

Solicitation 549-09

28 MVA Power Substation Transformer



City of Garland

Bid 549-09

28 MVA Power Substation Transformer

Bid Number	549-09
Bid Title	28 MVA Power Substation Transformer
Bid Start Date	Oct 2, 2009 8:08:52 AM CDT
Bid End Date	Oct 20, 2009 3:00:00 PM CDT
Question & Answer End Date	Oct 16, 2009 12:00:00 PM CDT
Bid Contact	Rose Berger Buyer
Contract Duration	One Time Purchase
Contract Renewal	Not Applicable
Prices Good for	30 days
Standard Disclaimer	The right is reserved to accept or reject all or part of the bid, and to accept the offer considered most advantageous to the City by item or total bid. The City of Garland will award to the lowest responsible bidder or to the bidder who provides goods or services at the best value to the City.
Bid Comments	All documents (forms) herein and attached are required to be completed and returned with response. All questions must be posted on Bidsync website. This bid is exempt from any transaction fee. (CSP)Competitive Sealed Proposal-Award must be made to the vendor submitting the most advantageous offer considering the relative importance of price and other evaluation factors.

Item Response Form

Item	549-09-1-01 - 28 MVA power substation transformer, per COG Spec.
Quantity	1 each
Unit Price	
Delivery Location	City of Garland <u>Purchasing Dept</u> 200 N Fifth St Garland TX 75040 Qty 1
Description	none

**SPECIFICATION
SUBSTATION TRANSFORMER
GARLAND POWER & LIGHT
GARLAND, TX**

**INSTRUCTIONS FOR BIDDER
BID #: 549-09
CLOSING: OCTOBER 20, 2009**

SUBMISSION:

Bids shall be submitted electronically via bidsync.com, or submitted in hard copy. If the bid is submitted in hard copy, the hard copy shall be placed in a sealed envelope, signed by a person having the authority to bind the firm in a contract and marked clearly on the outside as indicated below. All bids shall include this document, the signature page, and all additional documents as required.

FACSIMILE OR EMAIL TRANSMITTALS (OTHER THAN BIDSYNC) SHALL NOT BE ACCEPTED.

SUBMISSION OF BID: All documents may be submitted electronically via bidsync.com,

Or mailed to:
City of Garland
PO Box 469002
Attn Purchasing Department
Garland, TX 75046-9002

Or hand delivered to:
City of Garland Purchasing Department, 2nd Floor
200 North Fifth Street
Garland, TX 75040

MARK BID PACKAGE AS FOLLOWS:

City of Garland Bid No. 549-09
Closing 3:00pm, October 20, 2009
Purchase of Substation Transformer

ALL RESPONSES MUST BE RECEIVED IN THE CITY OF GARLAND PURCHASING OFFICE BEFORE CLOSING DATE AND TIME.

Late Bids: Bids received in the Purchasing office after the submission deadline shall be returned unopened and will be considered void and unacceptable. Garland is not responsible for lateness of mail, carrier, etc. and time/date stamp clock in Purchasing Office shall be the official time of receipt. The right is reserved as the interest of the City may require to reject any and all bid/bids and to waive any informality in the bid/bids received.

Bidding documents may be requested by calling the City of Garland at (972) 205-2415 or by email at purchase@ci.garland.tx.us and referencing Bid No. 549-09.

The City of Garland reserves the right to reject any and/or all bids/bids and to waive any informalities.

Summary of Bid shall be filled out and submitted with the bid. Bids made in letter form without the Summary of Bid form and specifications properly filled out and attached will be considered non responsive and will not be considered.

The contract will be awarded to the lowest responsible bidder offering the best value for the City of Garland. The best value for the City of Garland will be evaluated utilizing the following criteria and points (based on 100 points total):

1. Evaluated Price (50 points)
2. Delivery Schedule (25 points)
3. Compliance with specification (15 points)
4. Reputation of Vendor's goods and services (10 points)

The transformer loss sheet shall be filled out and included in the bid.

Although not required, Bidders are encouraged to submit multiple bids for the transformer with different losses.

Each Bidder shall thoroughly and fully inform himself of all factors that would affect the execution and completion of the work and cost associated with this bid. It shall be understood and agreed that all such factors have been investigated and considered in the preparation of every bid submitted. There shall be no subsequent financial adjustment to the contract award that is based on the lack of such prior information or its effect on the cost of the work.

If the Bidder contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the specifications and other proposed contract documents, he may submit to the Owner a written request for an interpretation thereof. The Bidder submitting the request will be responsible for its prompt and actual delivery. Any interpretation of such documents will be made by addendum duly issued, and a copy of such addendum will be mailed to Bidders submitting a hard copy bid. All addenda will also be posted on the bidsync.com website. The Owner will not be responsible for any other explanations or interpretations of such documents, which anyone presumes to be made on behalf of the Owner before expiration of the ultimate time set for receipt of bids.

Verbal communications by the Bidder with any person, whether employees of the City of Garland or any other individual, will not be considered binding. Only written requests, posted on the bidsync.com website, will receive a response, also posted on bidsync.com.

Signed copies of the Insurance and Indemnification shall be in place and approved by the City of Garland before any contract can take affect.

All proposals shall be submitted in duplicate.

Proposals may be withdrawn and resubmitted at any time prior to the time set for the opening of the bids, but no proposal may be altered thereafter.

Addendums to the proposal, whether in hard form, electronic form or fax form, will not be accepted.

Submit a minimum of three references with the bid. List contact, address, and phone number. State whether there has been past experience with the City.

The successful bidder will be required to provide six (6) copies of the executed contract to the City.

A five (5) year maintenance bond will be required to be executed as specified herein.

PART 1
GENERAL CONDITIONS

A. GENERAL DESCRIPTION OF PROJECT

The purpose of this project is to provide a 28 MVA Substation Transformer in accordance with the attached specifications. The Transformer shall be a 138x69kV delta/13,200Y/7620 volts wye X-wound configuration with all DC components operating at 48 VDC. The Transformer shall be delivered complete, FOB jobsite as specified herein. The FOB point shall be a concrete pad designated by the Owner. Manufacturer's field services shall include installation and testing at the FOB point as specified in the Specifications for Substation Transformer. A Transformer failing to meet the guaranteed losses quoted by the Bidder will be assessed a penalty as specified herein. Delivery date shall be as specified in the Summary of Bid.

B. CITY PROVIDED SERVICES

The contractor, or any sub-contractor or vendor shall use only city provided services, where applicable, in performing this contract including but not limited to: Electric (if available), Water, Sanitation and Solid Waste Services. The rate charged by the City shall be the same as charged for the same or similar services. Commercial solid waste rates may be obtained from the City of Garland web site:

www.ci.garland.tx.us/csw/cogswd.htm

C. GENERAL INFORMATION

Contractor shall be responsible for damage to customer's property and damage to other utilities (i.e. water, electric, gas, cable, phone, and sewer) and any other facilities that are damaged due to contractor negligence.

D. PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS

No City of Garland employee shall have a direct or indirect financial interest in any contract with the City, or be directly or indirectly financially interested in the sale of land, materials, supplies or services to the City.

E. LIQUIDATED DAMAGES

The following is the Council of Governments Liquidated Damages Clause for Public Works.

"1.36.1 LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

The time of completion is the essence of this contract. For each calendar day that any work shall remain uncompleted after the time specified in the bid and the contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the CONTRACTOR:"

Amount of Contract (\$)		Amount of Liquidated Damages (\$)	
Less than	\$5000	60.00	per day
5,000.00 to	14, 999.99	80.00	per day
15,000.00 to	24,999.99	100.00	per day
25, 000.00 to	49,999.99	120.00	per day
50,000.00 to	99,999.99	160.00	per day
100,000.00 to	1,000,000.00	240.00	per day
More than	1,000,000.00	500.00	per day

The sum of money thus deducted for such delay, failure or non completion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the CONTRACTOR shall be in default after the time stipulated in the contract for completing the work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or his surety shall pay any additional amounts due.

F. INDEPENDENT CONTRACTOR

While engaged in carrying out and complying with the terms and conditions of this Contract, the Contractor is, and shall be, an Independent Contractor and shall not, with respect to its acts or omissions, be deemed an officer, employee, or agent of the City. The Contractor shall not at any time or in any matter represent that it or any of its agents or employees is in any manner agents or employees of the City.

Contractor is, and shall remain, an Independent Contractor, with full, complete and exclusive power and authority to direct, supervise, and control his own employees and to determine the method of the performance of the work covered hereby. The fact that the Owner or Owner's Representative shall have the right to observe Contractor's work during his performance and to carry out the other prerogatives which are expressly reserved to and vested in the Owner or Owner's representative hereunder, is not intended to and shall not at any time change or affect the status of the Contractor as an Independent Contractor with respect to either the Owner or Owner's Representative or to the Contractor's own employees or to any other person, firm or corporation.

G. RETAINAGE

As security for the faithful and satisfactory completion of the work by the Contractor, the Owner shall retain ten percent (10%) of the total dollar amount of work completed on all contracts until acceptance by Owner's Representative.

H. MAINTENANCE BONDS

The Contractor shall furnish a Maintenance Bond for an amount equal to ten (10%) percent of the Contract price. The Maintenance Bond shall be for a period of five (5) years from and after the date of delivery of the transformers to the F.O.B. point.

I. INSURANCE/INDEMNITY

Successful bidder must provide insurance and indemnification for the duration of the Contract that meets or exceeds the minimum City of Garland requirements as attached.

J. AMERICANS WITH DISABILITY ACT

The Contractor agrees that they will comply with the terms of the "American With Disabilities Act."

K. TERMINATION CLAUSE

Garland Power & Light, at any time after issuance of a purchase order for this project, by 30 day written notice, shall have the absolute right to terminate this project for cause or for convenience. Cause shall be the selected Firm(s) refusal or failure to perform any provision of the work desired within the time specified covered under this project or meet specifications regarding quality and quantity of work performed. In such case, the selected Firm(s) shall be liable for any damage suffered by Garland Power & Light. However, the selected Firm(s) shall not be held responsible for failure to perform if such failure is caused by acts of God, acts of the public enemy, acts of the governments, provided they notify Garland Power & Light within 30 days after such cause occurs. If the project is terminated, by Garland Power & Light for convenience, the selected firm(s) have no further obligation. Payment shall be made to cover the costs of work in progress as of the effective date of termination.

L. FUNDING OUT CLAUSE

Garland Power & Light may terminate this project, without penalty or liability in the event that

- (I) sufficient funds are not available for this project,
- (II) (ii) funds are not appropriated by the Garland, Texas City Council; or
- (III) (iii) funds for this project that are or were to be provided by grant or through an outside source are withheld, denied or are otherwise unavailable to the City.

M. STATE AND LOCAL SALES AND USE TAX

The OWNER qualifies for exemption from state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Tax Code, as amended. Therefore, the OWNER shall not be liable for, or pay the CONTRACTOR'S cost of, such sales and use taxes which would otherwise be payable in connection with the purchase of tangible personal property furnished and incorporated into the real property being improved under the contract. This contract is a separated contract (as that term is defined in Texas comptroller's Rule 3.291, as amended) between the OWNER and the CONTRACTOR. A CONTRACTOR performing work under these specifications is a seller of tangible personal property furnished and incorporated into the real property being improved, pursuant to Section 151.056(b) of the Texas Tax Code, as amended. All invoices or estimates submitted by the CONTRACTOR to the OWNER shall be separated into three categories: (a) billings attributable to materials, supplies, equipment and other tangible personal property physically incorporated into the work; (b) billings attributable to materials, supplies, equipment and other tangible personal property purchased or leased for use in the work, but no physically incorporated into the work; and (c) billings attributable to other costs and fees allowable under the contract, including labor, overhead, profit and other reasonable, incidental costs related to the work. The CONTRACTOR must obtain a Texas Sales Tax Permit prior to commencement of work and shall file appropriate returns with the Comptroller of Public Accounts of the State of Texas, as

required from time to time by rules and regulations of the Comptroller. The CONTRACTOR shall issue a resale certificate in lieu of the tax on the purchase of all materials, supplies, equipment and other tangible personal property to be incorporated into the real property being improved under the contract. Supplies, tools, materials, equipment and other tangible personal property that are purchased or leased merely for use in the performance of the contract, and not for incorporation into the improved real property, are not exempted from sales or use tax and are not covered by this Item.

All subcontractor agreements entered into by and between the CONTRACTOR and any subcontractor relating to the work shall be separated contracts (as that term is defined in Texas Comptroller's Rule 3.291, as amended). The subcontracts shall provide for, and all requests for payment by subcontractors shall include, separate statements as follows:

Billings attributable to materials, supplies, equipment and other tangible personal property physically incorporated into the work; Billings attributable to materials, supplies, equipment and other tangible personal property not physically incorporated into the work, and Billings attributable to other costs and fees, including labor, relating to the work.

The CONTRACTOR shall also require its subcontractors to issue resale certificates in lieu of the tax on the purchase of all materials, supplies, equipment and other tangible personal property to be incorporated into the real property improved under the contract.

The CONTRACTOR shall fully indemnify and hold harmless the OWNER from the cost of any and all sales and use taxes otherwise exempted as a result of the separated contract arrangement, if such sales or use taxes become due and payable, or are paid by the CONTRACTOR or the OWNER, as a result of the CONTRACTOR'S failure or refusal to abide by the provisions of this Item 1.58 or the other applicable provisions of the specifications relating to separated contracts.

N. BEST VALUE TO THE CITY

The City of Garland reserves the right to award a contract to the lowest responsible bidder or the bidder offering the best value to the City. The best value for the City of Garland will be evaluated utilizing the following criteria and points (based on 100 points total):

- a. Evaluated Price (50 points)
- b. Delivery Schedule (25 points)
- c. Compliance with specification (15 points)
- d. Reputation of Vendor's goods and services (10 points)

O. RIGHT TO WAIVE TECHNICALITIES OR INFORMALITIES

The City of Garland reserves the right to waive any Technicalities or Informalities in the bid process in the best interest of the City, and to award or reject bids as deemed advantageous to the City.

PART 2**SECTION 1A –BID EVALUATION**

1A1. EVALUATION OF BIDS: To enable easy comparison of bid prices, the base price quoted shall be as of the bid date. The price quoted shall be firm.

The transformer price quoted shall include all costs associated with fabrication, delivery, installation, and commissioning of each Substation Transformer.

1A2. TRANSFORMER LOSSES: Substation Transformer losses given in the Bidder's Summary of Bid shall be guaranteed within ANSI and NEMA tolerances. The Substation Transformer may be evaluated at the guaranteed auxiliary losses and the core and copper losses. Evaluation factors will not be provided to the Bidder.

As part of the bid, the attached Table 1 (Loss Data) shall be filled out completely with all information requested. Bids submitted without Table 1 filled out in its entirety shall be considered non responsive and will not be considered.

1A3. PENALTIES FOR FAILURE TO MEET PERFORMANCE GUARANTEES: In the event the factory tests show that the Substation Transformer does not meet the loss guarantees quoted in the Summary of Bid, the excess dollars will be deducted from the Owner's payment in an amount equal to the positive difference between:

the actual core losses minus the guaranteed core losses, multiplied by \$5,000.00 per kW, plus

the actual auxiliary losses minus the guaranteed auxiliary losses, multiplied by \$5,000.00 per kW, plus

the difference of the actual copper loss at 15MVA minus the guaranteed copper loss at 15MVA, multiplied by \$5,000.00 per kW, plus

the difference of the actual copper loss at 20MVA minus the guaranteed copper loss at 20MVA, multiplied by \$5,000.00 per kW, plus

the difference of the actual copper loss at 25MVA minus the guaranteed copper loss at 25MVA, multiplied by \$5,000.00 per kW.

This penalty factor does not relate to the evaluation factors used to evaluate the transformer. No additional fees will be paid to the bidder as a result of an improvement in the losses, resulting in values lower than the guarantee.

1A4. PLANT INSPECTION: Price of each Substation Transformer shall include cost for up to two (2) City of Garland representatives to visit the manufacturing facility up to two (2) times. Prior to testing or shipping the Substation Transformer, the Owner and/or Owner's representative will visit the manufacturing location of the Substation Transformer and perform an on-site inspection of the Substation Transformer and witness the factory test. The Manufacturer shall provide a representative to inspect the Substation Transformer with the Owner and shall make corrections as required by the inspection. The Manufacturer shall provide round trip lodging and transportation for the representatives of Garland Power & Light from Garland, Texas to the plant location. If the distance from Garland to the plant location exceeds 150 miles, transportation by commercial airline shall be provided along with a mid-sized rental car at the destination. Lodging shall be provided for a minimum of two nights each visit.

Should City of Garland representatives be required to remain at the manufacturing facility for extra days or return to the manufacturing facility due to transformer test problems, the Manufacturer shall be liable for any additional travel/living expenses incurred.

- 1A5. REGULATION: The regulation of the transformer as described herein shall not exceed a maximum value of 7.5 percent at 0.9 power factor lag, from 0 MVA to 25 MVA with rated voltage applied to the low-voltage winding.

