SPECIFICATIONS
AND
BID DOCUMENTS
FOR
480 VOLT SWITCHGEAR
CITY OF OAK RIDGE, TENNESSEE

Bids due by 11:00 AM Local Time
July 22, 2014

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1.0 INVITATION TO BIDDERS

Sealed proposals will be received by the City of Oak Ridge, Tennessee, at its office in Oak Ridge, Tennessee for the project bid package shown below, until the date and time indicated, and immediately thereafter will be opened, and publicly read.

The City of Oak Ridge reserves the right to reject any or all bids and to waive any informalities or technicalities therein. The bid will be awarded to the lowest and best responsive bidder as determined by the Engineer.

No bidder may withdraw a bid for a period of sixty (60) days after the date set for opening of bids.

Specifications may be obtained from the Engineer. Specifications may be examined at the office of the Engineer.

OWNER: City of Oak Ridge, Tennessee
Electric Department
100 Woodbury Lane
Oak Ridge, TN 37830

ENGINEER: Cannon & Cannon, Inc.
8550 Kingston Pike
Knoxville, TN 37919
ATTN : Jeff L. Meadow, P.E.
TEL : 865-670-8555
FAX : 865-670-8866
email : jmeadow@cannon-cannon.com

PROJECT / PACKAGE : 480 Volt Switchgear

BID DATE: 11:00 AM, July 22, 2014

2.0 INSTRUCTIONS TO BIDDERS

2.1 You are invited to submit a Proposal for 480 Volt Switchgear – the City of Oak Ridge, Tennessee.

2.2 The Owner does not obligate itself to accept the lowest or any other bid and specifically reserves the right to reject any and all bids.

2.3 The Bidder shall provide all information requested. The Bidder shall take care to complete all portions of the Proposal documents and to provide all required submittals. Failure to comply may result in the rejection of the bid.

Bidder shall return three (3) signed and priced copies of the Proposal documents and all submittals required at the time of the Proposal to:

City of Oak Ridge
100 Woodbury Lane
Oak Ridge, TN 37831-0001
ATTN: Materials Management

sealed and marked in the lower left corner :

"SEALED BID for 480 Volt Switchgear
Confidential - To be delivered to addressee unopened"

2.4 No proposal security will be required to accompany proposals.

2.5 The Owner invites cost saving and schedule improving alternatives. A Bidder shall first complete the Proposal as issued by the Owner; Bidder may then submit the alternatives referenced to the base proposal. If the Bidder recommends any changes or deviations from the documents, Bidder shall describe the change fully and furnish complete information so that the Owner can make a decision based upon the alternative information provided.

2.6 If the Bidder requires additional information or is in doubt as to the meaning of any part of the Contract documents, Bidder may telephone or submit a written request to the Engineer for such information or clarification. For questions to be answered, they must be received at least five (5) days prior to the Bid due-date. Addenda may be issued as deemed necessary by the Engineer.

2.7 The Engineer will represent the Owner in all matters pertaining to the project, including but not limited to, answering technical questions of prospective bidders, bid evaluation and recommendation, review and approval of fabrication drawings and similar documents, and approval of invoices prior to payment by the Owner.

2.8 The terms Purchaser and Owner shall refer to the City of Oak Ridge. The terms Bidder, Seller and Manufacturer shall refer to the supplier of the equipment described by the documents.

2.9 If these specifications call for material, equipment or manufacturing procedures different from the Manufacturer's standard, the Manufacturer shall clearly identify all deviations or substitutions in this bid. When possible, the Manufacturer should bid according to the specifications with the Manufacturer's standard as an option.

2.10 Equal shall mean a satisfactory equivalent as approved solely by the Engineer.

2.11 Proposals should include Manufacturer's best delivery date that is as close as possible to the requested delivery date.

2.12 The Bidder shall clearly state all exceptions to this specification. Unless specifically stated otherwise, the Bidder shall furnish equipment, material and services in exact accordance with this specification, and any modifications to equipment, material and services necessary to comply with this specification shall be made by the Bidder at no additional cost to the Purchaser.

2.13 The cost to furnish any and all prints, drawings, diagrams, instruction manuals, cutsheets, AutoCad electronic files, reports, and certified test reports shall be included in the bid process and shall not be listed as a separate item.

2.14 All requested options, devices, and equipment are required and expected per the specifications, and the cost to furnish fully operational equipment with explanatory documentation shall be included in the bid process and shall not be listed as separate items.

2.15 Preference will be given to equipment manufactured in the USA. The Bidder shall state the country of Manufacture for the equipment to be supplied and the percentage manufactured in the USA..

