PCB dielectric fluid. **In addition to the usual nameplate inside the cover, a second nameplate is to be mounted on the outside of the unit.**
5. Transformer to have stainless steel hinges on flip-top door.

6. All coating systems for the interior and exterior surfaces of the enclosure are to be applied per ANSI C57.12.28 latest revision. The topcoat color shall be Munsell 7GY 3.29/1.5 padmount green.
7. No taps to be provided.
8. To be supplied with one danger warning label NEMA# 310716-18 or approved equivalent for use inside of transformer cabinet.

**Delivery standards:**

Transformers will be securely strapped to pallets, and delivered FOB destination. The delivery of all units shall be on a flat-bed truck, side loaded for side access by City warehouse personnel. The City shall be notified 24 hours in advance of all deliveries. Persons to be contacted for delivery notification and/or directions may be either Carson Carroll (704-920-5448) or Ken Scott (704-920-5319). Normal receiving hours are 7:30 a.m.-2:30 p.m. Monday thru Friday.

**Bid requirements:**

1. All quotations shall contain estimated delivery times.
2. All quotations shall contain guaranteed average no-load losses, full-load losses, and total losses for each type transformer, as defined under the latest version of ANSI C57.12.90.
3. Dimensional drawings (plan and profile) for all units shall be included with the quotation.
4. Any exceptions to these specifications shall be clearly noted as a separate line item, and should not depend on the vendor's standard 'Terms and Conditions' to be noted.
5. Certified test results must be supplied for each transformer in this bid.
6. As a condition of the annual bid, the City reserves the right to either increase or decrease quantities of each type of transformer at the quoted price, during the contract period.

**Loss Evaluation Criteria:**

Transformers will be evaluated for "Total Cost of Ownership (TOC)", based on the following:

Transformers Less Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$0.73 x Full Load Losses)**

Transformers Equal To Or Greater Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$1.00 x Full Load Losses)**

Each transformer may not exceed the variances allowed by ANSI Standard C57.12.00, Table 16:

- (3) 110% of the quoted no load losses, and/or
- (4) 106% of the quoted total losses

All transformers will be evaluated for total ownership cost based on the above formulas and factors. Bid awards will be based on combination of TOC evaluations, initial costs, delivery dates, quality, and past performance..

City of Concord  
Specification for Three-Phase  
Pad-Mounted Distribution Transformers

**Spec. No. PM3**

**Revised: 4/25/11**

**Scope:**

This specification covers the electrical characteristics and mechanical features for three phase, 60 Hz., mineral oil-filled, self-cooled, pad-mounted, loop-feed, dead-front, compartmental-type distribution transformers. All transformers in this spec shall be designed, manufactured, and tested in general accordance with the latest revision of ANSI C57.12.26, and other applicable standards. **All transformer designs are to be DOE- Compliant.**

**Ratings:**

KVA: 45, 75, 150, 225, 300, 500, 750, 1000, 1500, 2500

Temp. Rise: 65°C

BIL: 95 KV for H.V., 30 KV for L.V.

High Voltage: 12470Grd Y/ 7200 V

Low Voltage: 208Y/120 V or 480Y/277 V (as specified)

**High Voltage Terminals:**

Six (6), dead front, externally clamped, universal type 200 amp loadbreak bushing wells, which are internally connected for loop-feed operation. Bushing wells shall be arranged according to ANSI C57.12.26 Figs. 6A and 7. An accessory parking stand shall be supplied for each bushing well.

**Low Voltage Terminals:**

The four(4) low voltage terminals are to be supplied with either 4-hole, 6-hole, or 10-hole spade-type terminals, dependent on the low voltage and KVA size of the unit, as specified in ANSI Standard C57.12.26 Figs. 9A, 9B, and 9C. A staggered low voltage bushing arrangement shall be utilized, as shown in ANSI C57.12.26 Fig. 8A. Holes are to be at standard NEMA spacings, and are to be 9/16" diameter.

**Compartment Dimensions:**

For sizes 500 KVA and below, both high and low voltage compartments shall be a minimum of 24" deep and 36" wide. For sizes 750 KVA and above, both high and low voltage compartments shall be a minimum of 36" deep and 36" wide. Any variation from these sizes shall be clearly noted as an exception in the quotation, and must be approved for acceptance.

**High Voltage Switch:**

Each three-phase transformer shall be equipped with a four-position hotstick-operable T-blade sectionalizing switch, which rotates 360 degrees in either direction. This type of switch allows four different switching arrangements, as follows: (1) Trf. on, loop closed; (2) Trf. on, fed from side A only, side B open; (3) Trf. on, fed from side B only, side A open; and, (4) Trf. off, loop closed.