NOTE: Any bid or part thereof, which proposes transformer regulation in excess of the above maximum stated value, will be considered non-responsive.

- 1A6. DELIVERY LOCATION: Proposals that do not quote FOB delivery point will be considered non-responsive.

- 1A7. MANUFACTURER'S FIELD SERVICE: Proposals that do not include complete field services will be considered non-responsive.

- 1A8. MANUFACTURE AT MULTIPLE FACILITIES: Proposals that quote a transformer with the core and coil manufactured at a location other than the transformer assembly plant may be rejected as non-responsive.

- 1A9. WARRANTY REQUIREMENT: The transformer manufacturer shall warranty the entire transformer, including all accessories, against defects in equipment, materials, and/or workmanship for a period of not less than five (5) years, as specified herein.

Additionally, the warranty shall include:

In and out coverage for 5 years from the date of delivery, limited to a maximum of \$50,000 or 10% of the unit price, whichever is higher. In and out coverage shall include, but not be limited to, the total costs associated with pick-up, transportation, and delivery, to and from the factory or designated repair facility.

Contractor shall respond to warranty calls within 48 hours after notification by the Owner.

The contractor shall be liable for any failure of any equipment furnished under this contract for the first five years, including oil leaks and shall make all replacements and repairs at the contractor's sole expense.

TABLE 1 - TRANSFORMER LOSS DATA

RMV-II Load Tap Changer

CORE LOSS @ 15 MVA BASE RATING (kW)	COPPER LOSS @ 15 MVA (kW)	COPPER LOSS @ 20 MVA (kW)	COPPER LOSS @ 25 MVA (kW)	COPPER LOSS @ 28 MVA (kW)	AUXILIARY LOSSES AT 25 MVA (kW)

Note: 1. Values denoted shall be guaranteed within the tolerances allowed by applicable ANSI Standards.

Name of Business: _____

Transformer Manufacturer: _____

SECTION 1B - SCOPE OF WORK

1B.1 GENERAL: This section covers the general description, scope of work, and supplementary requirements for equipment, materials, and services included in this contract.

1B.2 WORK INCLUDED IN THIS CONTRACT: The work under this contract shall include furnishing of the specified materials and equipment; providing engineering data, accessories, and field services as stipulated herein; and in accordance with the contract documents.

The Contractor shall furnish, deliver, and install FOB Garland, Texas, Substation Transformer(s) complete with accessories as specified herein. The FOB point shall be anywhere within the city limits of Garland, Texas. Delivery will not be considered complete until the transformer is unloaded on a concrete pad, to be designated by the Owner, all accessories (bushings, radiators, fans, etc.) have been installed, and the transformer has been tested to the satisfaction of the City. Final destination will be provided by the Owner prior to shipment of the transformer. Prior to shipment, the Contractor shall obtain the final destination from the Owner. Final destination shall include unloading the transformer and placing it on the Owner supplied foundation.

The Contractor shall carry transportation insurance. All risk of loss including damage during shipment shall remain with the Contractor until the Substation Transformer is unloaded at the FOB point.

The Contractor shall provide drawings and engineering data, manufacturer's field services, tools, instruction manuals, and miscellaneous materials and. services as specified herein.

Delivery will not be considered complete and final payment will not be made until all drawings and other engineering data requirements have been met.

1B.3 MISCELLANEOUS MATERIALS AND SERVICES: The Contractor shall furnish the following miscellaneous materials and services not otherwise specifically called for:

1. Unloading and field installation of all equipment.
2. All bolts and gaskets between parts shall be furnished by the Contractor.
3. All necessary instrument and power and control wiring and raceways integral to any equipment furnished to the Contractor. This shall include terminal blocks and internal wiring to these terminal blocks for equipment requiring external connections.
4. Drawings, prints, information, instructions, and other engineering data.

1B.4 MISCELLANEOUS MATERIALS AND SERVICES FURNISHED BY OWNER:

1. Foundations and sleeves.
2. Permanent electric wiring to connect the equipment terminal boxes to the substation electrical system.

- 1B.5 **SCHEDULE:** The shipment of all equipment for the Substation Transformer to the FOB point shall be complete in time to assure arrival of all components on the job site by the specified delivery date.

The guaranteed delivery dates shown in Summary of Bid for this equipment will be a very serious consideration in the award of contract.

Within 30 days after the purchase agreement the Contractor shall submit to the Owner a production schedule for all major equipment and components. This schedule shall be corrected and resubmitted monthly until all equipment has been shipped.

- 1B.6 SUBMITTAL OF ENGINEERING DATA: Drawings and engineering data for the specified materials and equipment are essential to the design and subsequent construction of the substation.

The Contractor shall submit drawings and engineering data in accordance with his proposed Manufacturing and Delivery Schedule, as specified under Section 1D - ENGINEERING DATA, in order to assure compliance with the overall construction and operation schedule. Failure of the Contractor to submit drawings and engineering data on or before the dates specified shall be considered a breach of contract and reason for termination of contract if the City of Garland, Texas, so desires.

- 1B.7 MANUFACTURER'S FIELD SERVICES: The Contractor shall provide a representative, within two (2) days after arrival, to inspect all equipment. The Contractor shall repair or shall have repaired or shall replace any equipment damaged in shipment. He shall be fully responsible for detecting shipping damage and for initiating all action necessary for said replacement or repair of such damage.

The Contractor shall also provide the services of his representative to unload the Substation Transformer after delivery and to provide assembly of, installation, vacuum oil-filling, inspection, testing, and adjustment of the equipment before it is placed in operation.

The following is a partial list of the field service requirements for the transformer:

1. Perform and record the following field inspections and observations upon delivery of the Substation Transformer to the site and before unloading the Substation Transformer:
 - a. Impact recorder.
 - b. Blocking and tie rods.
 - c. Transformer tank and fittings.
 - 1) External damage.
 - 2) Paint finish.
 - 3) Attached fittings.
 - 4) Positive pressure or vacuum in tank.
 - d. Bushings (when shipped attached):
 - 1) Oil level (if oil-filled type).

- e. Internal inspection:
 - 1) Moisture.
 - 2) Coil supports.
 - 3) Core grounds.
 - 4) Visible insulation damage.
 - 5) Loose parts.
- 2. Provide service for the unloading of the transformer.
- 3. Check that all parts have been delivered and report any missing.
- 4. Ensure transformer insulation has been properly dried.
- 5. Provide transformer assembly and accessory installation.
- 6. Provide and record oil filling:
 - a. Proper vacuum and holding time.
 - b. Dew point measurements.
 - c. Piping arrangement and proper equipment.
 - d. Proper filling rate.
 - e. Periodic oil dielectric tests.
- 7. Perform and record the following field tests:
 - a. Insulation resistance:
 - 1) Each winding-to-ground.
 - 2) Winding to winding.
 - 3) Core-to-ground.
 - b. Winding ratio tests on normal and all taps.
 - c. CT ratio and polarity tests.
 - d. Power factor
 - e. Compare results with factory test report and inform Engineer of any discrepancies.
- 8. Check out and report on all accessories for proper operation, including but not limited to the following:
 - a. Cooling fans:
 - 1) Direction of air flow.
 - 2) Current.
 - b. Cooling controls:
 - 1) Auto-manual switch.
 - 2) Thermal indicator relay (49).

- 3) Top oil temperature indicator and transducer.
 - 4) Winding temperature indicator:
 - i) Proper indication.
 - ii) Settings.
 - 5) Undervoltage relays.
 - c. Nitrogen system:
 - 1) Regulator and relief valve assembly.
 - 2) Pressure gauge and switch.
 - d. Pressure relief device(s).
 - e. Sudden pressure relay.
 - f. Magnetic liquid level indicator.
 - g. The de-energized tap changer.
 - h. Winding temperature rise.
9. Perform all other manufacturer's standard field inspections and tests.

1B.8 INSTRUCTION MANUALS: The Contractor shall furnish final copies of instruction manuals no later than ten (10) days prior to shipment of the equipment. The instruction manuals shall cover complete lists for each item of equipment furnished. Distribution of copies shall be as specified in Section 1 D.3.

The instruction manuals shall be in accordance with the requirements stipulated in Section 1D – Engineering Data.

1B.9 QUALITY PROGRAM: The Contractor shall have a documented Quality Program that shall be submitted to the Owner. The Contractor's Quality Program shall have been audited and registered as an ISO 9001 level program. Verification of the Contractors Registration shall be provided with the Proposal.

SECTION 1C - GENERAL EQUIPMENT SPECIFICATIONS

- 1C.1 GENERAL:** These General Equipment specifications apply to all equipment. They shall supplement the detailed equipment specifications but in case of conflict the detailed equipment specifications shall govern.
- 1C.2 SPECIFICATIONS AND STANDARDS:** The specifications, codes, and standards referenced in these specifications (including addenda, amendments, and errata) shall govern in all cases where references thereto are made. In case of conflict between the referenced specifications, codes, or standards and this specification, these specifications shall govern to the extent of such difference.
- 1C.3 EXPERIENCE LIST:** Listing of units of similar size supplied to US customers, with contacts, in the previous 36 months shall be submitted with the Proposal. Listing shall be for units produced by the factory that would build the proposed unit.
- 1C.4 COMPONENT PARTS:** Individual parts shall be manufactured to standard sizes and gauges so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
- 1C.5 IDENTIFICATION:** All correspondence, shipping notices, shop drawings, specifications, engineering data, and other documents pertaining to the equipment and materials furnished under these specifications shall be identified by the Owner's name, specification number, and the name of the item of equipment or material.
- 1C.6 SHIPPING NOTICE:** The Contractor shall submit two copies of a shipping notice describing each shipment of material or equipment. The shipping notice shall be mailed to arrive approximately seven (7) days ahead of the estimated shipment arrival.
- 1C.7 FACTORY ASSEMBLY:** Equipment shall be shipped completely factory assembled unless specified otherwise or unless the physical size, arrangement, or configuration of the equipment, or shipping and handling limitations, make the shipment of completely assembled equipment impractical, in which case the equipment shall be assembled and shipped as stated in the Summary of Proposal.

The core and coil shall be manufactured at the same factory that the transformer is assembled.

All accessory items shall be shipped with the equipment. Boxes and crates containing accessory items shall be marked so that they are identified with the main equipment. The contents of the boxes and crates shall also be indicated.

- 1C.8 SHOP COATING:** Steel and iron surfaces shall be protected by suitable paint or coatings applied in the shop. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment. Surfaces shall be cleaned and prepared in the shop. All mill scale, oxides, and other coatings shall be removed.

Exposed surfaces shall be finished smooth, thoroughly cleaned and filled as necessary to provide a smooth uniform base for painting and painted with one or more coats of primer and two or more finish coats of alkyd resin machinery enamel or lacquer as required to produce a smooth hard durable finish. The color of the finish coats shall be ANSI 70 gray.

Two gallons of touch-up paint and one gallon of finish paint used on the electrical equipment enclosures shall be furnished.

Shop primer for other steel and iron surfaces shall be Inertol "621 Rustinhibitive Primer", Mobil "13-R-50 Chromox QD Primer", or Tnemec "77 ChemPrime" or City approved equivalent.

Machined, polished, and nonferrous surfaces that should not be painted shall be coated with rust preventive compound, Dearborn Chemical "No-Ox-Ild2W", Houghton "Rust Veto 344", or Rust-Oleum "R-9" or City approved equivalent.

Interior of transformer tank, LTC compartment and all control cabinets shall be painted white.

Transformer cover and top of LTC compartment shall be supplied with a "non-skid" surface.

1C.9 PROTECTION: All equipment shall be boxed, crated, or otherwise suitably protected during shipment, handling, and storage. Equipment having anti-friction or sleeve bearings shall be protected by weather-tight enclosures. Coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Surfaces that are damaged during shipping shall be repaired by the Contractor.

Returnable containers and special shipping devices shall be returned by the manufacturers field representative at the Contractor's expense.

1C.10 CORRECTION OF MANUFACTURING ERRORS: Equipment and materials shall be complete in all respects within the limits herein outlined. All manufacturing errors or omissions required to be corrected in the field shall be done by the Contractor or his duly authorized representative.

1C.11 CONTROL POWER: Electrical power for control and instrumentation will be a nominal 240/120 volt, single phase, 60 hertz, alternating current, or a nominal 48 volt direct current. The Contractor shall provide any devices required for proper operation and protection of the equipment during electrical power supply fluctuations described in the following paragraphs.

All direct current electrical devices shall be designed for continuous operation on an ungrounded station battery that will float on trickle charge at 52 volts. The Contractor shall guarantee satisfactory operation when the equipment is continuously energized at any voltage from 30 to 60 volts direct current, with ambient temperature as specified. Electrical devices served from this supply shall not impose any ground connections on it.

All alternating current devices shall, unless otherwise specified, be designed for operation on a nominal 240/120 volt, 60 hertz, single phase, alternating current system. The Contractor shall guarantee satisfactory operation when the equipment is continuously energized at any voltage from 210/105 to 260/130 volts alternating current.

All alternating current and direct current devices shall be guaranteed to operate satisfactorily under voltage conditions specified in the above paragraphs and at 50° C ambient temperature.

1C.12 RACEWAY: Unless specified otherwise, all raceway interconnections between devices, panels, boxes, and fittings shall conform to UL 6. All control wiring shall be routed through transformer tank bracing. Conduit shall be kept to a minimum, and shall be galvanized rigid conduit utilizing threaded connections. EMT, PVC and flexible metallic conduit are not acceptable. Fan and final connections to gages shall be liquid tight flexible metal conduit with approved fittings.

1C.13 SHIPPING: The transformer may be shipped with oil or shipped dry. If the transformer is shipped dry, it shall be shipped dry air filled, pressurized with gas, valves shall be sealed and effectively crated to prevent tampering or removal while in transit. A means shall be provided to allow gas pressure to be measured in a simple way after uncrating, without requiring release of gas. Valves shall be securely covered by a threaded metal pipe cap or other tamperproof cap.

The pressure and dew point shall be checked and recorded upon delivery. A value of -20° F or better will be acceptable.

The transformer shall be shipped with certified breathing air for field inspection.

If the Substation Transformer is shipped with oil, the requirements for oil filling shall be performed at the manufacturing facility prior to shipping.

The Contractor shall mount and ship a 30 day sealed impact recorder with the specified equipment. The impact recorder shall be mounted by the Contractor at the factory and shall provide a permanent record of the magnitude of axial, transverse and vertical forces to which the equipment will be subjected while in transit. The custody of the impact recorders upon arrival at the FOB point shall be the responsibility of the Contractor. The recorder impact charts shall become part of the furnished equipment.

Upon delivery of the transformer to the F.O.B point, but before removal of the transformer from its transportation, the impact recorder charts shall be reproduced and a copy given to the Owner.

Three reproduced copies of the recorder charts and a written evaluation of the recorder charts by the Contractor shall be sent to the Owner. The written evaluation shall include the field report of the Contractor's internal and external inspection of the Substation Transformer after arrival and unloading. The charts and evaluation shall include:

1. Daily dating of the charts.
2. Summary of impacts per zone and Manufacturer's comments.
3. Definition of relation of each recorder axis to the Substation Transformer orientation during shipment.

NOTE: The field report, charts, evaluation, test reports, and instruction books shall be an integral part of delivery. All shall be complete before final payment will be made.

Upon delivery of the transformer, the Contractor shall perform an impedance test on the transformer and submit it to the Owner.

1C.14 FALL PROTECTION: The Manufacturer shall provide fall protection that meets or exceeds OSHA requirements. Fall protection shall include a tether pole. Tether pole attachment shall be welded to the top of the transformer in the middle of the top cover. Covers shall be provided to prevent water accumulation and rusting. Tether pole shall be provided.

SECTION 1D - ENGINEERING DATA

1D.1 GENERAL – RELATED DOCUMENTS:

1. Drawings and general provisions of Purchase Agreement, including General and Special Conditions, apply to this Section.
2. This standard applies to the Manufacturer's (and all subcontractors') drawings and instruction books to be furnished to the Engineer and/or Owner for equipment provided under this Contract. The word "drawing" as used herein generally applies to paper prints, reproducibles, or electronic files made from the Manufacturer's original drawings.
3. Drawings may be submitted in electronic format, AutoCad 14 or later.