3.0 TERMS AND CONDITIONS

3.1 Acceptance; Entire Agreement

Acceptance of this order by acknowledgement, shipment or other performance shall be expressly limited to the terms and conditions contained in this order. Any additional or different terms or conditions proposed by the Seller are objected to and are hereby rejected. Upon acceptance, the terms contained in this order shall constitute the entire agreement between Seller and Purchaser with respect to the subject matter of this agreement (hereinafter referred to as the "Agreement") and may not be modified, added to, or rescinded except by a written document signed by Seller and Purchaser.

3.2 Assignment and Setoff

The Seller shall not assign any right or interest under this Agreement nor delegate any work or other obligation to be performed or owned under this Agreement without the prior written consent of Purchaser. Any attempted assignment or delegation in contravention of this provision shall be void. Purchaser shall be entitled to set off any amounts owed by Seller to Purchaser against any amounts payable to Seller.

3.3 Delivery Terms

All goods ordered hereunder shall be shipped F.O.B. destination, unless otherwise agreed. No charge will be allowed for packing, crating, freight, express, or cartage, unless agreed to and specified on this order. This order shall not be filled at prices higher than last quoted or charged without proper authorization.

3.4 Payment

Upon the shipment of any material hereunder, the Seller shall submit to the Purchaser a detailed invoice duplicate of the materials shipped. Within 30 days after written acknowledged receipt, the Purchaser shall make payment thereof to the Seller.

3.5 Time of Performance

Time is of the essence of this Agreement. If tender of conforming goods is not made by the delivery date specified or services are not completed by the completion date specified, Purchaser may treat such failure as a breach hereof and will have all remedies afforded to it by law including, but not limited to, the rights to cover.

3.6 Identification; Risk of Loss

Identification of the goods ordered herein shall occur at the moment this order is accepted by Seller. Risk of loss shall pass to the Purchaser at the time that conforming goods to the Agreement are confirmed received at the Delivery Site .

3.7 Infringement

Seller shall indemnify Purchaser and Purchaser's customers for any and all loss, damage,

expense, (including but not limited to attorney's fees) claims or liability arising out of any infringement or claim of infringement of any patent, trademark, copyright, trade secret or other proprietary interest based on the manufacture, installation, normal use, lease, or sale of any service of material furnished to Purchaser under this Agreement. Purchaser shall notify Seller promptly of any such claim or infringement and Seller shall, at its own cost, defend, compromise, or settle, any such action or actions to satisfy and discharge the same without any cost or expense whatsoever to the Purchaser.

3.8 Warranties

Seller warrants to Purchaser that material furnished will be merchantable, fit for Purchaser's intended purposes and free from defect in design, material and workmanship and will conform to and perform in accordance with Purchaser's drawings and specifications and will be safe for its intended use. Seller also warrants to Purchaser that services will be performed in a first class workmanlike manner consistent with accepted industry standards. In addition, if material furnished contains one or more manufacturers' warranties, Seller hereby assigns such warranties to Purchaser. All warranties shall survive inspection, acceptance and payment. Material not meeting the warranties shall at Purchaser's option be repaired, adjusted or replaced by Seller at no cost to Purchaser. Services not meeting the warranties shall at Purchaser's option be reperformed by Seller at no cost to Purchaser. Such remedies shall be available to Purchaser in addition to all others afforded to it at law or equity.

3.9 Rejected Goods

Purchaser shall give notice to Seller of any rejection of goods, and goods rejected will, at Seller's expense, be returned to Seller or otherwise disposed of as Seller may reasonably request. Payment for the goods prior to inspection and approval shall not constitute acceptance thereof. Neither Purchaser's inspection nor its failure to inspect the goods delivered hereunder shall release Seller from its warranties and obligations under this Agreement.

3.10 Termination

A) Purchaser may terminate this Agreement for default upon notice to Seller if: 1) Seller fails to comply with any of the terms and conditions of this Agreement, including failure to deliver goods or perform services required within the time specified in this Agreement; 2) at any time reasonable grounds for insecurity arise with respect to Seller's expected performance and Seller fails to furnish adequate assurance of due performance within ten (10) days after a written demand by Purchaser for such adequate assurance; 3) Seller shall become insolvent or make an assignment for the benefit of creditors; or 4) Seller shall file a voluntary petition in bankruptcy or insolvency or shall be involuntarily petitioned into bankruptcy or insolvency.

B) Purchaser may terminate this Agreement, in whole or in part, for its convenience, at any time by giving written notice to Seller, and Seller shall promptly comply with the directions contained in such notice. In such event, Purchaser shall make payment to Seller for all costs incurred by Seller prior to such termination

reasonably allocable to this Agreement under recognized accounting practice, less any scrap or salvage value.