### **High Voltage Fusing:**

Each transformer shall be equipped with three primary oil-immersed bay-o-net type dual-sensing expulsion fuses sized to remove the transformer from the line in case of severe overload or internal faults. Drip guard protection shall be provided, either with three individual drip guards or one continuous solid metal piece.

### **High Voltage Taps:**

For transformers rated below 300 KVA, no taps are to be provided. All transformers rated 300 KVA and above are to be supplied with four 2 ½ % taps, 2 above and 2 below the 100% winding value of the transformer. To be supplied with an externally operated tap changer mechanism accessible from the H.V compartment. Tap changers for 2500 KVA padmounts shall have a minimum 200 amp current rating.

### **Other features:**

1. An access handhole is required for transformers with welded-cover design; transformers with bolted-cover design do not require a handhole.
2. 1" drain valve with sample valve in H.V. compartment.
3. Grounding pads in H.V. and L.V. compartments.
4. Lifting hooks on all four corners of the tank.
5. Pressure relief valve to be mounted in top of L.V. compartment.
6. Liquid level oil gauge to be mounted in top of L.V compartment.
7. Oil fill (vent) plug in top of L.V. compartment.
8. Rigid barrier between H.V. and L.V. compartments.
9. Tamper-resistant design which meets ANSI C57.12.28 with interlocked penta-head bolt/padlock handle assembly..
10. Transformer is to be supplied with standard diagrammatic nameplates, which indicates both the date of manufacture and labeling indicating the use of non-PCB dielectric fluid. In addition to the usual nameplate inside the cabinet, an additional nameplate is to be attached and visible on the outside of the transformer.
11. Compartment doors shall have stainless steel lift-off type hinges and door stop provisions to hold doors open during access.
12. All coating systems for the interior and exterior surfaces of the enclosure are to be applied per ANSI C57.12.28 latest revision. The topcoat color shall be Munsell 7GY 3.29/1.5 padmount green.
13. To be supplied with two danger warning labels NEMA# 310716-18 or approved equivalent for use inside both compartments.

### **Delivery standards:**

Transformers will be securely strapped to pallets, and delivered FOB destination. The delivery of all units shall be on a flat-bed truck, side loaded for side access by City warehouse personnel. The City shall be notified 24 hours in advance of all deliveries. Persons to be contacted for delivery notification and/or directions may be either Carson Carroll (704-920-5448) or Ken Scott (704-920-5319). Normal receiving hours are 7:30 a.m.-2:30 p.m. Monday thru Friday.

### **Bid requirements/conditions:**

1. All quotations should contain estimated delivery times.

2. All quotations shall contain guaranteed average no-load losses, full-load losses, and total losses for each type transformer, as defined under the latest version of ANSI C57.12.90.
3. Dimensional drawings (plan and profile) for all units shall be included with the quotation.
4. Any exceptions to these specifications shall be clearly noted as a separate line item, and should not depend on the vendor's standard 'Terms and Conditions' to be noted.
5. Certified test results must be supplied for each transformer in this bid.
6. As a condition of the annual bid, the City reserves the right to either increase or decrease quantities of each type of transformer at the quoted price, during the contract period.

**Loss Evaluation Criteria:**

Transformers will be evaluated for "Total Cost of Ownership (TOC)", based on the following:

Transformers Less Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$0.73 x Full Load Losses)**

Transformers Equal To Or Greater Than 100 KVA:

**TOC: Unit Cost + (\$2.90 x No Load Losses) + (\$1.00 x Full Load Losses)**

Each transformer may not exceed the variances allowed by ANSI Standard C57.12.00, Table 16:

- (1) 110% of the quoted no load losses, and/or
- (2) 106% of the quoted total losses.

All transformers will be evaluated for total ownership cost based on the above formulas and factors. Bid awards will be based on combination of TOC evaluations, initial costs, delivery dates, quality, and past performance.