1D.2 SUMMARY: Manufacturer shall meet following criteria

1. Specified administrative and procedural requirements for submittals necessary for performance of the work including:
 - a. Shop Drawings.
 - b. Product Data.
 - c. Operation and Maintenance Manuals.
2. The Manufacturer shall furnish high-quality, accurate and complete drawings that will detail all information necessary for the Owner to incorporate the equipment into the design of the project.
3. The Manufacturer shall submit and coordinate distribution of drawings in compliance with the Contract schedule, verify and incorporate changes requested by the Owner, notify the Owner of any changes which deviate from the Contract, and resubmit revised drawings until they are accepted by the Owner. Manufacturer shall hold equipment fabrication until released by drawings returned by the Owner, but the Manufacturer shall complete and gain acceptance of all drawings on a schedule that will not delay delivery of the equipment beyond the contract date for delivery.
4. The Manufacturer shall stamp all drawings with one of the following to indicate the Contract drawings status:
 - a. "Proposal"
 - b. "Review"
 - c. "Certified"
 - d. "As-Installed"
5. "Proposal" drawings shall accompany the Manufacturer's bid. In addition, applicable bid drawings shall accompany Contract change orders when requested by the Engineer or as required for clarification of proposed changes.
6. The Manufacturer's bid shall include general outline and one-line drawings of the proposed equipment showing sufficient detail to allow the Engineer to determine space and foundation requirements for the equipment and its electrical arrangement and piping system requirements. The Manufacturer's bid shall contain adequate details, descriptions, and drawings to allow the Owner and Engineer to determine if the

proposed equipment is in compliance with the intent and requirements of the Specifications. Other bid information as detailed in the specifications shall be furnished.

7. The Manufacturer's bid shall include a proposed Manufacturing and Delivery Schedule. The schedule shall be in graphics form and shall meet all requirements of Figure 2 at the end of this standard.

1D.3 SUBMITTALS: Manufacturer shall meet following criteria

1. The submittals shall be submitted to the Owner for approval. Submittals shall be made allowing sufficient time for processing, reviews, approval, and procurement before the Manufacturer is ready to use the material. Written approval of submittals shall be obtained prior to custom fabrication and before delivery of materials and equipment to the project site. Each transmittal shall be accompanied by a cover sheet in substantially the same form as the attached "Sample Transmittal Form", which clearly identifies each document being submitted.
2. Submittals shall be mailed to the following address:
 Mr. Clifton Parker
 521 East Avenue B
 Garland, Texas 75040
 Phone: 972-205-3041
 Fax: 972-205-3020
 Email: Cparker@garlandpower-light.org
3. Drawings for review and Certified drawings shall be submitted to the Owner in the quantities and types as shown below:

NUMBER OF COPIES				
Drawing Type	Copy Type			
	Full Size	Half Size	Reproducible	Electronic
Submittal Data	1			1
Certified Copy	2			1
As-Installed Drawings				
Operation & Maintenance Manuals	2			1

4. Electronic copies of drawings shall be in AutoCAD Release 14, or later, DWG files, on floppy diskettes or CD, or e-mailed to the Project Manager.
5. The Manufacturer shall proceed with preparation of review drawings immediately after contract award regardless of the equipment delivery date. All drawings sent for review, except reproducibles, shall be designated "Review" on the drawings and by transmittal letter. Reproducibles shall be designated only in the transmittal letter as being sent for review.
6. All drawings which are returned to the Manufacturer by the Owner, that require re-submittal, shall be revised according to the comments shown on the drawings or accompanying the drawings, and shall then be returned in the original quantity and distribution for review. Descriptive terminology, tag numbers, circuit numbers and other comments or corrections provided by Owner shall be incorporated into the revision. Return of drawings requiring re-submittal shall in no way relieve the Manufacturer from delivering the equipment in accordance with the dates set forth in the Contract or in accordance with the time allotted in the Contract.
7. Drawings returned by the Owner shall contain an imprint of one of the following stamps to indicate status of acceptance:
 - a. NET - "NO EXCEPTIONS TAKEN"
Proceed with fabrication, resubmit as certified for installation and/or construction.
 - b. RNP - "REVISE AS NOTED AND PROCEED WITH FABRICATION"
Revise as marked by Engineer and resubmit for review, equipment released for fabrication.
 - c. RNH - "REVISE AS NOTED AND HOLD"
Revise as marked by Engineer and resubmit for review, equipment not released for fabrication.
8. Action indicated does not relieve the Manufacturer from complying with all the terms and conditions of the "Contract" drawings and specifications. The Owner's review is for general conformance with the project's design concept and information given in contract documents. The Manufacturer is solely responsible for, and Owner's review does not include: confirming and correlating quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating work with that of other trades; and performing all work in a safe and satisfactory manner. Corrections or comments made on this submittal during said review do not relieve the Manufacturer from compliance with requirements of the contract documents or with responsibilities listed above.
9. Each revision of the drawings by the Manufacturer shall have all changes clouded, or otherwise designated where they appear, and fully described in revision blocks. When drawings are revised more than once, previous revision circles or designations shall be removed from the drawings proper, but not from the revision blocks. In no case shall dimensional or other revisions be made which will affect foundation design and/or clearance to other equipment and/or connections thereto without specifically calling attention to each such revision by letter of transmittal with the drawings. Failure to comply with the notification requirement may result in liability to the Manufacturer.

10. If date of return of drawings to the Manufacturer will affect Manufacturer's delivery date of equipment, the Manufacturer shall note on any such drawing the date by which it must be returned. In no instance shall time for review by the Owner be less than four weeks after receipt in the Owner's office.
11. Review of any or all drawings, in whole or in part, shall in no way relieve the Manufacturer from supplying equipment in accordance with the Contract.
12. Where duplicate items or duplicate sets of equipment are furnished, drawings shall be furnished for each item or set of equipment. Where wiring is duplicated within units or subassemblies of an item or set of equipment, all wiring shall be shown complete for each unit or subassembly being furnished.
13. The following drawings shall be sent for review:
 - a. Outline and Foundation Drawings, Material Lists and Nameplate Engraving Schedules:
 - i. These drawings shall show exact outline dimensions of the equipment, location of various components (both internal and external), foundation space and anchor bolt requirements, and loadings. Equipment drawings shall show Contract or Purchase Order Number (as applicable) and certification that the drawing is correct for the equipment furnished. Duplicate drawings are required for duplicate equipment. Material lists shall show quantities and catalog numbers of all components. Nameplate engraving schedules shall show the engraving for all nameplates.
 - b. Operating Instructions: The Manufacturer shall provide early submittals of printed literature describing the operation and maintenance of equipment shown on the drawings. This literature shall be identical to that provided later in the instruction books described hereinafter. Specifications in the English language shall be provided including all pertinent features, model numbers, interfacing requirements, and calibrating procedures.
 - c. Bill of Materials: A listing of all material furnished by the Manufacturer shall be provided and shall contain at minimum the following:
 - i. Tag Number (Manufacturer's and Owner's)
 - ii. Description (consistent with all drawings)
 - iii. Quantity
 - iv. Manufacturer
 - v. Model Number
 - vi. Ratings or Characteristics
 - vii. All components of similar systems or mounted in the same cabinet shall be grouped together in the listing.
 - d. Data Sheets:
 - i. A data sheet shall be furnished by the Manufacturer for each device or discrete component. Each data sheet shall clearly identify the device or components by

Owner's tag number and designation, manufacturer, model number, and catalog number. Data sheets shall list ranges, applicable settings, alarm limits, etc., as required for compliance with the specifications and/or as necessary for the proper and safe installation and operation of the equipment.

- e. Manufacturing and Delivery Schedule: The Manufacturer shall update and submit revised schedules for review in advance of any anticipated deviations from the Contract to show both proposed and completed milestones.
- f. Schematic Drawings:
 - i. Electrical: These drawings shall show in schematic form all electrical connections of the equipment and components as well as all connections to be made by the Owner to obtain the required operation of the equipment (by dashed lines, or other identifiable means).
 - ii. Power wiring drawings shall show all motor and non-motor loads, circuit breaker devices, protective relaying and all respective ratings. All devices shall be fully identified with Manufacturer's designation and description and those provided by the Engineer.
 - iii. Schematic drawings of electronic devices or packages shall show in schematic form the connection of every discrete electronic component or electrical device. All components shall be identified by part number or description such that a replacement may be obtained. Sufficient information concerning test point voltages, etc., shall be given to allow in-house maintenance of equipment furnished.
 - iv. Control schematics shall identify and provide ratings of wiring and devices. All devices including relays and switches shall be shown in their "shelf-state". Drawing cross-references shall be provided for coils and contacts of all electromagnetic relays and all components of each device. Pushbutton, control switch and selector switch developments shall be shown. Interlocks with other equipment shall be clearly identified.
- g. Electrical Connection Drawings: These drawings shall show the actual and true equipment internal connection of all wires, buses, cables, etc. They shall also show all terminal blocks, device terminals, pin connections of printed circuit boards and all other connection points by number and relative position as they will be arranged when the equipment is built.

Equipment component and circuit board connection drawings may be shown separately from the overall equipment connection drawings with appropriate cross-references.

- h. Interconnection Drawings: Complete electrical interconnection drawings shall be provided for all electrical systems. These drawings shall show all required connections between the system control panels and cabinets and each field device, whether supplied under the Contract or by Owner, allowing for the Engineer's final input on the arrangement and numbering of each circuit and raceway.

The Manufacturer shall provide system electrical interconnection drawings on 24" x 36" sheets.

The interconnection drawings described herein are not intended to replace the complete cabinet internal wiring drawings (connection drawings); however, if space permits and if approved by the Owner, the information may be combined into composite connection and interconnection drawings.

Broken or dotted lines shall be provided and clearly labeled to identify boundaries of the enclosures in which the logic devices are located.

- i. Additional Drawings and Information: At the request of the Owner or Engineer, the Manufacturer shall provide any and all other drawings ordinarily prepared by the Manufacturer for manufacture of the equipment, whether such drawings are specifically made for equipment supplied under this Contract or whether they are the Manufacturer's standardized, general drawings for the type of equipment furnished. These drawings may include, but are not necessarily limited to, shop machining, punching, piping, assembly and erection drawings, material lists, and component drawings.

The requirement is in no way intended to be used to penalize the Manufacturer or to obtain proprietary information from him, but is intended solely to reserve for the Owner full access to any and all descriptive information concerning equipment purchased by him under this Contract.

ID.4 CERTIFIED DRAWINGS: All drawings which are returned to the Manufacturer and that are marked "NO EXCEPTIONS TAKEN" by the Engineer shall be reissued as "Certified" drawings, and they shall be so designated on the drawings. Only drawings returned with no exceptions indicated may be issued as "Certified" drawings.

Certified drawings shall have all revision designations removed from the drawing proper, but not from the revision notes, which must remain on the drawings.

1D.5 OPERATION AND MAINTENANCE MANUALS: Manufacturer shall meet following criteria

1. Operation and Maintenance (O&M) Manuals shall be complete in their description of the proper receipt, handling, inspection, storage, assembly, testing, calibration, operation and maintenance of the equipment supplied. They shall include detailed instructions for the equipment as a whole and for individual components, including all those purchased from subcontractors and/or other manufacturers for inclusion with his equipment and recommended spare parts stock with current prices.
2. They shall be specially assembled for the equipment covered by this Purchase Order; adequately indexed, tabulated and tabbed for each item; and the completed package shall be contained in hardback binders on which shall be embossed or printed the following information as a minimum on both the binder front and the binder edge:
 - a. Project Designation
 - b. Owner's Name
 - c. Manufacturer's Name
 - d. Equipment Name and Type and Rating
 - e. Manufacturer's Name and Specification Section
 - f. Date of Contract

3. Include the following information in the O&M manuals:
 - a. Equipment function, normal operating characteristics, and limiting conditions.
 - b. Assembly, installation, alignment, adjustment, and checking instructions.
 - c. Operating instructions for start-up, routine and normal operation, regulation and control, shutdown, and emergency conditions.
 - d. Lubrication and maintenance instructions.
 - e. Guide to "troubleshooting."
 - f. Parts lists and predicted life of parts subject to wear.
 - g. Results of all factory and on site tests.
 - h. Outline, cross section, and assembly drawings; engineering data; wiring and connection diagrams, three-line diagrams, and front elevations
4. Binding: Each copy of the final operation and maintenance manuals shall be assembled and bound in a special binder with imprinting in accordance with Figure, attached, and the following:
 - a. Binder Type: Telescoping Post C5366 with concealed rivets.
 - b. Construction: Stiff binder board.
 - c. Covering: Vinyl or equivalent weather-resistant material
5. Binder capacities shall not exceed 3 inches, nor shall material included exceed the designed binder capacity. If material to be bound exceeds capacity rating, multiple volumes shall be furnished. Binder capacity shall not be less than approximately 1/2 inch greater than the thickness of the material within the binder.
6. Where reduction is not practical, larger drawings shall be folded separately and placed in plastic holders, which shall be bound into the manuals. Each plastic holder shall bear suitable identification on the outside.
7. Label the binders with consecutive numbers and descriptive names.
8. Shipment of equipment will not be considered complete until all required manuals and data have been received. Final payment will not be made until final O&M manuals are received.

SAMPLE TRANSMITTAL FORM

**SUBMITTAL
TRANSMITTAL**

TRANSMITTAL NO.:
DATE:

PROJECT:

☐ New Submittal

☐ Resubmittal

TO: Garland Power & Light
Ananth Palani
525 East Avenue B
Garland, Texas 75040

FROM:

ATTN: [Insert Project Manager's name and e-mail address.]

Specification Section No.			
Item No.	Description	Specification Paragraph No.	Action Code

Action
Code

NET - No exception taken; Seller may proceed with fabrication or construction in accordance with the "Contract".

RNP - Seller may proceed in accordance with "Contract" based on making revisions as noted.

RNH - Revise as noted and resubmit. Hold fabrication/construction.

REMARKS

Signature of Seller's Representative:

Signature of Reviewer:

Date:

(NAME OF EQUIPMENT)	(CUSTOMER NAME)	36
(CUSTOMER)	(PROJECT NAME)	24
(PROJECT LOCATION)	INSTRUCTION BOOK FOR (NAME OF EQUIPMENT) VOLUME NO. _____ (Note 3)	36 36 36 36
	MANUFACTURER'S NAME	24
	MANUFACTURER'S ADDRESS	24
	DATE OF CONTRACT	14
(VOLUME NUMBER)		14 14 14 10
NOTES: 1. All backbone imprinting shall be 14 point. 2. Cover imprinting shall be point sizes in column to right of cover illustration. 3. Volume number required only if instructions are contained in more than one volume.		
<u>TYPICAL INSTRUCTION BOOK COVER</u>		
		FIGURE-1

SECTION 1E - DETAILED SPECIFICATIONS FOR SUBSTATION TRANSFORMER

1E.1 SCOPE: These specifications describe a transformer to be built in accordance with the latest ANSI standards referenced herein except where specific requirements of these specifications conflict with these standards. In such cases, the requirements of these specifications shall take precedence.

1E.2 STANDARDS: The transformer and equipment shall conform to all applicable requirements of the latest issue and revisions of all industry standards that apply, which shall include at a minimum the following:

1. ANSI/IEEE C57.12.00 General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformer
2. ANSI C57.12.10 Requirements for Transformer 230 kV, and Below, 833/958 through 8,333/10,417 kVA, Single-Phase, and 750/862 through 60,000/80,000/100,000 kVA, Three-Phase without Load Tap Changing; and 3750/4867 through 60,000/80,000/100,000 kVA with load Tap changing-Safety Requirements
3. ANSI/IEEE C57.12.11 Guide for Installation of Oil-Immersed Transformer (10 MVA and larger, 69-287 kV rating)
4. ANSI/IEEE C57.12.70 Terminal markings and Connections for Distribution and power Transformer
5. ANSI C57.12.80 Terminology for Power and Distribution Transformer
6. ANSI/IEEE 57.12.90 Standard Test Code for Liquid Immersed Distribution, Power, and Regulating Transformer and Guide to Short-Circuit Testing for Distribution and Power Transformer
7. ANSI/IEEE 57.12.92 Guide for Loading Mineral Oil-Immersed Power Transformer Up to and Including 100 MVA with 55 C or 65 C Winding Rise
8. ANSI/IEEE C57.13 Requirements for Instrument Transformer
9. ANSI/IEEE C57.98 Guide for Transformer Impulse Tests
10. ANSI/IEEE C57.131 Standard Requirement for Load Tap Changers
11. ANSI/IEEE C62.11 Metal-Oxide Surge Arresters for Alternating-Current power Circuits
12. NEMA TR-1 Transformer, Regulators, and Reactors
13. NEMA 107 Method of Measurement of Radio Influence Voltage (RIV) of High Voltage Apparatus.