3.11 Liens

Seller shall promptly pay for all materials, supplies and labor employed by it in manufacturing the ordered goods to the end that such goods may be kept free from Materialmen's, Warehousemen's and Mechanics' liens. Seller shall promptly discharge any such liens arising from the performance of this Agreement.

3.12 Indemnity of the Purchaser

The Seller shall indemnify and hold Purchaser and its officers, employees, and agents harmless from and against all suits or claims that may be based upon any alleged injury to or the death of any person or damage to property that may occur or that may be alleged to have occurred in the course of performance of this Agreement whether or not such claim is made by a third person, except when it shall be proved that the alleged injury was caused solely by a negligent act or omission of the Purchaser. Seller shall, at its own cost and expense, pay all costs and expenses or such suit or claim, including attorney's fees in connection therewith, and if any judgement shall be rendered against the Purchaser in any such action or actions the Seller shall satisfy and discharge the same without cost or expense to Purchaser.

3.13 Compliance with Laws

Seller and all material furnished by Seller shall fully comply with all federal, state, and local laws, ordinances, regulations, orders and codes, including identification and procurement of required permits, certificates, approvals and inspections in performance hereunder. Any provision required to be included in this Agreement by any such law, rule or regulation shall be deemed to be included herein. The Equal Opportunity Clause contained in Executive Order 11246 as amended, relating to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, the Affirmative Action Clause contained in 41 C.F.R. Chapter 60.250 relating to affirmative action obligations to disabled veterans and to veterans of the Vietnam Era, and the Affirmative Action Clause contained in 41 C.F.R. Chapter 60.741 relating to affirmative action obligations to handicapped workers, are incorporated herein by reference. The Seller also certifies that it does not engage in and requires that its subcontractor's (if any) employees or agents not engage in, any form of discrimination based on race, color, religion, sex or national origin. Seller agrees to indemnify Purchaser for any loss or damage that may be sustained by reason of any failure to do so.

3.14 Labeling

All goods and materials to be supplied by Seller under this Agreement shall be labeled in accordance with the requirements of the Federal Occupational Safety and Health Act Hazard Communication Standard (29 CFR 1910.1200) and/or applicable State law or standard of similar effect. Seller shall immediately send to the Purchaser, referencing this purchase order number, all required written safety information materials including without limitation, Material Safety Data Sheets, required under said standards.

3.15 Non-Waiver

No course of dealing or failure of either party to strictly enforce any term, right or condition of this Agreement shall be construed as a waiver of such term, right, or condition.

3.16 Choice of Law

The construction, interpretation and performance of this Agreement and all transactions under it shall be governed and resolved in accordance with the laws of the State of Tennessee.

3.17 Notification

The Manufacturer shall acknowledge in writing to the Engineer that the Owner's Purchase Order or acceptance has been received within 5 days ARO. The acknowledgement shall include the date that the Purchase Order or acceptance is received and the date that equipment delivery is expected.

3.18 Terminology

The terms "shall" and "will" which appear in the Proposal and specifications place an absolute obligation on the Manufacturer to do that which is designated and/or specified.

3.19 Taxes

City of Oak Ridge, Tennessee is exempt from sales tax.

4.0 EQUAL OPPORTUNITY PROVISIONS

4.1 This Contract is subject to the provisions of Section 202 of Executive Order Number 11246 of September 24, 1965 as amended relating to Equal Opportunity and to the Affirmative Action requirements of 41CFR60. The Contractor, in performing the work or services of this contract, shall not discriminate against any person seeking employment with or by the contractor because of race, creed, color, sex, sexual orientation, or national origin or other legally protected status.

4.2 The City of Oak Ridge, Tennessee encourages the utilization of minority and women-owned businesses in its contracting and subcontracting projects and the Bidder is encouraged to actively solicit the participation of these businesses.

4.3 Each Bidder shall complete the following Equal Opportunity Compliance Certificate as part of the submitted proposal.

EQUAL OPPORTUNITY
COMPLIANCE CERTIFICATE

We hereby certify:

As a(n):_____ Division of Parent Company _____

_____ Subsidiary

_____ Affiliate Address _____

_____ Separate Corporation _____

And being: _____ a Small Business (Ref: ASPR-1-701-1)

_____ Minority Owned Business (Ref: 41CFR-1.701-1)

_____ from a Labor Surplus Area (Ref: 41CFR 1-1.801-1);

Having _____ employees in all divisions , subsidiaries, affiliates and parent (number) company;

That we shall comply with the applicable portions of the Equal Opportunity Clause as promulgated under Executive Order 11246. September 24, 1965 as amended, and all other federal laws and regulations pertaining to the Equal Employment Opportunity and Affirmative Action obligations of Federal Government Contractors, and shall submit the required compliance reports, and shall maintain non-segregated facilities.