**Transformer Bid Sheets**

**City Of Concord  
Electric Utilities Department  
Transformer Requirements  
4/25/2011**

| <b>CODE #</b> | <b>TYPE</b> | <b>KVA</b> | <b>QTY</b> | <b>DESCRIPTION</b>  | <b>COST<br/>PER UNIT</b> | <b>TOTAL<br/>COST</b> |
|---------------|-------------|------------|------------|---|--------------------------|-----------------------|
| 158.55        | POLE        | 15         | 30         | 12470Y/7200-240/120 VOLT, 15 KVA, CSP, SINGLE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 159.00        | POLE        | 25         | 30         | 12470Y/7200-240/120 VOLT, 25 KVA, CSP, SINGLE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 159.60        | POLE        | 50         | 8          | 12470Y/7200-240/120 VOLT, 50 KVA, CSP, SINGLE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 161.25        | POLE        | 30         | 3          | 12470Y/7200-208Y/120 VOLT, 30 KVA, CSP, THREE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 161.55        | POLE        | 45         | 2          | 12470Y/7200-208Y/120 VOLT, 45 KVA, CSP, THREE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 161.85        | POLE        | 75         | 2          | 12470Y/7200-208Y/120 VOLT, 75 KVA, CSP, THREE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11.  |                          |                       |
| 162.30        | POLE        | 150        | 1          | 12470Y/7200-208Y/120 VOLT, 150 KVA, CSP, THREE-PHASE,<br>POLE MOUNT TRANSFORMER, PER ATTACHED SPEC.<br>OH1 REVISED 4/25/11. |                          |                       |

### Transformer Bid Sheets

| CODE # | TYPE | KVA | QTY | DESCRIPTION  | COST PER UNIT | TOTAL COST |
|--------|------|-----|-----|--|---------------|------------|
| 160.96 | PAD  | 25  | 10  | 12470Y/7200-240/120 VOLT, 25 KVA, SINGLE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM1<br>REVISED 4/25/11.  |               |            |
| 160.98 | PAD  | 50  | 1   | 12470Y/7200-240/120 VOLT, 50 KVA, SINGLE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM1<br>REVISED 4/25/11.  |               |            |
| 160.99 | PAD  | 75  | 1   | 12470Y/7200-240/120 VOLT, 75 KVA, SINGLE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM1<br>REVISED 4/25/11.  |               |            |
| 161.00 | PAD  | 100 | 3   | 12470Y/7200-240/120 VOLT, 100 KVA, SINGLE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM1<br>REVISED 4/25/11  |               |            |
| 161.02 | PAD  | 167 | 3   | 12470Y/7200-240/120 VOLT, 167 KVA, SINGLE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM1<br>REVISED 4/25/11. |               |            |
| 161.45 | PAD  | 45  | 1   | 12470Y/7200-208Y/120 VOLT, 45 KVA, THREE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11   |               |            |
| 161.86 | PAD  | 75  | 2   | 12470Y/7200-208Y/120 VOLT, 75 KVA, THREE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11   |               |            |
| 162.90 | PAD  | 150 | 6   | 12470Y/7200-208Y/120 VOLT, 150 KVA, THREE-PHASE, PAD MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |               |            |

### Transformer Bid Sheets

| CODE # | TYPE | KVA  | QTY | DESCRIPTION   | COST<br>PER UNIT | TOTAL<br>COST |
|--------|------|------|-----|---|------------------|---------------|
| 162.95 | PAD  | 225  | 2   | 12470Y/7200-208Y/120 VOLT, 225 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 163.50 | PAD  | 300  | 1   | 12470Y/7200-208Y/120 VOLT, 300 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 163.95 | PAD  | 500  | 1   | 12470Y/7200-208Y/120 VOLT, 500 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 164.25 | PAD  | 750  | 1   | 12470Y/7200-208Y/120 VOLT, 750 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 164.55 | PAD  | 1000 | 1   | 12470Y/7200-208Y/120 VOLT, 1000 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11 |                  |               |
| 161.50 | PAD  | 45   | 1   | 12470Y/7200-480Y/277 VOLT, 45 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11   |                  |               |
| 400.18 | PAD  | 75   | 1   | 12470Y/7200-480Y/277 VOLT, 75 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11.  |                  |               |
| 400.94 | PAD  | 150  | 1   | 12470Y/7200-480Y/277 VOLT, 150 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |

### Transformer Bid Sheets

| CODE # | TYPE | KVA  | QTY | DESCRIPTION   | COST<br>PER UNIT | TOTAL<br>COST |
|--------|------|------|-----|---|------------------|---------------|
| 163.00 | PAD  | 225  | 1   | 12470Y/7200-480Y/277 VOLT, 225 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 163.35 | PAD  | 300  | 2   | 12470Y/7200-480Y/277 VOLT, 300 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 164.15 | PAD  | 500  | 1   | 12470Y/7200-480Y/277 VOLT, 500 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 164.40 | PAD  | 750  | 2   | 12470Y/7200-480Y/277 VOLT, 750 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11  |                  |               |
| 164.70 | PAD  | 1000 | 1   | 12470Y/7200-480Y/277 VOLT, 1000 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11 |                  |               |
| 165.00 | PAD  | 1500 | 1   | 12470Y/7200-480Y/277 VOLT, 1500 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11 |                  |               |
| 400.00 | PAD  | 2500 | 1   | 12470Y/7200-480Y/277 VOLT, 2500 KVA, THREE-PHASE, PAD<br>MOUNT TRANSFORMER, PER ATTACHED SPEC. PM3<br>REVISED 4/25/11 |                  |               |
|        |      |      |     |   |                  |               |
|        |      |      |     |   |                  |               |
|        |      |      |     |   |                  |               |
|        |      |      |     |   |                  |               |
|        |      |      |     |   |                  |               |