1E.3 RATING: Transformer rating shall be as follows:

- | | |
|--------------------------------------|--|
| 1. Number of phases | Three |
| 2. Capacity at 55° C temp rise | 15/20/25 MVA |
| 3. Capacity at 65° C temp rise | 16.8/22.4/28 MVA |
| 4. Class | ONAN/ONAF/ONAF (forced oil cooling is not acceptable) |
| 5. | Coolant Oil |
| 6. Frequency | 60 Hertz |
| 7. High Voltage | 138x69 kV delta (X-Wound for 138 or 69kV). |
| 8. Winding Basic impulse level (HV) | 550 kV |
| 9. Low voltage | 13,200Y/7620 volts, wye |
| 10. Winding Basic impulse level (LV) | 110 kV |
| 11. Sound level at all tap positions | 65/67/69 dbA, Guaranteed. |
| 12. Low Voltage Neutral | Brought out through a 110 KV BIL tank mounted neutral bushing. |
| 13. High Voltage Full capacity taps | Rated kVA taps for (2) 2-1/2% steps above and (2) 2-1/2% steps below rated voltage. Available on tap changer for de-energized operation with operating handle brought outside the tank. The operating handle shall not exceed 48" from the base of the transformer and shall be provided with padlocking capabilities. The tap-indicating device shall be labeled A, B, C, D, and E corresponding to each tap position. Alternate arrangements will not be acceptable. |
| 14. Vector relationship | Low voltage shall lag high voltage by 30 degrees. |
| 15. Impedance | 9.0% with standard NEMA tolerance on the 15 MVA base and 138 KV. |
| 16. DC components | All DC components shall operate at 48 VDC. |

1E.4 CONSTRUCTION DETAILS: Substation Transformer equipment shall include the construction details specified in the following paragraphs. However, in all cases, only the main core and coil assembly shall be the limiting capacity factor.

All gauges (except for the liquid level gauges) and instruments for the transformer and load tap changer shall be mounted approximately six (6) feet from the transformer base to allow direct access by field personnel.

1E.5 BUSHINGS: Manufacturer shall meet following criteria

1. High voltage line bushings shall be cover mounted, rated 1200 amperes, 650 KV BIL, and shall have provisions for power factor testing. All bushing porcelain for outdoor service shall be ANSI 70 gray color.
2. Low voltage bushings shall be rated 2000 amperes, 110 KV BIL, transformer cover mounted.
3. High voltage bushings shall be mounted in ANSI Segment 3 and low voltage bushings in ANSI Segment 1 in accordance with ANSI C57.12.10.

1E.6 COOLING EQUIPMENT AND CONTROLS: Manufacturer shall meet following criteria

1. Equipment shall be furnished to provide the required cooling capacity to maintain the specified transformer rating. Temperature control shall be provided by an SEL 2414 monitoring system provided with the 48 VDC supply option. Winding temperature equipment provided shall be arranged and designed to automatically operate the cooling equipment capacity in proportion to the transformer load. Cooling equipment motors shall be rated for service 120/240 volts, single phase power. Control circuit devices shall be rated for 120 volts single phase. Alarm circuit devices shall be rated for 48 VDC.
2. The transformer shall have two (2) identical banks of fans on each side of the cooling radiators. Either bank of fans shall be capable of sufficient cooling to allow the transformer to provide the full 28 MVA rated output.
2. Provide resistance temperature detectors (RTD) and current transformers for winding and oil temperature measurement compatible with an SEL 2513 Annunciator Panel with the 48 VDC supply option.
3. Manual control switches shall be provided in the control cabinet to allow testing and maintenance of the cooling fans.
4. ONAN Transformer designed for continuous self-cooled operation. Winding temperature rise by resistance will not exceed 55° C, and hottest-spot winding temperature rise will not exceed 65° C.
5. ONAF Transformer designed for continuous self-cooled/fan-cooled operation. Winding temperature rise by resistance will not exceed 55° C and hottest spot winding temperature rise will not exceed 65° C. Fan control from winding temperature indicator relay.
6. ONAN/ONAF/ONAF Transformer designed for continuous self-cooled/fan-cooled/fan cooled. Winding temperature rise by resistance will not exceed 55° C and hottest-spot winding temperature rise will not exceed 65° C. Fan control from winding temperature indicator relay.
7. The control equipment shall include the necessary circuit breakers, contactors, selector switches, temperature control relays, alarm-actuating devices, and associated equipment required to provide complete control of cooling system equipment. Circuit breakers, starters, contactors, and control relays shall conform to NEMA ratings.
8. All cooling fans shall be manufactured by Krenz. No alternates will be accepted. Fans

shall be low noise type. Fan guards shall be hot dip galvanized. Fan blades shall be one-piece cast aluminum. The maximum fan speed shall be 900 rpm. Fan motor voltage shall be 120 or 240 volt, single-phase.

9. Temperature control equipment shall be readily accessible for adjustment of settings. Dial type indicators shall be provided on all temperature relays.
 10. The nameplate shall conform to ANSI C57.12.10, and shall be etched and black-filled stainless steel. The following information shall be listed on the nameplate:
 - a. Recommended temperature setting to start cooling equipment on a rated temperature rise basis.
 - b. Recommended temperature setting to initiate alarm on a rated temperature rise basis.
 11. Each fan (not each bank of fans) shall be individually protected with a combination starter consisting of motor circuit-protector-type circuit breakers, magnetic contactors, and bimetallic thermal overloads, one in each line or phase. Motors shall be totally enclosed, fan cooled, and shall comply with NEMA requirements.
 12. Final connections to fan motors shall be made by quick disconnect means. Disconnects shall be metallic with a rating of 240 volt, 20 ampere each.
 13. All fan guards shall prevent passage of any object greater than the maximum allowed by OSHA.
 14. The fans and their controlling relays shall be connected to the starters and control switches to give the following operation:
 - a. The winding temperature relays shall control each stage of cooling automatically when each stage control switch is in the "Auto" position.
 - b. When either stage control switch is in the "Off" position, the control relay shall not start that stage of cooling.
 - c. When either stage control switch is in the "Manual" position, the control relay shall not stop that stage of cooling.
 - d. A bank selector switch shall be furnished for selection of either stage of cooling for first forced cooled rating proposed.
- 1E.7 RADIATORS: Removable radiators shall be supplied with individual flanges and shut-off valves at each tank connection. Shutoff valves shall be ball type and shall be located on the tank side of the radiator connection. Butterfly or other types of valves will not be accepted. Each radiator shall be supplied with an accessible upper and lower drain plug minimum size of $\frac{3}{4}$ inch. A ball valve shall be installed on the lower drain between the radiator and the plug. Radiators shall be interchangeable. Radiators shall be capable of withstanding full internal vacuum and tank operating pressure. Radiators shall be galvanized prior to painting.
- 1E.8 CORONA LEVELS: The transformer shall be designed to conform to the Radio Influence Voltage Level of 100 micro-volts as set forth in NEMA Standard 107.
- 1E.9 MECHANICAL CONSTRUCTION: Manufacturer shall meet following criteria

1. The tank, base, radiators, covers and junction box shall be fabricated from steel with sufficient strength to withstand normal service stresses without distortion or damage, and to withstand an internal pressure 125 per cent of the normal operating pressure resulting from the expansion and contraction of the oil and gas in the sealed tank. Tank corners shall have no welds. All welds shall be at least six (6) inches from the tank corners.
2. The base shall be designed such that the tank may be mounted on a slab foundation as small as 7 feet along a line between segments 1 and 3 and 9 feet along a line between segments 2 and 4. The transformer is not limited to this size but bracing in the tank shall be designed to permit the transformer to rest on a foundation of this size. Internal or external beams along the tank base are acceptable to meet this requirement.
3. The tank shall be designed for full vacuum. All joints in the tank and radiators shall be made oil tight and gas tight by welding inside and out.
4. The largest shipping width in one single dimension shall not exceed 8.5 feet. The other dimension may be as long as needed. This is to better allow shipping by truck. Proposals for rail shipment will not be accepted.
5. Tank and LTC covers shall be domed to prevent water standing on the covers.
6. Access covers shall be round.
7. Cover mounted access holes shall be a minimum of 24 inches in diameter.
8. All gasketed, cover mounted accessories shall utilize raised flanges (minimum 1 inch) to prevent water from entering the transformer tank.
9. All tank bracing shall be sealed box construction.
10. Oil drain and fill valves shall be located such that the transformer can be completely drained of oil, including the radiators. In addition to the valves between the radiators and the main tank, each radiator shall have a valve between the radiator and the bottom drain plug on the radiator. All valves shall be ball type. Butterfly valves are not acceptable in any location.

1E.10 CORE/COIL: Manufacturer shall meet following criteria

1. All core and coil assemblies shall be of circular cross sectional construction.
2. HV and LV windings shall be of disc or helical design.
3. All conductors shall be rectangular copper magnetic wire.
4. Power factor shall be 0.5% or less at the time of shipment.
5. Provide non-aging, grain-oriented, high permeability alloy steel for laminations.
6. The regulating winding shall be fully distributed and be electrically independent from or placed on a separate winding tube from the high and low voltage windings.
7. Internal surge arresters or non-linear resistors shall not be included as part of the internal insulation system.

8. Insulation on all conductors used in the coil winding process shall be cellulose-insulating paper. It shall be wound onto the conductor employing a spinning process. The paper insulation shall be applied in single or multiple strands such that a minimum of 30% of the paper surfaces are overlapped to provide for a continuous insulating surface. Sufficient tension shall be maintained on the paper strands so as to prevent loose wraps. All coils shall include full circumference clamping rings.
9. All joint connections shall be inspected for quality prior to taping. Joints shall be made by induction brazing only; soldering will not be accepted. No joints shall be permitted in draw-leads inside bushings.
10. Insulating material, varnishes, and compounds that come in contact with the oil shall neither affect the oil or be affected by it. Core bolt insulation shall be high-temperature resistant.
11. The core ground strap shall be brought through the lid, via a WARCO porcelain bushing number 45A0000299 or GP&L approved equivalent, and shall be enclosed in a weatherproof box.
12. The core shall be assembled in a manner that it will be braced or clamped adequately and specifically to prevent displacement and distortion under all conditions of handling, shipping, and operation under short-circuit conditions. Bracing details shall be pictured and described in the shop drawing submittal.
13. All inside bolted connections shall be provided with locking provisions.
14. The serial number shall be stamped on the core in a conspicuous place.

1E.11 INSULATING LIQUID: A sufficient quantity of insulating liquid shall be furnished to fill the transformer to the normal operating level. The Contractor shall provide the initial filling of the transformer. Filling shall be made under approved methods designed to eliminate entrapped air from within the tank and windings. Filling of the transformer in the field (other than oil top off to fill radiators) shall be by the hot oil vacuum fill method. If it is necessary to dry out the transformer insulating liquid in the field, it shall be done by and at the expense of the Contractor who shall furnish all labor, material, equipment, instruments and apparatus required.

1. The insulating liquid shall meet all requirements as defined by NEMA Standards, shall be chemically stable, free from acidity or other corrosive ingredients, shall possess high dielectric strength, and shall test at least 40 kV when tested upon receipt at the job delivery point.
2. Transformer oil shall conform to ANSI/ASTM D3487-81 per ANSI C57.12.00. The Contractor shall state the manufacturer and specification of the oil furnished. Certified oil test reports shall be provided, including level of PCB's, dielectric strength, water content, power factor, interfacial tension, and neutralization number, as a minimum. These certified test reports may be furnished by the oil manufacturer and included in the instruction manuals.
3. The Contractor shall certify that the oil furnished meets the Environmental Protection Agency and the State of Texas standards in effect at the time of shipment. The Contractor shall also certify that the level of polychlorinated biphenyls (PCBs)

present in the oil furnished by the Contractor are below one part per million (1.0 ppm). The Owner may perform an independent laboratory test of the oil after installation to verify this level.

1E.12 OIL PRESERVATION SYSTEM: Manufacturer shall meet following criteria

1. Sealed-tank construction with welded cover. During welding of the transformer cover, an inorganic gasket shall be permanently located between the cover and the tank flange to prevent the entrance of weld spatter into the tank.
2. An automatically maintained dry nitrogen gas pressure system shall be furnished to provide an inert gas atmosphere above the oil. The complete gas system shall include an alarm device with alarm contacts arranged for remote indication of low gas supply and for low gas pressure in the main transformer tank. There shall also be included an adequate amount of bottled nitrogen gas to place the transformer in service.
3. The nitrogen system shall be designed such that the nitrogen control equipment, including a 244 cubic inch nitrogen cylinder, are mounted in an easily accessible weatherproof enclosure mounted on the transformer tank. The enclosure shall be provided with a gasketed viewing window to easily view the pressure regulators. Distance from the nitrogen control equipment and cylinder enclosure to the nitrogen entry point into the tank shall be kept to a minimum. The nitrogen control equipment and cylinder enclosure and the nitrogen entry point into the tank shall be in the same segment, if possible.

1E.13 CURRENT TRANSFORMERS: Manufacturer shall meet following criteria

1. Multi-ratio bushing type current transformers with fully distributed windings for relaying service shall be furnished as described below:
2. High Voltage Bushing - H1, H2, H3: One 1200/5 multi-ratio CT per bushing with an accuracy of C800 at full winding (located closest to the windings). One 600/5 multi-ratio CT per bushing with an accuracy of C800 at full winding (located next). One 300/5 multi-ratio CT per bushing with an accuracy of 0.3%, B1.8 (located nearest the bushings).
3. Low Voltage Bushing - X1, X2, X3: Two 2000/5 multi-ratio CTs per bushing with an accuracy of C800 at full winding. Current transformers shall be in addition to any current transformers required for operation of the LTC or other transformer control, monitoring, or indication.
4. Neutral Bushing – XO: One 600/5 multi-ratio CT with an accuracy of C800 at full winding.

1E.14 LIGHTNING ARRESTERS: Manufacturer shall

1. Provide six station type transformer mounted lightning arresters. Three high voltage lightning arresters shall be mounted near and connected to the high voltage bushings. The high voltage arresters shall have a 120 kV duty rating.
2. Three 10.2 kV intermediate class lightning arresters shall be mounted near and connected to the low voltage bushings. The arresters shall meet ANSI C62.1 and IEC standards.

3. Lightning arresters shall be installed such that the top of the arresters on both high voltage and low voltage sides are 12 inches lower than the respective bushings.
4. The arresters shall be polymer type and shall be ANSI 70 gray. Arresters shall be provided with NEMA 4-hole connectors.

1E.15 UNDERCOATING: A protective undercoating shall be applied to the bottom surfaces of the transformer tank and base.

1E.16 GROUND BUS: The transformer shall be equipped with a copper ground bus from each lightning arrester and neutral bushing to the transformer ground pads at the base level. The ground bus shall be minimum ¼" X 2" and shall be neatly installed with adequate support points. All external ground points shall be by ground bus. No cable connections will be acceptable.

1E.17 CONTROL CABINET: The control cabinet for the transformer shall include, as a minimum, the following items, housed within one NEMA 3R cabinet. The control cabinet shall be provided with gasketed doors and stainless steel hardware. Provide two or three point latching hardware (wind braced with door props to prevent the doors from overextending when open). The outer door of the control cabinet door shall be lockable with a padlock.

1. All circuit breakers, switches, and other operable devices located in the control cabinet shall be located on the front of the swing out panel for easy access without opening the swing out panel. The swing out panel shall be provided with two point latching using latches that can be operated without the use of tools.
2. The control cabinet shall be mounted on the transformer with the top of the cabinet not exceeding 84 inches in height above the base of the transformer. The control cabinet will contain the following:
 - a. Spare terminal blocks (minimum 20 percent) for Owner's interconnecting wiring.
 - b. A door operated 120 volt AC service light with separate on-off switch.
 - c. 120 volt AC duplex grounded convenience outlet.
 - d. Shorting type terminals for all taps of all CT leads.
 - e. Internal cabinet heater, thermostatically controlled or positive temperature coefficient heater for moisture control and elimination within the cabinet.
 - f. Bolted, removable conduit plate, 16 gauge minimum, in bottom of cabinet which can be removed for conduit entry punching in the field.
 - g. Control and monitoring unit shall be a Schweitzer Engineering Laboratories, Inc. SEL 2414, catalog number 241421ABA9X3A5X0000. No alternates will be accepted. This unit shall be mounted on a swing-out panel. The unit shall be connected to the 48 VDC power supply.
 - h. The remote I/O Processor shall be a Schweitzer Engineering Laboratories, Inc. SEL 2523, catalog number 252302H100XCXXX. No alternates will be accepted. This unit shall be mounted on the back panel. The unit shall be connected to the 48 VDC power supply.

- i. All items for control and operation of the Load-Tap-Changer (LTC) not located in the LTC compartment.
- j. Each transformer alarm contact shall be wired to a control cabinet mounted annunciator alarm monitor, Rochester Instrument System SM-100U, or GP&L-approved equivalent. The monitor shall include an indicating light, nameplate, reset switch and auxiliary output contact for each alarm point. Output contacts shall be wired individually to terminal blocks for the Owner's connections. The alarm monitor shall operate from 48 VDC power supply. An indicating light shall be provided to indicate availability of the power supply.
- k. Ground bus.
- l. Contractor's equipment shall be uncrowded and easily accessible for safe inspection, removal, and repair, and shall have descriptive nameplates.
- m. The control panel shall be provided with a swing-out panel. The M-2001B tap-changer control system shall be mounted on the swing-out panel along with the SEL-2410. Additional items may be mounted on the swing out panel as determined by the transformer manufacturer. The control panel door shall be provided with a gasketed viewing window for viewing the M-2001B and the SEL-2410 without opening the control panel door.