**SPECIFICATION FOR CCA PRESSURE  
TREATED SOUTHERN PINE POLES  
REVISED 4/21/09**

**I. GENERAL**

- 1.0 The supplying company shall have a performance record demonstrating a minimum of twenty five (25) years successful operating experience in pressure treating poles. The performance record shall be supplied with the vendors proposal.
- 1.1 Poles shall be treated by the pole supplier in its own facility. A plant specification sheet shall be supplied with the vendors proposal.
- 1.2 All poles shall be cut from live southern pine with a fiber stress of 8,000 pounds per square inch and be of the following species: Long leaf, Slash, Loblolly, Shortleaf.
- 1.3 All untreated poles shall conform to the requirements of ANSI 05.1-1979 or latest revision for wood poles. Only machine peeled poles are acceptable.
- 1.4 All poles shall be treated, handled, and processed in accordance with all general requirements of the American Wood Preservers' Association (AWPA) current specifications except where in conflict with this specification.

**II. FRAMING**

- 2.0 All boring and branding shall be done prior to preservative treatment.
- 2.1 Framing shall be in accordance with drawing "POLE FRAMING", latest revision, copy attached.

**III. CONDITIONING**

- 3.0 All poles shall be kiln dried prior to treatment to a moisture content not to exceed twenty five percent. Moisture content shall be determined by the oven dry method from a three and one half inch borer core taken from the ground line area of a representative sample of the poles to be treated in charge.

**IV. PRESERVATIVE**

- 4.1 Only the oxide formulation of CCA type C is permitted.

## **V. TREATMENT RESULTS**

- 5.1 Determination of retention and penetration of chemical shall be in accordance with AWWA C4 latest revision.
- 5.2 Minimum retention is .60 lbs./cubic foot (assay).
- 5.3 Acceptable methods of assay include: West Ashing, Colorimetry, X-ray Spectroscopy as outlined in AWWA A7, A10, and A9 respectively.

## **VI. RETREATMENT**

- 6.1 Poles may be retreated a maximum of two times in accordance with AWWA.