1E.18 WIRING, CONDUIT AND TERMINAL BOARDS: All wiring shall meet the requirements of the 2002 National Electrical Code.

- 1. Wiring: All electrical devices, including fans, control relays, alarm contacts, current transformer secondaries, etc., which mount on or in the transformer shall be factory wired complete to and within the above named devices and terminals so that the only field connections necessary for operation shall be the power supply conductors for the fans, pumps and auxiliary equipment and the attachment of incoming control conductors and CT leads to the terminals. There shall be adequate room inside the control cabinet for connection of all interconnecting wiring without crowding. "Panduit" or approved equivalent used to provide an unobstructed routing area for field wiring shall be provided from the bottom conduit entry area to the field-connection side of the terminal blocks.
- 2. All control wiring, except current transformer leads, shall be type SIS, gray, XLPE insulation, copper switchboard wire of No. 14 AWG, 7 strands minimum for stationary panels and 41 strands minimum for swinging panels. Current transformer wiring shall meet the same requirements except be No. 12 AWG. All control wiring shall have ring-tongue, compression type terminal lugs at each termination and shall be terminated on terminal blocks. No wiring shall be spliced unless to connect to devices with pigtail leads, in which case a junction box with terminal block shall be used.
- 3. Internal power wiring shall be adequate for the load served.
- 4. All conductors shall have a permanently affixed identification band on each end that clearly identifies the conductor with its representation on the associated Contractor-supplied schematic and wiring diagrams.

5. 2. Terminal lugs:
6. All wiring shall have terminal lugs ring-tongue, compression-indent type
7. Terminal blocks:
 1. Control: Terminal blocks for all incoming control wires shall be provided, plus 20% spares. They shall be black plastic, double barrier, with white, permanently nonbrittle plastic numbering strips that will take pencil or ink. The numbering strips shall be attached by screws and so arranged that it shall not be necessary to remove these strips in order to achieve complete access to terminals. The strips shall be a minimum of 1/2" wide and run the full length of the terminal block. Terminal block screws shall be 10-32, of adequate length, with washer heads. Terminal blocks shall be mounted on standoff brackets and located to facilitate ease of wire attachment. Where terminal blocks are installed parallel to one another, there will be six inches minimum between the inside edges. All terminal blocks for CT leads in all equipment shall be the shorting type with shorting plugs installed when shipped. Terminal blocks for CT leads will be grouped together to facilitate CT connections. No more than two wires shall be terminated on any one terminal point.
 2. Power: Threaded terminal studs with nuts and lock washers or tapped copper bars with hex-head cap screws and lock washers mounted on insulated terminal blocks shall be provided for all power wiring with currents in excess of 30 amperes. Terminal blocks for incoming power above 125 volts ac or dc shall be isolated with adequate personnel protection and warning provided

1E.19 LOAD TAP CHANGER: An automatic Load Tap Changer (LTC), mounted at a height of 84 inches or less, shall be provided. The LTC shall a vacuum type Reinhausen RMV-II LTC. No alternate will be accepted.

1. The LTC shall have a range of 10 per cent above and 10 per cent below rated neutral voltage in 32 equal 5/8 per cent steps (16 above neutral and 16 below neutral). The tap changer shall have full rated KVA on taps above rated neutral voltage and a current rating corresponding to the full load current of rated voltage on taps below normal voltage. The LTC contacts shall be rated at the full kVA output of the transformer in all LTC positions. The LTC taps shall be in the LV side. The main transformer tank will include a current transformer for line drop compensation. The regulating winding for the LTC shall be a separate winding and fully distributed. Low voltage tap outs will not be acceptable.
2. The tap changer shall have a separate oil filled compartment with the following:
 - a. Liquid level gauge, identical to gauge used on transformer tanks.
 - b. Drain and filling valve.
 - c. LTC mechanism shall be designed for a minimum of 500,000 operations before contact replacement.
 - d. A maintenance free, dehydrating breather, capable of self-regeneration of the silica gel. The breather devices shall operate on 120V AC and shall continuously

provide dry air to the LTC compartment per the manufacturer's recommended levels of dehydration without requiring maintenance.

- e. Provide an electronic monitoring system utilizing fiber optic cables to transmit the signals within the LTC.
3. The LTC shall also have the following items:
- a. LTC voltage regulating unit shall be a Schweitzer Engineering Laboratories, Inc. SEL 2431, catalog number 24310X11X1231XXXXXXX. No alternates will be accepted. This unit shall be mounted on a swing-out panel. The unit shall be connected to the 48 VDC power supply.
 - b. Any additional components required for remote indication and control of the LTC through the RS-232 communications port to a remote mounted SEL-2032 shall be provided. Manufacturer shall provide an appropriate adapter panel. If required for remote indication of the tap position, Manufacturer shall provide a Selsyn type tap position transmitter.
 - c. Drive motor may be either 120 or 240 volts AC.
 - d. Provision for manual operation with electrical interlock with drive motor.
 - e. "AUTOMATIC-MANUAL" switch, "RAISE-LOWER" switch, and "REMOTE-LOCAL" control switch. All connections shall be brought to terminal blocks to provide connections for remote operation.
 - 1. The "AUTOMATIC-MANUAL" switch and the "RAISE-LOWER" switch shall be momentary switches.
 - 2. With the "REMOTE-LOCAL" control switch in the "REMOTE" position, operation of the LTC shall be determined by SCADA contacts. SCADA will provide two latched contacts. One latched contact will be for remote manual operation and one latched contact will be for automatic operation.
 - 3. With the "REMOTE-LOCAL" control switch in the "REMOTE" position and the "AUTOMATIC-MANUAL" control switch in the "MANUAL" position, SCADA will provide two momentary contacts, one for raise and one for lower.
 - 4. With the "REMOTE-LOCAL" control switch in the "REMOTE" position and the "AUTOMATIC-MANUAL" control switch in the "AUTOMATIC" position, the SEL 2431 shall automatically control the LTC.
 - 5. With the "REMOTE-LOCAL" control switch in the "LOCAL" position and the "AUTOMATIC-MANUAL" control switch in the "MANUAL" position, the "RAISE_LOWER" switch shall control the LTC.
 - f. All equipment, connections, and terminals required for manual operation of the LTC from the transformer, automatic operation of the LTC from the transformer, or remote operation by means of supervisory circuits.
 - g. Position indicator with drag hands (marked 16L-0-16R) and electric limit switches in motor control circuit. Drag hands shall be capable of being reset from

the SEL 2430. Position indication shall be such that clockwise rotation of the position indicator will indicate raise and counter clockwise rotation will indicate lower. No alternate arrangement will be acceptable.

- h. Motor drive power supply switch with breaker.
 - i. Operation counter.
 - j. Lamp with automatic switch for compartment illumination.
 - k. Convenience outlet.
 - l. Strip heater.
 - m. Terminal blocks for customer connection.
 - n. Space for mounting circulating current CTs for parallel operation.
4. LTC shall meet ANSI C57.131. Manufacturer shall provide certified documentation that the proposed LTC is in compliance with C57.131.
 5. The City of Garland does **not** recognize, **nor** allow for the following exception that is stated in the IEEE Std C57.12.00-2000:

“However, when the volts per turn of the winding exceeds 0.5% of the nameplate voltage, the turns ratio of the winding on all tap connections shall be to the nearest turn”

The transformer will be rejected as unacceptable if the TTR tests on the LTC indicate any taps are off by more than 0.5% from the exact 5/8 percent tap.

1E.20 SCADA INTERFACE: SCADA interface for transformer control and indication shall be accomplished using the SEL 2431 tap-changer control system, the SEL 2414 monitoring system, and the SEL 2523 Annunciator Panel. At a minimum, the following inputs and outputs are required:

1. The inputs shown below shall be made to the SEL-2414 and SEL 2523. If required, multiple SEL-2414 I/O modules shall be provided.
 - a. SEL-2414 Input Boards
 1. All inputs spare
2. The inputs shown below shall be made to the SEL-2523.
 - a. SEL-2523 Board
 1. Input 1: LTC end of travel raise limit switch.
 2. Input 2: LTC end of travel lower limit switch.
 3. Input 3: LTC Lockout.
 4. Input 4: LTC in Automatic/Manual
 5. Input 51: Main tank liquid level.
 6. Input 6: LTC Liquid level.
 7. Input 7: Tank high pressure.
 8. Input 8: Tank high vacuum.
 9. Input 9: Nitrogen pressure low.
 10. Input 10: Nitrogen tank empty.

11. Input 11 Gas monitor alarm.
 12. Inputs 12 through 42 are spare
3. The following outputs shall be provided from the SEL-2414
 - a. SEL-2414 Board 1
 1. Output 1: Transformer LTC raise.
 2. Output 2: Transformer LTC lower.
 3. Output 3: LTC in manual.
 4. Output 4: LTC in automatic.
 5. Output 5: First stage fan control.
 6. Output 6: Second stage fan control.
 7. Output 7: Spare
 8. Output 8: Spare
 4. Provide Schweitzer Engineering Laboratories, Inc. fiber optic transceivers as follows:
 - a. Fiber optic transceivers shall be the SEL-2800M1.
 - b. The fiber optic transceivers shall be located on the back panel or wall of the control panel and shall not be attached directly to the device.
 - c. Provide a cable connection, with appropriate DB-9 connectors, from the device to the fiber optic connector.
 - d. Verify and ensure that the cable connecting the devices and the fiber optic transceivers is configured such that the fiber optic transceivers are provided with the proper control voltage required for operation.
 - e. Cables shall be correct for the application based on Schweitzer Engineering Laboratories, Inc. information. Cable type and pin layout shall be submitted for review.

1E.21 STANDARD FEATURES: Standard accessories listed in ANSI C57.12.10 will be furnished along with the following devices:

1. All dc powered equipment shall operate at 48 VDC nominal.
2. Magnetic liquid level gauge with minimum 4 inch dial and with SPDT alarm contacts. Qualitrol only, no alternates accepted.
3. Liquid temperature gauge with minimum 4 inch dial and with SPDT alarm contacts. Qualitrol only, no alternates accepted.
4. Qualitrol fault pressure relay system(s) sensitive to the rate of pressure increase and consisting of 48 VDC SPDT isolated contacts wired to identified terminal points in the main control cabinet. No alternative will be accepted. System(s) shall be suitable for use in the transformer protection scheme, and shall be supplied for transformer main tank and for LTC compartment. A minimum of three (3) separate form C contacts from the seal-in relay shall be provided. If required, install auxiliary relays. Control voltage for seal in relays shall be rated 48 VDC. Terminals 9 and 10 of each Qualitrol system shall be wired separately to terminal blocks for the Owner's use.

5. Where possible, gauges shall be mounted to allow direct access to field personnel. All gauges over 8 feet from the base of the transformer shall have their faces tilted down at an angle of 30 degrees from the vertical.
6. The drain valve and the oil-sampling valve shall be located to allow draining or sampling from the bottom surface of the tank.
7. Lifting eyes for lifting only the cover.
8. Facilities for lifting core and coil assembly from tank.
9. Lifting lugs for lifting complete transformer.
10. Jacking facilities at four corners of the base.
11. Qualitrol cover-mounted mechanical pressure relief device with automatic resealing/resetting operation and manual reset mechanical flag for indication of device operation. Device shall be supplied for transformer main tank and for the LTC compartment. Device shall include form C contacts for remote indication.
12. Diagrammatic nameplate that conforms to ANSI C57.12.10. The nameplate shall be etched and black-filled stainless steel. No alternate will be accepted.
13. All gaskets shall be of reusable rubber with means provided for controlled compression.
14. A minimum of two ground pads on the transformer tank located on diagonally opposite corners. Ground pads shall be welded into the tank with two ½"-13 threaded holes suitable for NEMA two-hole lugs.
15. The manual operator for the high voltage de-energized tap changer shall be extended to provide operation at base level. The manual operator shall be lockable.

1E.22 SHORT CIRCUIT REQUIREMENTS: The transformer and LTC shall be designed to withstand full voltage short circuit conditions, limited only by the impedance of the transformer with an infinite bus.

1. Demonstration of thermal capability shall be by calculation in accordance with ANSI standard C57.12.00, Section 7.4.
2. Demonstration of mechanical capability of the transformer and LTC shall be calculated based on the modeling of short circuit currents produced by a bolted 3-phase to ground fault assuming an infinite bus source. Calculations shall take into account the maximum short circuit forces, and the resulting mechanical stresses for seven axial and radial failure modes in the windings.
3. Contractor shall supply a list of its short circuit test history.

1E.23 SOUND LEVEL: The average sound level in decibels shall not exceed the value specified elsewhere, for all tap positions. Value specified shall be guaranteed within standard NEMA tolerances.

1E.24 FACTORY TESTS: All routine tests listed in current version of ANSI C57.12.90, Section 8.2.2, Table 17, plus additional tests as specified herein, shall be performed on each transformer. Three certified copies of the report of each test shall be delivered to the

Owner not later than 10 days after completion of all factory tests. Temperature tests will not be required but calculated temperature rise based on tests of similar units of previous manufacture shall be furnished.

The Owner and/or Owner's representative will visit the manufacturing facility at least twice during the manufacturing of the transformer. The first visit will be before the core and coil assembly have been installed in the transformer tank. During this visit the manufacturer shall perform a core ground test and a ratio/polarity test in the presence of the Owner. The test results shall be acceptable to the Owner and any discrepancies in the fabrication of the core and coil shall be corrected prior to proceeding. The second visit will be to witness the testing of the transformer and to perform a final inspection.

The manufacturer shall notify the Owner a minimum of two (2) weeks prior to either visit. The visits described are mandatory visits unless waived in writing by the Owner.

A copy of the required ANSI Standard tests shall be provided to the Owner, or Owner's representative, at the factory, prior to the start of the tests.

The tests shall be made on the transformer with all its own bushings and radiators installed. All tests shall conform to ANSI C57.12.90, the manufacturer to state by which method the test was made where more than one test method is indicated in the test code. Complete results of all tests shall be detailed on the test report, including oscillograms. Copies of all raw test data and all conversion calculations shall also be furnished.

Tests to be conducted shall include, but are not limited to:

1. Resistance measurements of all windings on the rated voltage connection and at all tap extremes.
2. Ratio tests at rated voltage and all taps. Test results must not deviate from design values by more than 0.5%. Design values for the LTC taps are based on 5/8% increments for each LTC tap. The turns ratio between windings shall be such that, with the transformer at no load and with rated voltage on the winding with the least number of turns, the voltages of all other windings and all tap connections shall be within 0.5% of the nameplate voltages.
3. The City of Garland does not recognize, nor allow for the following exception that is stated in the IEEE Std C57.12.00-2000:
 "However, when the volts per turn of the winding exceeds 0.5% of the nameplate voltage, the turns ratio of the winding on all tap connections shall be to the nearest turn"
4. The transformer will be rejected as unacceptable if the TTR tests on the LTC indicate any taps are off by more than 0.5 percent from the exact 5/8 percent tap.
5. Polarity and phase relation tests.
6. No-load loss at rated and 110% voltage without correction measured at 20°C.
7. No-load loss at manufacturer selected reduced voltage, each phase. (Both, the kW loss and selected voltage to be shown on test report.)
8. Exciting current at rated and 110% voltage.

9. Positive and zero sequence impedance at ONAN rating, rated voltage taps and at tap extremes.
10. Total kW loss at MVA corrected to 75°C loads set out in the Summary of Proposal.
11. Temperature rise tests:
 - a. Temperature rise test or tests shall be made in accordance with ANSI C57.12.90 using the short-circuit method and using the average-oil temperature rise per Sections 11.2 and 11.5.2.1, except the current shall be held at rated. Tests made on similar units shall suffice for this unit.
 - b. Subject to the limitations of section a. (above), when a transformer is supplied with auxiliary cooling equipment to provide more than one MVA rating, temperature tests shall be made on self-cooled and maximum forced-cooled MVA ratings.
12. Applied potential tests.
13. Sound level test at ONAN and maximum rating in the tap position that produces the highest level of noise.
14. The low-frequency induced tests specified in ANSI/IEEE C57.12.90, Section 10.7, shall be performed using phase-to-ground induced test voltages specified in ANSI/IEEE C57.12.00, Section 5.10.5. The RIV generated shall be measured at five minute intervals and shall not exceed 100 microvolts and shall not increase more than 30 microvolts during the one hour test.
15. Insulation resistance, each winding to ground, winding to winding, and core-to-ground.
16. If series winding is provided, perform a core ground test on the series winding.
17. Insulation power factor using 5kV or 10kV equipment. The insulation power factor will be guaranteed to not exceed 0.35%.
18. Impulse test consisting of one reduced full wave, two chopped waves, and one full wave shall be conducted on all windings with current measurements. Impulse testing shall be in accordance with ANSI/IEEE C57.98.
19. Test sequence for dielectric tests shall be: impulse tests, applied potential tests, low-frequency induced tests, insulation resistance tests and insulation power factor tests.
20. Polarity and ratio tests of all CT's on all taps after final and complete factory wiring.
21. Dissolved gas analysis measurements shall be taken before and after completion of dielectric testing.
22. Pressure test the transformer by filling with dry air or nitrogen up to 8 psi. The transformer shall hold the pressure without decay for four hours.
23. Vacuum test the tank by pulling a vacuum down to one inch Hg absolute. Hold the vacuum without decay for four hours.

The Contractor shall notify the Owner and the Engineer of any unusual event or damage occurring during the fabrication of the transformer and of all tests that do not meet the specified standard values. The Owner reserves the right at its option to inspect such damages or test failures. Corrective measures to overcome such damage or failure shall be subject to acceptance by the Owner.

END OF SECTION

ADDITIONAL CLAUSE #4

Bidder shall submit a bid bond equal to five percent (5%) of the bid price. Failure to submit a bid bond when required may deem the bid non-responsive. Bid Bonds may be submitted electronically with the executed original provided immediately upon request.

ADDITIONAL CLAUSE #6

Awarded dealer to supply factory confirmation of order within 10 days upon receipt of COG Purchase Order(s).

PREVAILING WAGES

Requirements:

Pay not less than the minimum wage scale and benefits indicated on the "Minimum Wage Schedule" provided here.

Wages listed are minimum rates only.

No claims for additional compensation shall be considered by the Owner because of payments of wage rates in excess of the applicable rate contained in this contract.

Penalty for Violations – Texas Government Code section 2258.023(b) states as follows: "A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that he worker is paid less than the wage rates stipulated in the contract."

Payroll Records – Texas Government Code section 2258.024 requires the contractor and subcontractor to keep the records showing: (a) the name and occupation of each worker employed by the contractor or subcontractor in the construction of the public work; and (b) the actual per diem wage paid to each worker. The records shall be open at all reasonable hours to inspection by the officers and agents of the public body.

Minimum Wage Rates – Pay prevailing basic wage listed, plus any applicable fringe benefits.

PREVAILING WAGE SCALE NOTICE

This determination of prevailing wages shall not be construed to prohibit the payment of more than the rates named. Under no condition shall any laborer, workman or mechanic employed on this job be paid less than the minimum wage scale.

In execution of this contract, the contractor shall comply with all applicable state and federal laws, including but not limited to laws concerned with labor, equal employment opportunity, safety and minimum wage.

Basic Rates:

Classification Basic Wage Rates

Acoustical Ceiling Installer	\$15.24
Acoustical Ceiling Installer Helper	\$11.74
A/C Mechanic	\$17.59
A/C Mechanic Helper	\$10.55
Asbestos Worker	\$12.56
Bricklayers/Stone Mason	\$19.12
Bricklayers/Stone Mason Helper	\$10.79
Carpenter	\$15.31
Carpenter Helper	\$11.29
Concrete Finisher	\$13.49
Concrete Finisher Helper	\$9.38
Concrete Form Builder	\$13.12
Concrete Form Builder Helper	\$8.59
Drywall Installer	\$14.31
Drywall Installer Helper	\$10.33
Drywall Taper	\$13.00
Drywall Taper Helper	\$9.00
Electrician (Journeyman)	\$19.91
Electrician Helper	\$12.59
Electronic Technician	\$16.65

Electronic Technician Helper	\$12.00
Floor Layer (Resilient)	\$17.43
Floor Layer (Carpet)	\$15.19
Floor Layer Helper	\$11.86
Glazier	\$16.35
Glazier Helper	\$10.94
Insulator	\$14.78
Insulator Helper	\$10.72
Laborer - Skilled	\$11.87
Laborer - Common	\$9.57
Lather	\$16.10
Lather Helper	\$10.80
Metal Building Assembler	\$12.21
Metal Building Assembler Helper	\$8.30
Painter	\$12.98
Painter Helper	\$8.00
Plasterer	\$17.25
Plasterer Helper	\$11.22
Plumber/Pipefitter	\$18.15
Plumber/Pipefitter Helper	\$11.12
Reinforcing Steel Setter	\$11.63
Reinforcing Steel Setter Helper	\$9.31
Roofer	\$14.00
Roofer Helper	\$9.97
Sheet Metal Worker	\$16.11
Sheet Metal Worker Helper	\$10.09
Sheetrock Hanger	\$14.38
Sheetrock Hanger Helper	\$10.96
Sprinkler System Installer	\$17.86
Sprinkler System Installer Helper	\$10.09
Structural Steel Worker	\$15.69
Structural Steel Worker Helper	\$9.39
Tile Mechanic	\$13.48
Waterproofer	\$11.31
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel	\$16.24
Concrete Pump Truck Driver	\$16.57
Foundation Drill Operator	\$13.90
Forklift	\$12.38
Front End Loader	\$11.26
Truck Driver	\$12.17
Welder	\$15.89
Welder Helper	\$10.11

Apprentice Pay – All Trades and Crafts – The minimum rate for apprentices shall be in accordance with the scale determined by the approved apprenticeship program of \$1.00 per hour less than journeymen's rates, whichever is lower. An approved apprenticeship program is one approved by the U.S. Department of Labor, Bureau of Apprenticeship training, and only apprentices enrolled in an approved program may be paid apprenticeship rates.

Base Per Diem Rate – Hours Worked/Day Times Base Hourly Rate

Multipliers for Overtime Rates:

-

Over 40 hours per week: Base hourly rate times 1.5

Holidays: Base hourly rate times 1.5

New Year's Day

Martin Luther King Day
Memorial Day
July 4th
Labor Day
Thanksgiving (2 days)
Christmas (2 days)

RETAINAGE: As security for the faithful completion of the work by the CONTRACTOR, the OWNER shall retain ten percent (10%) of the total dollar amount of work done on all contracts less than \$200,000.00; five percent (5) of the total dollar amount of work done on all contracts of \$200,000.00 or more.

On all contracts in excess of \$200,000.00, the following shall apply:

- (a) when work progress is fifty percent (50%) complete, retainage may a the OWNER'S option be reduced to two percent (2%) of the dollar value of all work satisfactorily completed to date (not to include material on hand) provided that the CONTRACTOR is on or ahead of the approved progress schedule and there is no cause for greater retainage as determined by the Engineer;
- (b) when work progress is substantially complete, the retainage may be further reduced to only that amount necessary to assure completion as determined by the Engineer;
- (c) if the OWNER determines that the CONTRACTOR is not making satisfactory progress or if there is other specific cause, the OWNER may, at his discretion, reinstate up to the five percent (5%) retainage.

**CITY OF GARLAND
STANDARD TERMS AND CONDITIONS**

1. **ENTIRE AGREEMENT:** These standard Terms and Conditions and the Terms and Conditions, Specifications, Drawings and other requirements included in the City of Garland's request for Bid/Proposal are applicable to Contracts/Purchase Orders issued by the City of Garland hereinafter referred to as the City or Buyer and the Seller herein after referred to as the Bidder, Contractor or Supplier. Any deviations must be in writing and signed by a representative of the City's Purchasing Department and the Supplier. No Terms and Conditions contained in the Sellers Bid/Proposal, Invoice or Statement shall serve to modify the terms set forth herein. If there is a conflict between the provisions on the face of the Contract/Purchase Order these written provisions will take precedence.
2. **OFFICIAL BID NOTIFICATION:** The City of Garland utilizes the following for official notifications of bid opportunities: www.bidsync.com and the Commercial Daily Record of Dallas County. These are the only forms of notification authorized by the City. The City is not responsible for receipt of notifications or information from any source other than those listed. It shall be the supplier's responsibility to verify the validity of all bid information received from any source other than the City of Garland. There will be NO COST to the Seller for using Bidsync for its Bids/Proposals.
3. **FRAUD POLICY:** The City of Garland is committed to preventing Fraud, Waste, Abuse and Unethical Conduct by its employees. Suppliers and potential suppliers should become familiar with the City of Garland's Fraud Policy located on our website at www.ci.garland.tx.us, City Hall/Internal Audit/fraud Policy. Suppliers have a responsibility to report any known or suspected fraudulent activities, or unethical conduct, by calling the City's Hot Line at 972-205-2739 or write to, Fraud Hot Line P.O.Box 469002 Garland TX 75046. All contacts will be held in strict confidence.
4. **COUNCIL POLICY:** Bidder shall comply with the requirements of City Council Policy OPNS-04 Qualifications for Doing Business with the City of Garland and OPNS-28 Business Conduct with Delinquent Account Holders and litigants attached hereto.
5. **PROHIBITION AGAINST PERSON INTEREST IN CONTRACTS:** No City of Garland employee shall have a direct or indirect financial interest in any contract with the city, or be directly or indirectly financially interested in the sale of land, materials, supplies or services to the city.
6. **COMPETITIVE PRICING:** It is the intent of the city to consider Interlocal Cooperative Agreements and State/Federal contracts in determining the best value for the city.
7. **INTERLOCAL AGREEMENT:** Successful bidder agrees to extend prices to all entities that have entered into or will enter into joint purchasing interlocal cooperation agreements with the City. The city is a participating member of several interlocal cooperative purchasing agreements. As such, the city has executed interlocal agreements, as permitted under Chapter 791 of the Texas Government Code, with certain other political subdivisions, authorizing participation in a cooperative purchasing program. The successful supplier may be asked to provide products/services based upon the bid price, to any other participant.
8. **RIGHT TO AUDIT:** The city shall have the right to examine and audit after reasonable notice any and all books and records of Seller/Contractor that may relate to this agreement including, without limitation, the performance of Seller/Contractor, its employees, agents, and subcontractors. Such books and records will be maintained in accordance with generally accepted accounting principles and shall, upon request and at the city's request, be made available at a location designated by the city. Seller/Contractor shall, except for copying costs, otherwise bear all costs of producing such records for examination and copying by the city. Unless otherwise agreed by the parties, such records must be made available to the city within five business days. The provisions of this paragraph shall survive the termination of this agreement.
9. **CORRESPONDENCE:** The Bid number must appear on all correspondence and inquiries pertaining to the Request for Bid. The Purchase Order number must appear on all invoices or other correspondence relating to the contract.
10. **INDEMNITY/INSURANCE:** See attached City of Garland minimum requirements, required for all on-site work on city property.
11. **EASEMENT PERMISSION:** The contractor shall not enter or use private property except as allowed by easements shown on the contract documents or if the contractor obtains specific written permission from the property owner.
12. **CITY PROVIDED SERVICES:** The contractor, or any sub-contractor or supplier shall use only city provided services in performing this contract including but not limited to: Electric (if available), Water, Sanitation and Solid Waste Services. The rate charged by the city shall be the same as charged for the same or similar services. Commercial Solid Waste rates may be obtained from City of Garland Environmental Waste Department at, 972-205-3500.
13. **CONTRACTOR EQUIPMENT IDENTIFICATION:** All equipment used on the project shall be clearly marked with the contractor's name and LOGO. Subcontractor equipment shall also be similarly marked.
14. **DELIVERY:** All goods shall be delivered F.O.B. Destination unless otherwise authorized herein. C.O.D. shipments or deliveries are not permitted.
15. **SPECIFICATIONS-SAMPLES:** If bidding on other than the item requested, sellers bid must identify the Trade Name, Manufacturer's Name and/or Catalog Number, and certify the item offered is equivalent. Descriptive literature must be submitted with alternate brands. Samples shall be furnished free of expense to the city and if requested, may be returned at bidder's expense.
16. **TIE BIDS:** In the event of tie bids, preference will be given to the bidder who offers the best value to the city in accordance with State Law.

17. ERROR-QUANTITY: Bids must be submitted in units of quantity specified, extended, and totaled. In the event of discrepancies in extension, the unit prices shall govern.
18. ACCEPTANCE: The right is reserved to accept or reject all or part of the bid, and to accept the offer considered most advantageous to the city by line item or total bid.
19. OEM PARTS: All vehicle options to be OEM factory installed unless otherwise identified on this bid.
20. SUBSTITUTION: Every delivery of goods by the supplier must comply with all provisions of this order including the specifications, delivery schedule, quantity and quality. Any delivery which does not conform to the buyers requirements shall constitute a breach of contract. Seller does not have authorization to make a substitute unless it is agreed to by the buyer.
21. BID LIST REMOVAL: The city reserves the right to remove a supplier from any Bid List for: (1) continued failure to be responsive to the city, (2) failure to deliver merchandise within promised time, (3) delivery of substandard merchandise or (4) failure to comply with the Contract/Purchase Order requirements.
22. DELIVERY TIMES: Deliveries to the City Warehouse or other designated City Buildings or Facilities will be accepted during normal working hours, i.e. 8:00a.m. to 4:00p.m., Monday through Friday unless other arrangements have been made. Deliveries being made directly to city work sites should be coordinated with the city employee responsible for the work being performed at that site.
23. PACKAGING: Unless otherwise indicated, items will be new, not rebuilt, in first class condition, and in containers suitable for damage-free shipment.
24. WARRANTY: By accepting this order seller warrants that the goods and services to be furnished will be free from defects in materials and workmanship, be of merchantable quality and fit for ordinary use, be in full conformance with buyer's specifications, drawings and data, seller's samples or models, and express warranties, and to be fit for any buyer's particular purpose expressly or impliedly known. These warranties are in addition to all others given to the buyer by the seller or by law. Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the buyer, and any such limitations or exclusions are void.
25. TERM CONTRACTS: Except as otherwise provided herein, prices must remain firm for the entire contract period, including any periods of extension or renewal. At the time of any renewal or extension of the contract, the city or the supplier may request a price adjustment based upon the economy. All requests for a price adjustment must include detailed documentation and rationale to support the requested adjustment. The party to whom a request for price adjustment is made may, in its sole discretion, accept or reject the request. Any price adjustment must be mutually agreed upon in writing by the parties, and shall be effective for the applicable renewal term.
26. TERM CONTRACT QUANTITIES: The quantities in the request for bid are estimated requirements and the city reserves the right to increase or decrease the quantities or cancel any item to be furnished. The successful bidder shall have no claim against the city for anticipated profits for quantities diminished or deleted.
27. TERM CONTRACT SHIPMENTS: The supplier will make shipments under this contract only when requested and only in the quantities requested. If there are minimum shipments or standard packaging requirements please note the items affected.
28. CONTRACT RENEWAL OPTIONS: In the event a clause for option to renew for an additional period is included in the request for bid, all renewals will be based solely upon the option and agreement between the city and the supplier. Either party dissenting will terminate the contract in accordance with its initial specified term.
29. TAXES-EXEMPTION: All quotations are required to be submitted LESS Federal Excise and State Sales Taxes. Tax Exemption Certificate will be executed for the successful supplier.
30. ASSIGNMENT: Seller shall not assign this order or any interest herein, including any performance or any amount which may be due or become due hereunder, without buyer's prior written consent.
31. INVOICING: Send ORIGINAL INVOICE to address indicated on the purchase order. If invoice is subject to cash discounts the discount period will begin on the day invoices are received. So that proper cash discount may be computed, invoice should show amount of freight as a separate item, if applicable; otherwise, cash discount will be computed on total amount of invoice.
32. INSPECTION: Goods purchased are subject to inspection and approval by buyer. Buyer reserves the right to reject or refuse acceptance of goods which are not in accordance with buyer's instructions, specifications, drawings and data, or seller's warranties (expressed or implied). Goods not accepted will be returned to seller at seller's risk and expense. Payment for any goods shall not be deemed an acceptance thereof.
33. ELECTRONIC SIGNATURE – UNIFORM ELECTRONIC TRANSACTION ACT: The city adopts Vernon's Texas Statutes and Codes Annotated Business and Commerce Code Chapter 43. Uniform Electronic Transaction Act, allowing individuals, companies, and governmental entities to lawfully use and rely on electronic signatures.
34. FUNDING OUT CLAUSE: This agreement may be terminated by the city without notice and without penalty or liability in the event that (1) the city lacks sufficient funds for this agreement; (2) funds for this agreement are not appropriated by the City Council of the City; and (3) funds for this agreement that are or were to be provided by grant or through an outside service are withheld, denied or are otherwise not available to the city.
35. DISPUTE RESOLUTION: Pursuant to subchapter I, Chapter 271, TEXAS LOCAL GOVERNMENT CODE, contractor agrees that, prior to instituting any lawsuit or other proceeding arising from any dispute or claim of breach under this Agreement (a "Claim"), the parties will first attempt to resolve the claim by taking the following steps: (i) A written notice substantially describing the factual and legal basis of the claim shall be delivered by the contractor to the city within one-hundred eighty (180) days after the date of the event giving rise to the claim, which notice shall request a written response to be delivered to the contractor not less than fourteen (14) business days after receipt of the notice of claim; (ii) if the response does not resolve the claim, in the opinion of the contractor, the contractor shall give notice to that effect to the city

whereupon each party shall appoint a person having authority over the activities of the respective parties who shall promptly meet, in person, in an effort to resolve the claim; (iii) if those persons cannot or do not resolve the claim, then the parties shall each appoint a person from the highest tier of managerial responsibility within each respective party, who shall then promptly meet, in person, in an effort to resolve the claim.