## **VII. CERTIFICATION AND INSPECTION**

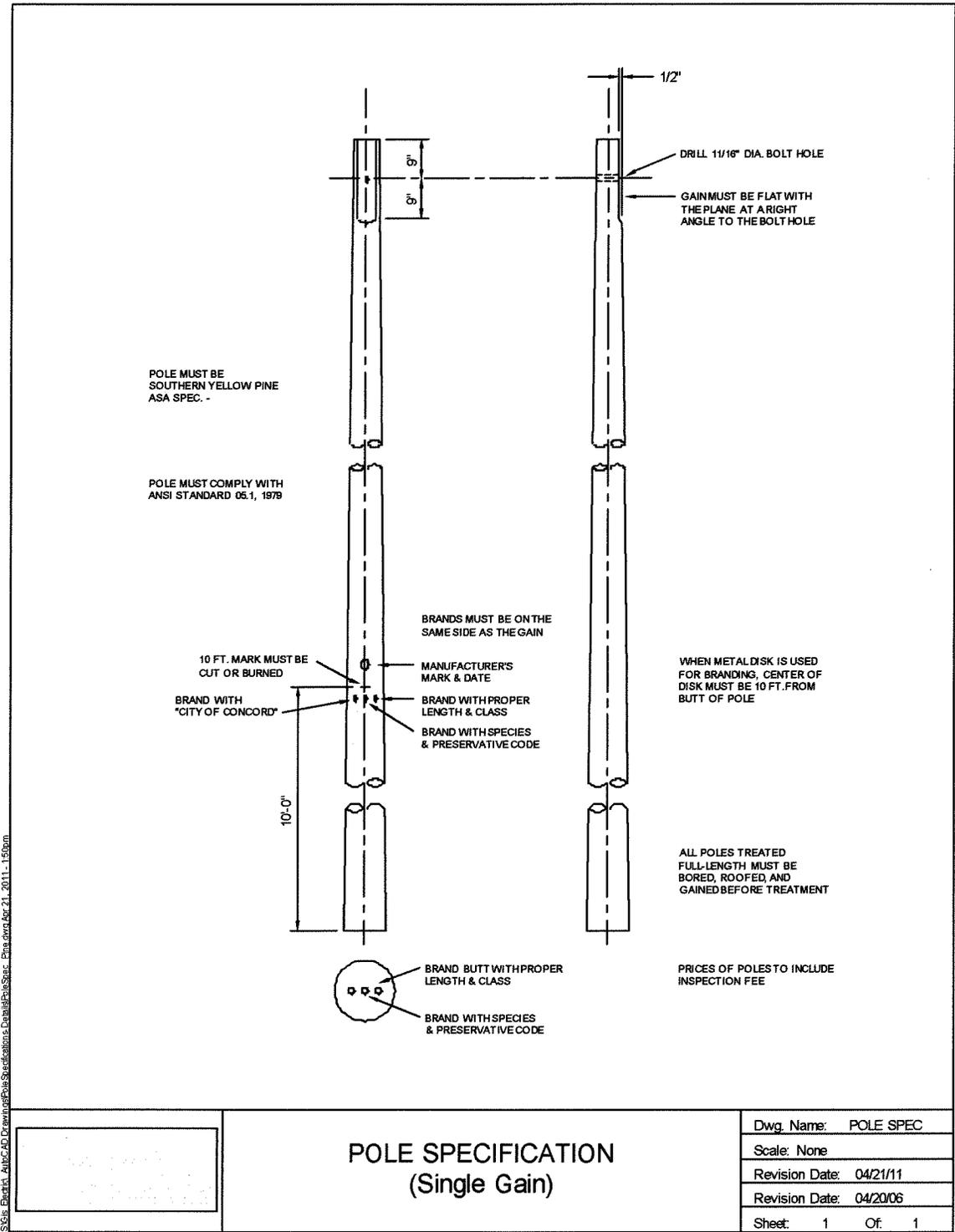
- 7.1 Poles shall be inspected at the treating plant before and after treatment by an independent inspection agency.
- 7.2 As an alternate to the above the purchaser may specify that the poles meet the requirements of the NRECA WQC Program.

## **VIII. DELIVERY**

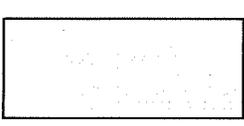
- 8.1 All material shall be delivered on trucks equipped with hydraulic cranes (booms) for unloading. Poles will not be rolled off trailers.

## POLE REQUIREMENTS

| <u>CODE #</u> | <u>DESCRIPTION</u>                            | <u>PLUS/MINUS</u> | <u>UNIT PRICE</u> | <u>EXTENSION</u> |
|---------------|---|-------------------|-------------------|------------------|
| 10830         | 30 Class 5 CCA Pressure<br>Treated Pine Poles | 160               | _____             | _____            |
| 10835         | 30 Class 7 CCA Pressure<br>Treated Pine Poles | 60                | _____             | _____            |
| 10860         | 35 Class 4 CCA Pressure<br>Treated Pine Poles | 25                | _____             | _____            |
| 10890         | 40 Class 4 CCA Pressure<br>Treated Pine Poles | 150               | _____             | _____            |
| 10935         | 45 Class 4 CCA Pressure<br>Treated Pine Poles | 100               | _____             | _____            |
| 10995         | 50 Class 3 CCA Pressure<br>Treated Pine Poles | 20                | _____             | _____            |
| 11010         | 55 Class 3 CCA Pressure<br>Treated Pine Poles | 15                | _____             | _____            |
| 11055         | 60 Class 2 CCA Pressure<br>Treated Pine Poles | 15                | _____             | _____            |
| 11060         | 65 Class 2 CCA Pressure<br>Treated Pine Poles | 10                | _____             | _____            |
| 11062         | 70 Class 2 CCA Pressure<br>Treated Pine Poles | 1                 | _____             | _____            |
| 11067         | 75 Class 2 CCA Pressure<br>Treated Pine Poles | 4                 | _____             | _____            |
| 11068         | 80 Class 2 CCA Pressure<br>Treated Pine Poles | 1                 | _____             | _____            |



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## POLE SPECIFICATION (Single Gain)

|                |           |
|----------------|-----------|
| Dwg. Name:     | POLE SPEC |
| Scale:         | None      |
| Revision Date: | 04/21/11  |
| Revision Date: | 04/20/06  |
| Sheet:         | 1 Of 1    |