36. **DISCLOSURE OF CERTAIN RELATIONSHIPS:** Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any supplier or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the supplier or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the Records Administrator of the City of Garland not later than the 7th business day after the date the supplier or person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. Chapter 176 and the questionnaire may be found at www.garlandpurchasing.com. By submitting a response to this request, supplier represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code.

37. **PERFORMANCE:** If seller fails to comply with any provisions or terms of this order, the buyer, may at buyer's option, cancel this order or any other orders outstanding. In the event of cancellation buyer retains all rights and remedies it may have.

38. **PATENTS:** Seller agrees to indemnify and hold harmless the buyer against all costs and expenses, including attorneys fees and undertakes and agrees to defend at seller's own expense, all suits, actions or proceedings in which buyer or the users of buyer's products are made defendants of actual or alleged infringement of any U.S. or foreign patent resulting from the use or sale of the items purchased hereunder (except infringement necessarily resulting from adherence to buyer's specifications or drawings) and further agrees to pay and discharge any and all judgments or decrees which may be rendered in any such suit, action or proceeding.

39. **APPLICABLE LAW:** This agreement shall be governed by the Uniform Commercial Code as adopted in the State of Texas as effective and in force on the date of this agreement.

40. **VENUE:** This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in Dallas County, Texas.

41. **TERMINATION:** The city at any time after issuance of this agreement, by 30 days written notice, has the absolute write to terminate this agreement for cause or convenience. Cause shall be the supplier's refusal or failure to satisfactorily perform or complete the work within the time specified, or failure to meet the specifications, quantities, quality and/or other requirements specified in the Contract/Purchase Order. In such case the supplier shall be liable for any damages suffered by the city. If the agreement is terminated for convenience, the supplier has no further obligation under the agreement. Payment shall be made to cover the cost of material and work in process or "consigned" to the city as of the effective date of the termination.

42. **FORCE MAJEURE:** To the extent either party of this agreement shall be wholly or partially prevented from the performance of the term specified, or of any obligation or duty placed on such party by reason of or through work strikes, stoppage of labor, riot, fire, flood, acts of war, insurrection, court judgment, act of God, or other specific cause reasonably beyond the parties control and not attributable to it's malfeasance, neglect or nonfeasance. In such event, the time for performance of such obligation or duty shall be suspended until such disability to perform is removed.

CITY COUNCIL POLICY

OPNS-04 – Qualifications for Doing Business with the City

I. **Purpose and Need for Policy**

The purpose of this policy is to foster the public's trust in the conduct of City business and to further insure the expenditures of public funds is beyond reproach.

II. **Policy**

Other than the exceptions cited below, it is the policy of the City Council to not enter into or renew a contract to purchase, sell, or lease property or services to or from any entity described in this policy.

III. **Procedure to Accomplish Policy**

A. The City of Garland shall not, except as provided herein, enter into or renew a contract to purchase, sell, or lease property or services to or from any person or entity who has been:

- 1) Convicted of any state or federal felony offense. Conviction includes a final probation, deferred adjudication or similar disposition.
- 2) Convicted or fined in excess of \$50,000 on certain state or federal discrimination offenses. Discrimination charges include only those brought for discrimination against the race, sex, or religion or an individual or class of individuals.

B. Persons or entities doing business with the City include:

- 1) Individuals, corporations, partnerships, associations, or limited liability companies.
- 2) Owner or principal operators of entities referenced in paragraph B(1).
- 3) Principal officers of entities referenced in paragraph B(1).
- 4) Shareholders in corporations or limited liabilities companies if there are five or fewer shareholders.

- 5) Majority owned affiliates of any entity referenced in paragraph B(1).
- C. This policy shall not apply when:
- 1) Three years have elapsed between the conviction and the approval of the contract.
 - 2) The contract does not require City Council approval.
 - 3) Anything of value is paid or given to informants or participants in a crime stopper program, or
 - 4) The City Council determines this policy could cause grave injury or impose a severe financial hardship to the City of Garland by its application, and is waived by an affirmative vote of not less than six (6) Council members.
- D. On bid applications that may result in a contract award by the City Council, the City shall require a representation by bidders that the bidder is not disqualified by the application of this policy.
- E. After contract award, but prior to the commencement of the project or the delivery of the service or property, a determination that the bidder is in violation of this policy shall be cause for terminating the contract.

By the execution and submission of this bid, bidder acknowledges that bidder has received a copy of City Council Policy OPNS-04 and bidder represents and warrants that bidder complies with the requirements of the City Council Policy OPNS-04 and is in no manner disqualified from doing business with the City under that policy.

CITY COUNCIL POLICY

OPNS-28 – Business Conduct with Delinquent Account Holders and Litigants

I. Purpose and Need for Policy

The City conducts business with its citizens and the public at-large. In so doing, there are instances where the City may be asked to conduct business with those who are delinquent in their payment(s) to the City on various accounts or who may be involved in litigation with the City. Examples of the types of delinquent accounts which can be substantial in nature are impact fees, property taxes (generally person property), utility bills, EMS fees, and damage claims to City property. A policy is needed to ensure that the City does not conduct business with those individuals.

II. Policy

It is the policy of the City Council to forbid any individual or business entity to conduct business with the City if such person(s) currently owe(s) the City money which is past due or delinquent on property taxes, impact fees, utility bills, Municipal Court fees, EMS fees, or damage claims to City property. Unless prohibited by law, it shall further be the policy of the City Council to forbid any individual or business entity who files meritless litigation against the City from conducting business with the City.

III. Procedure to Accomplish Policy

On a monthly basis, the Managing Director of Customer Services shall produce a delinquent accounts list containing the names of those businesses and/or individuals who are delinquent in paying the City for property taxes, impact fees, utility bills, EMS fees, or damage claims. Copies of the delinquent tax history shall be distributed to the City Manager's office, Purchasing, Engineering, Planning, and Building Inspection Departments. The delinquent accounts list relating to impact fees, utility bills, EMS fees, and/or damage claims shall be housed in the Customer Service Department. These lists will be available to the City Manager, Assistant City Manager's, and other departments upon request, to be checked prior to permit issuance or other conduct of business by the City with any business or individual. The City will not do business with any business or individual until the delinquent account is paid in full. The City shall not award any contracts for services and/or goods to any business, firm, and/or individual(s) who are delinquent or have demonstrated that they are not the most responsible bidder.

IV. Responsibility and Authority

1. The Managing Director of Customer Service shall be responsible for producing and distributing a delinquent accounts list containing names of businesses and/or individuals who are delinquent in paying their property taxes, impact fees, utility bills, EMS fees, or damage claims to the City.
2. The Purchasing Manager shall be responsible for the reporting and removal of any bids submitted by any business(es), firm(s), and/or individual(s) who are delinquent in payment(s) of their utility bills, EMS fees, property taxes, impact fees, or have damage claims to the City.
3. The City Manager is responsible to ensure that this policy is upheld and that the Council is kept abreast of its effectiveness.

By the execution and submission of this bid, bidder acknowledges that bidder has received a copy of City Council Policy OPNS-28 and bidder represents and warrants that bidder complies with the requirements of the City Council Policy OPNS-28 and is in no manner disqualified from doing business with the City under that policy.

g:city/purchase/bonds-insurance/t&c-07-05; 7/05; 8/05; 2/06; 7/06;10/07; 2/1/08; 12/4/08 (right to audit); 5/13/09 (error); 7/1/09(rearranged); revised 8/20/09

IF VENDOR IS AWARDED BID/PROPOSAL, INSURANCE AND BONDS WILL BE REQUIRED WITHIN 10 DAYS OF NOTICE OF AWARD.

DO NOT FILL OUT THESE FORMS UPON SUBMISSION OF YOUR BID/PROPOSAL. THEY ARE INCLUDED TO FAMILIARIZE THE BIDDER WITH THE DOCUMENTS REQUIRED TO BE EXECUTED UPON AWARD OF THIS BID/PROPOSAL.

CONTRACTOR'S AFFIDAVIT OF BILLS PAID

(To be executed prior to acceptance of project)

STATE OF TEXAS

COUNTY OF DALLAS

Personally, before me the undersigned authority, on this day appeared _____ who, being duly sworn, on oath, says that he is a legal representative of _____ (Full name of Contractor as in Contract) and that the contract for the construction of the project, designated as _____ (Project No) has been satisfactorily completed and that all bills for materials, apparatus, fixture, machinery and labor used in connection with the construction of this project have, to the best of my knowledge and belief, been fully paid.

Signature _____
Title _____

Sworn to and subscribed before me this _____ day of _____, 2 _____.

Notary Public in and for _____ County, Texas

Instructions:

If the Contractor is an individual, he shall sign the affidavit. If the Contractor is a partnership, any partner may sign the affidavit. If the Contractor is a corporation, a person authorized by the by-laws or by the Board of Directors shall sign the affidavit. If the Contractor is a joint venture of individuals, any of the individuals may sign the affidavit. If the Contractor is a joint venture of partnerships, or of individuals and partnerships, the individual or any partner of any partnership may sign the affidavit. If the contractor is a joint venture in which a corporation is a party, separate affidavits must be executed in the name of the joint-venture; one by each corporation and one by each individual or partnership. Signatures for corporations should be by a duly authorized officer. If signature is by another, a showing of authority to sign must accompany the affidavit.

-----title-----**CONTRACT**

THIS CONTRACT is made and entered into by and between the **CITY OF GARLAND, TEXAS (the "City")**, a municipal corporation located in Dallas County, Texas, and _____ a Texas corporation, herein referred to as "Contractor."

RECITALS:

WHEREAS, the City requested bids for (brief scope of work) _____

and

WHEREAS, Contractor submitted the lowest responsible bid in response to the City's request for bids,

NOW THEREFORE, in consideration of the mutual covenants contained herein, the sufficiency of which is acknowledged, the City and the Contractor hereby agree as follows:

1. Services Provided. The Contractor undertakes, covenants, and agrees to provide the services required by the City in accordance with the requirements,

terms and conditions contained in the City's request for bids in connection with Bid Number _____ (entitled "_____").

2. Incorporation by Reference. All terms and conditions contained in the City's request for bids in connection with Bid Number _____ are incorporated into this Contract by reference as if full set forth at length.

3. Price and Payment. The Contractor shall be entitled to receive (amount in words) _____ dollars (\$_____.00) for performance of the services contemplated by this Contract. Payment shall be governed by the terms and conditions set forth in the request for bid in connection with Bid Number _____.

4. Additional Security. It is mutually agreed that should it appear to the City of Garland, or to the Authorized Agent in charge, at any time during the existence of this Contract, that the sureties on the Contractor's bond have become insolvent, bankrupt, or otherwise financially unable to protect the City under the terms of the Contract, the City may demand the Contractor to furnish additional security in some approved surety company satisfactory to the City. The acts of the City or the Agent with reference to demanding new or additional security shall never be construed to relieve the original sureties of their obligations under the Contract, or to relieve the Contractor. The City may stop performance under the Contract until additional security has been furnished by the Contractor, and the City shall in no case be liable to the Contractor on account thereof. In the event of the refusal or failure of the Contractor to comply with the demands of the City with reference to furnishing additional security, the City may exercise its right as provided herein to stop all payments under the Contract and to arrange for completion of the Contract requirements obligating the Contractor for any and all additional expenses incurred.

5. Entire Agreement. It is understood and agreed that this contract contains the entire agreement between the parties and supersedes any and all prior agreements, arrangements or understandings between and parties relating to the subject matter. No oral understandings, statements, promises or inducements contrary to the terms of this contract exist.

This contract cannot be changed or terminated orally and no written modification of this contract shall be effective unless executed by both parties.

EXECUTED on this the _____ day of _____, 2

CITY OF GARLAND:

By: _____ (City /Owner) By: _____ Party of the Second Part (Contractor)

Name: _____ Name: _____

Title: _____ Title: _____

Date: _____ Date: _____

Before me this day personally appeared the person whose signature appears above, who after being by me duly sworn upon oath says that he/she is

_____,
(title and name of company)

and is authorized to sign as an act of the corporation.

Subscribed and sworn to before me on this the _____ day of _____, 2

Notary Public in and for the State of Texas

Printed Name of Notary

My Commission Expires _____

MAINTENANCE BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns the sum of _____ Dollars in the lawful currency of the United States of America (\$_____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, under the Contract it is provided that the Contractor will maintain and keep in good repair all work to be performed and done under the Contract for a period of one (1) year from the date of acceptance of the completed work by the City, and to do and perform all necessary work and repair any defective condition, it being understood that the purpose of this maintenance bond is to insure all warranties, express or implied, made or given by the Contractor to the City and to cover all defective, inadequate or non-conforming conditions arising by reason of any materials or labor installed, provided, constructed or performed by the Contractor and in case the Contractor shall fail to correct any such conditions it is agreed that the City may make such corrections and charge the cost of making those corrections against the Contractor and the Surety on this obligation, and the Contractor and Surety shall be subject to the liquidated damages provided in the contract, the plans and the specifications for each day's failure on its part to comply with the terms and provisions of the Contract;

NOW, THEREFORE, if the Contractor shall keep and perform its obligation to maintain the work and keep the work in repair for the full maintenance period of one (1) year as herein provided, then these presents shall be null and void and have no further effect, but if default shall be made by Contractor in the performance of its obligations, then these presents shall have full force and effect, and the City shall have and recover from the Contractor and its Surety damages in the premises as provided and it is further understood and agreed that this obligation shall be a continuing one against the Contractor and the Surety and that successive recoveries may be had hereon for successive breaches until the full amount of this bond shall have been exhausted; and it is further understood that the obligation under this bond to maintain the work shall continue throughout the maintenance period and shall not be changed, diminished, or in any other manner affected during the term of this bond. The obligations of Contractor and Surety under this bond

apply both to the original Contract and to any extension or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas County, Texas such that exclusive venue for any legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 20__.

CONTRACTOR:

SURETY:

By: _____
Printed Name: _____
Title: _____

By: _____
Printed Name: _____
Title: _____

Address of Principal:

Address of Surety:

ACKNOWLEDGMENTS

[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

[Surety]

STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the _____ day of _____, 20____ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 20____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

PAYMENT BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension of time or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas County, Texas such that exclusive venue for any

legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the _____ day of _____, 20__.

CONTRACTOR:**SURETY:**

By: _____

By: _____

Title: _____

Title: _____

ACKNOWLEDGMENTS

[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2_____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

[Surety]

STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the _____ day of _____, 2____ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 2_____.

 Notary Public in and for the State of Texas
 My Commission Expires: _____

 Typed or Printed Name of Notary

PERFORMANCE BOND

STATE OF TEXAS }
COUNTY OF DALLAS }

WHEREAS, _____ as principal ("Contractor") and _____, a corporation organized under the laws of _____ and being duly authorized to do business in the State of Texas, as surety ("Surety")(whether one or more), do hereby expressly acknowledge themselves to be held and bound to pay to the City of Garland, Texas, a home-rule municipality organized and operating under the Constitution and laws of the State of Texas (the "City"), its successors and assigns, and to all persons, firms, subcontractors and corporations who may furnish materials or labor under the contract as more fully described below, the sum of _____ Dollars in the lawful currency of the United States of America (\$ _____) for the payment of which Contractor and Surety are liable to the City, jointly and severally; and

WHEREAS, Contractor has this day entered into a written contract with the City to build and construct:

Name of Project

which contract and the plans and specifications therein mentioned (collectively referred to hereinafter as the "Contract") are hereby expressly incorporated into and made a part hereof as though set forth at length; and

WHEREAS, this bond is given pursuant to Chapter 2253 of the Texas Government Code;

NOW, THEREFORE, if Contractor shall well, truly and faithfully perform all of the undertakings, duties, terms, conditions and agreements of the Contract; shall satisfy all claims and demands incurred under the Contract; shall fully indemnify and hold the City harmless; shall reimburse and repay the City for any outlay or expense which the City may incur in making good any default, and shall promptly make payment to all persons, firms, subcontractors and corporations who may furnish materials or labor under the Contract, then this obligation shall be void; otherwise to remain in full force and effect. The obligations of Contractor and Surety under this bond apply both to the original Contract and to any extension or modification of the Contract and Surety agrees that no change, extension of time, addition, expansion or other modification of the Contract, the work to be done under the Contract, or the plans and specifications which are a part of the Contract shall in any manner affect the obligations of Surety under this bond, and Surety waives notice of any such change, extension of time, addition, expansion or other modification. The obligations of Contractor and Surety under this bond are performable and payable in Dallas

County, Texas such that exclusive venue for any legal action pertaining to this bond shall lie in Dallas County, Texas. By their signatures below, the persons signing this bond warrant and represent that they are, respectively, duly authorized to sign on behalf of Contractor and Surety.

EXECUTED this the ____ day of _____, 2____.

CONTRACTOR:

SURETY:

By: _____
Title: _____

By: _____
Title: _____

ACKNOWLEDGMENTS
[Contractor]

STATE OF TEXAS }
COUNTY OF DALLAS }

Before me _____ (insert the name of the officer) on this day _____ personally appeared _____ known to me (or proved to me on the oath of _____) or through _____ (description of identity card or other document) to be the person whose name is subscribed to the forgoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this _____ day of _____, 2____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

[Surety]
STATE OF TEXAS }
COUNTY OF DALLAS }

This instrument was acknowledged before me on the ____ day of _____, 2____ by _____ who is the _____ of the Surety, on behalf of Surety.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____ day of _____, 2____.

Notary Public in and for the State of Texas
My Commission Expires: _____

Typed or Printed Name of Notary

Revised 1/10/00 revised 2/28/06(year signed only) revised 7/6/06(notary wording)

Bid No. 549-09

[illegible]

Legend:

columns: 1,2,3,4,22	Transformer Base Data
columns: 5,6,7,8,9	Transformer Percent Data on Its Own Base
columns: 10,11	No Load Loss and Load Loss

Revised 4, 2004 T&D

Please fill in **ALL** the above columns and include it with your bid.

ALL BIDDERS ARE NOTIFIED THAT THE FOLLOWING QUALIFICATION STATEMENT MUST BE COMPLETED AND SUBMITTED WITH THE BID PROPOSAL.

SC.37 CONTRACTORS QUALIFICATIONS

The contractor shall show that he has experience with similar projects that require working in confined areas in close proximity to many physical features (fences, utility poles, guy lines, gas lines and meters, sewer manholes and cleanouts, etc.) which will require the Contractor to plan his work efforts and equipment needs with these limitations in mind. The Contractor shall submit a list of projects successfully completed that required work under similar specifications. This list shall include the names of supervisors and type of equipment used to perform this work.

Reviewed 03/09/09

BIDDERS QUALIFICATION STATEMENTProject: Contractor:

Indicate One: ☐ Sole Proprietor ☐ Partnership ☐ Other
 ☐ Corporation ☐ Joint Venture

Name: Partner:

-

Title: Title: Address: Address: City: City: State & Zip: State & Zip: Phone: Phone: State and Date of Incorporation, Partnership, Ownership, Etc. Location of Principal Office: Contact and Phone at Principal Office: Liability Insurance Provider and Limits of Coverage: Workers compensation Insurance Provider: Surety (Performance and Payment): Address: Contact and Phone: Total Number of Employees to be Associated with this Job:

Managerial
Skilled

Administrative
Semi-Skilled

Professional
Other

Percentage of Work to be Done by Bidders Employees (Based on Dollars Bid):

Type(s) of Work to be Done by Bidders Employees (examples: concrete paving, structural concrete, water lines, sanitary sewer lines, storm pipe, storm inlets, excavation, lime, bridge fencing, etc.)

-------------	-------------

Access to Tools and Equipment: Percent Owned Percent Rented

Number of Years in Business as a Contractor on Above Types of Work:

Type(s) of Work to be Done by Sub-Contractors

Include Name, Address, and Phone Number of Sub-Contractor, Use Additional Sheets if needed.

Type of Work	Sub-Contractor

List your most current completed projects, with information, similar to the type of work bid.
(Use Additional Sheets if Necessary)

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person: Phone:

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person: Phone:

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person: Phone:

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person: Phone:

Project:

Project Description:

Owner/Agency:

Year Built Contract Price:

Contact Person: Phone:

Trade References (List Company, Address, Contact Person, and Phone):

Bank References (List Institution, Address, Contact Person, and Phone):

Claims and Suits (If the answer to any of the questions is yes, please attach details):

Has your organization ever failed to complete any work awarded to it?

Are there any judgments, claims, arbitration proceedings, or suits pending or outstanding against your organization or its officers?

Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract?

I, , being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Dated day of , 20 .

Name of Organization:

By:

Title:

STATE OF TEXAS

COUNTY OF DALLAS

BEFORE ME the undersigned authority, on this day personally appeared

, known to me to be the person whose name subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this day of ,
20 .

Notary Public in and for
Dallas County, Texas

CONTINUITY OF OPERATIONS PLAN

The City of Garland wants to ensure our suppliers have the capability to continue essential services to the City through a continuity of operations plan. Please complete the below and return to:

City of Garland Purchasing Department

Fax: 972-205-2495

Email: purchase@ci.garland.tx.us

The City needs only one response from each supplier. If you have provided this information with a solicitation response please disregard this request.

has a continuity of operations plan Yes ☐ No ☐

Company Name

If no, will a plan be developed in the near future? Yes ☐ No ☐

When the plan is about to be or has been activated the City of Garland should contact:

Background

The City of Garland provides vital services to its citizens. As a result, reliability is the fundamental mission of every department in the City. Should a crisis disrupt essential departmental operations, the City would not be able to fulfill its mission in the absence of continuity of operations planning.

Emergency Preparedness plans have traditionally focused on response to natural disasters. Yet historically, the most significant threat to the world's population has not been natural disasters, nor war, but disease.

An influenza pandemic today could have far-reaching negative consequences for the health and well-being of Garland residents and for the economic and social stability of the North Texas region.

For example, pandemic influenza has the potential to infect 30 percent or more of the population, with an average of 20 percent of the workforce unable to work for an extended period of time. In an affected community, a pandemic outbreak could last from six to eight weeks.

Multiple waves (periods during which community outbreaks occur across the country) of illness might also occur, with each wave lasting two to three months. Historically, the largest waves have occurred in the fall and winter, but the season of a pandemic cannot be predicted with certainty.

Increased absenteeism among all workers and a requirement to implement social distancing to help delay the spread of a pandemic could place a severe strain on all City services, particularly public safety and health-based services. Alternative methods of operations may be required. **Furthermore, similar impacts at supplier companies may result in a shortage of critical supplies needed to conduct City operations.**

Thank you.

Carol Cooper, C.P.M., CPPO

Director of Material Management

8/1/09

Agreement and Information FormRESPONSES THAT DO NOT CONTAIN THIS COMPLETED FORM WILL NOT BE COMPLIANTSection I Company ProfileName of Business: Business Address: Contact Name: Phone#: Fax#: Email#:

Name(s) Title of Authorized Company Officers:

Federal ID #: DUN #: Remit Address: If different than your physical address: Section II Historically Underutilize Businesses (HUB)

The City of Garland supports the opportunity of HUBs to be considered for all levels of purchases of goods and services through the competitive procurement process. The City of Garland accepts HUB certification from the State of Texas. The City of Garland may accept certifications from other sources on a case by case basis. Visit www.garlandpurchasing.com for further information.

HUB Owned Business Yes ☐ No ☐ Include a current copy of your HUB certification with your response. Identify type of material, Goods, Supplies and Services your company provides. (Determines 1099 status)

- A. Products/Goods:
- E. Construction:
- F. Professional Services:
- J. Other Services:

Section III Instructions to Bidders

Electronic Bids: The City of Garland uses BidSync to distribute and receive bids and proposals. There will be **NO COST** to the Contractor/Supplier for Standard bids or proposals. For **Cooperative Bids and Reverse Auctions ONLY**, the successful contractor/supplier agrees to pay BidSync a transaction fee of one percent (1%) of the total amount of all

contracts for goods and/or services. **Cooperative Bids and Reverse Auctions** will be clearly marked on the bid documents. To assure that all contractors/suppliers are treated fairly, the fee will be payable whether the bid/proposal is submitted electronically, or by paper means. Refer to www.bidsync.com for further information.

Contractor/Supplier Responsibility: It is the contractor/suppliers responsibility to check for any addenda or questions and answers that might have been issued before bid closing date and time. Contractors/Suppliers will be notified of any addenda and Q&A if they are on the invited list, they view the bid, or add themselves to the watch list.

Acknowledgement of Addenda: #1 ☐ #2 ☐ #3 ☐ #4 ☐ #5 ☐

Delivery of Bids: For delivery of paper bids our physical address is:
City of Garland
200 N. Fifth Street,
Garland TX 75040
Attn: Purchasing Department Suite 203

Contractor/Supplier Employees: No Contractor/Supplier employee shall have a direct or indirect financial interest in any contract with the city, or be directly or indirectly financially interested in the sale of land, materials, supplies or services to the city.

Fraud Policy: The City of Garland is committed to preventing Fraud, Waste and Abuse and Unethical conduct by its employees. Suppliers and potential suppliers should become familiar with City of Garland's Fraud Policy located on our website at www.ci.garland.tx.us, City Hall/Internal Audit/Fraud Policy. Contractors/Suppliers have a responsibility to report any known or suspected fraudulent activities, or unethical conducts by calling the City Hot Line at 972-205-2739 or writing to Fraud Hot Line P.O. Box 469002 Garland TX, 75046. All contacts will be held in strict confidence.

Deliveries: All deliveries will be F.O.B. City of Garland. All Transportation Charges paid by the contractor/supplier to Destination.

Payment Terms: A Prompt Payment Discount of ttt % is offered for Payment Made Within ttt Days of Acceptance of Goods or Services. If Prompt Payments are not offered or accepted, payments shall be made 30 days after receipt and acceptance of goods or services or after the date of receipt of the invoice whichever is later.

Delivery Dates: Delivery Dates are to be specified in Calendar Days from the Date of Order.

Bid Prices: Pre-Award bid prices shall remain Firm and Irrevocable for a Period of ttt Days.

Exceptions: ☐ Contractor/Supplier does not take Exception to Bid Specifications or Other Requirements of this Solicitation.

☐ Contractor/Supplier take the following Exception(s) to the Bid Specifications or Other Requirements of this Solicitation (Explain in Detail).

Historically Underutilized Business (HUB): It is the policy of the City of Garland to involve HUBs in the procurement of goods, equipment, services and construction projects. Prime Contractors/Suppliers are encouraged to provide HUBs the opportunity to compete for sub-contracting and other procurement opportunities. A listing of HUBs in this area may be accessed at the following State of Texas Website. <http://www.window.state.tx.us/procurement/cmb/cmbhub.html>.

Other Government Entities: Would bidder be willing to allow other local governmental entities to participate in this contract, if awarded under the same Terms and Conditions? Yes ☐ No ☐

Bid Bond: Is Bid Bond attached if applicable? Yes ☐ No ☐

Termination: The city at any time after issuance of this agreement, by 30 days written notice, has the absolute right to terminate this agreement for cause or convenience. Cause shall be the contractor/supplier's refusal or failure to satisfactorily perform or complete the work within the time specified, or failure to meet the specifications, quantities, quality and/or other requirements specified in the contract/purchase order. In such case the supplier shall be liable for any damages suffered by

the city. If the agreement is terminated for convenience, the supplier has no further obligation under the agreement. Payment shall be made to cover the cost of material and work in process or "consigned" to the city as of the effective date of the termination.

Bidder Compliance: Bidder agrees to comply with all conditions contained in this Agreement and Information Form and the additional terms and conditions and specifications included in this request. The undersigned hereby agrees to furnish and deliver the articles or services as specified at the prices and terms herein stated and in strict accordance with the specifications and conditions, all of which are made a part of your offer. Your offer is not subject to withdrawal after the award is made.

W-9 Form: A W-9 form will be required from the successful bidder.

The City of Garland reserves the right to reject all or part of the offer and to accept the offer considered most advantages to the city by item or total bid.

The City of Garland will award to the lowest responsible bidder or to the bidder who provides goods or services at the best value for the City.

I hereby certify that all of the information provided in sections I, II and III are true and accurate to the best of my knowledge.

Signature: Date:

Title:

Signature certifies no changes have been made to the content of this solicitation as provided by the City of Garland.

Revised 8/27/09; 9/30/09

Question and Answers for Bid #549-09 - 28 MVA Power Substation Transformer

OVERALL BID QUESTIONS

Question 1

Page 2 of 44 States that Addendums to the proposal, whether in hard form, ele....., will not be accepted. This suggests that if a bidder takes exception to any item they will be excluded. Is this the intent of this wording? (Submitted: Oct 5, 2009 10:53:49 AM CDT)

Answer

- Please excuse the error. This line should be disregarded. Any exceptions should be noted and will be responded to. If addendums are required they will be added. (Answered: Oct 5, 2009 10:56:36 AM CDT)

Question 2

1. Please confirm that 5% Bid Bond and 10%(5 years) Maintenance Bond if awarded are only 2 bonds required for this bid.
2. Can 5% Bid Bond submitted with a cashiers check? (Submitted: Oct 7, 2009 12:33:01 PM CDT)

Answer

- Due to the requirement of delivery installation on pad and Manufacturer's Field Services testing for serviceability, all bonds will be required. Performance will be accepted upon completion of testing as this unit will not be energized at this time. (Answered: Oct 7, 2009 2:06:02 PM CDT)

Question 3

What are the amount (% of contract price) of payment bond and performance bond? Can bid bond submitted with a cashiers check? (Submitted: Oct 8, 2009 11:29:39 AM CDT)

Answer

- Payment & Performance Bonds are 100% of bid price. Bid bond must be from a Surety company. We cannot accept checks. (Answered: Oct 8, 2009 11:52:02 AM CDT)

Question 4

Please clarify whether the LTC design shall be reduced capacity or full capacity?". (Submitted: Oct 9, 2009 8:45:35 AM CDT)

Answer

- From paragraph 1E.19, page 37 or 44: "The LTC shall be a vacuum type Reinhausen RMV-II LTC. No alternate will be accepted."

and

"The tap changer shall have full rated KVA on taps above rated neutral voltage and a current rating corresponding to the full load current of rated voltage on taps below normal voltage. The LTC contacts shall be rated at the full kVA output of the transformer in all LTC positions." (Answered: Oct 9, 2009 10:08:20 AM CDT)

Question 5

There is a discrepancy in the requirements for a Maintenance Bond. Page 5 of 44 Sec. H calls for a 5 year bond while the actual bond form calls for 1 year. Please clarify if 1 yr is correct as a 5 yr bond is impossible to get. (Submitted: Oct 9, 2009 3:50:29 PM CDT)

Answer

- Please disregard this inclusion on page 5 of 44 Sec. H. requesting for a 5 year maintenance bond. We request a 5 year warrantee but the maintenance bond will be for 1 year only. Thank you for bringing this to our attention. (Answered: Oct 12, 2009 11:09:43 AM CDT)

Question 6

It seems High Voltage is dual, 138-69kV and the customer specified "X-Wound," but we do not know what "X-

Wound" is. What is "X-Wound?" (Submitted: Oct 12, 2009 9:33:38 AM CDT)

Answer

- X-wound is a term for dual high voltage. High voltage is to be either 138kV or 69kV, changeable by a tap drive wheel or crank handle external to the tank. (Answered: Oct 12, 2009 12:48:08 PM CDT)

Question 7

On 13, DETC was specified on HV and there are no comments about "OLTC." On the other hand, there are comments of OLTC on LV side on pg 39. Please confirm DETC on HV only or DETC on HV and OLTC on LV. (Submitted: Oct 12, 2009 9:35:41 AM CDT)

Answer

- Specification is for DETC on HV and OLTC on LV, as written (Answered: Oct 12, 2009 12:48:08 PM CDT)

Question 8

Given the requested impedance value (9% @ 15 MVA or 15% @ 25 MVA) , complying with the maximum value for the regulation would imply extremely low load losses ≈ 15 kW , such a unit could not even be manufactured when these losses typically are designed in the range of 70 -100 kW or more, see simulation below in which the entry variable is the load losses value and the resulting regulation is calculated below. Sensitivity of the regulation to the losses can be checked by changing the variable values. One suggestion would be to allow for a higher value for the maximum regulation around 7.8-8.0% without changing other critical design parameters as the impedance value itself that could lead to other major related changes in the design.

Please advise if the requirement stated in 1A5 will be revised accordingly.

Below is copied from a spreadsheet that we could send you to better explain so that you could see where values changed in one cell affect another.

Inputs

Rated Power at FA (KVA) Load losses = Pk(KW) Impedance at 15 MVA (Uz) Power Factor (Cos F)
25000 15 9.0 0.9

Impedance at 25 MVA = $U_z (\%) \cdot P_k (KW) / KVA \cdot U_r (\%) \cdot U_x (\%) \cdot \sin F \cdot (U_r \cdot \cos F + U_x \cdot \sin F) / ((U_x \cdot \cos F - U_r \cdot \sin F)^2) / 200$ Voltage Regulation

15.0 15 25000 0.06 15.00 0.44 0.0659 0.0091 7.50

Resistive component of Impedance Reactive component of Impedance $X^2 + Y^2 = Z^2$ (Submitted: Oct 14, 2009 8:01:39 AM CDT)

Answer

- Amend paragraph 1A5 as follows: Regulation: The regulation of the transformer as described herein shall not exceed a maximum value of 7.8 percent at 0.9 power factor lag, from 0 MVA to 25 MVA with rated voltage applied to the low-voltage winding.

Note: any bid or part thereof, which proposes transformer regulation in excess of the above maximum state value, will be considered non-responsive. (Answered: Oct 16, 2009 8:27:52 AM CDT)

Question Deadline: Oct 16, 2009 12:00:00 PM CDT