Contractor _____

Address _____

_____

Signature of Authorized Representative_____

Date of Signing _____

5.0 SHIPPING

1 Switchgear shall be furnished F.O.B. Destination, Freight Prepaid and Allowed to the destination. Unloading will be provided by the Owner. Destination is: City of Oak Ridge Warehouse, 100 Woodbury Lane, Oak Ridge, TN 37830

2 Manufacturer shall be responsible for obtaining necessary permits, providing and verifying routing and, in general, making all the necessary arrangements for transporting the equipment provided to Purchaser's destination.

3 No incomplete or partial or unfinished shipments shall be accepted or received without written permission from the Engineer.

4 **Provide forty-eight (48) hours advance notice to the Owner of the exact time delivery will be made at destination, along with information listed 5.5 below.**

5 The manufacturer shall, at the time arrangements for delivery are to be made, inform the Engineer of:

a. Purchase Order Number

b. Number of items being shipped per purchase order

c. Weight of each item (heaviest)

d. Estimated time of arrival

e. Location of use ("to be used for:" not "ship to:")

6.0 SWITCHGEAR BID SPECIFICATIONS

1.0 GENERAL:

1.1 SCOPE:

A. Provide three free-standing, dead-front type, outdoor, 480 volt switchboards as specified herein. Switchboards to be supplied complete and shall include circuit breakers, microprocessor based trip units with metering functions, and all other appurtenances so as to make a complete self-contained unit.

1.1 REFERENCES:

A. The 480 volt distribution switchboard and all components shall be manufactured and tested in accordance with all applicable Federal, State, and Local codes and standards including, but not limited to the current editions of:

1. National Electric Code
2. National Fire Protection Association
3. American National Standards Institute
4. National Electrical Safety Code
5. American Society for Testing Materials
6. Institute of Electrical and Electronic Engineers
7. Underwriters Laboratory
8. All applicable local codes including the SSBC

1.2 SUBMITTALS FOR REVIEW:

A. The following information shall be submitted to the Engineer:

1. Elevations
2. Floor Plan
3. Top View
4. Single and Three Line Diagrams
5. Schematic Diagram
6. Nameplate Schedule
7. Component List
8. Conduit Entry/Exit Locations
9. Assembly and Major Component Ratings, to include short-circuit rating, voltage, and continuous current rating.
10. Cable Terminal Sizes
11. Product Data Sheets

1.3 SUBMITTALS FOR CONSTRUCTION:

A. The following information shall be submitted for record purposes:

1. Final as-built drawings and information to incorporate all changes made during the manufacturing process.
2. Wiring diagrams
3. Certified test reports
4. Installation information

1.4 QUALIFICATIONS:

A. The manufacturer of the assembly shall be the manufacturer of the major components.
B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum of five (5) years.
D. The manufacturer shall have available a local factory authorized service representative.

1.5 REGULATORY REQUIREMENTS:

A. The switchgear and major components shall be UL labeled.

1.6 OPERATION AND MAINTENANCE MANUALS:

A. Equipment operation and maintenance manuals shall be provided with each assembly shipped, and shall include instruction leaflets and instruction bulletins for the complete assembly and each major component.

1.7 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Eaton.
2. Siemens

2.0 PRODUCTS:

2.1 RATINGS:

A. Fault Current: The assembly shall be rated to withstand mechanical forces exerted during short circuit conditions when connected directly to

a power source having an available fault current of 100,000 amps symmetrical at 480 Volts. The bus system shall have a minimum ANSI short-circuit withstand rating of 100,000 amps symettrical tested in accordance with ANSI C37.20.1 and UL 1558.

B. Voltage: The assembly shall be rated for use on a 480Y/277 Volt, 3 Phase, 4 Wire Wye, 60 Hz. AC System.
C. Amperage: The assembly shall be rated for an incoming bus amperage of 2500 amps RMS.
D. All circuit breakers shall have a minimum symmetrical interrupting capacity of 100,000 amperes. To ensure a fully selective system, all circuit breakers shall have 30 cycle short-time withstand ratings equal to their symmetrical interrupting ratings through 85,000 amperes, regardless of whether equipped with instantaneous trip protection or not.
E. All ratings shall be tested to the requirements of ANSI C37.20.1, C37.50, C37.51, and C37.20.7, and UL witnessed and approved.

2.2 CONSTRUCTION:

A. Switchboards shall be of modular type construction in accordance with the latest NEMA and UL standards, with the required number of vertical sections bolted together to form a rigid assembly.
B. All protective devices shall be group mounted, and shall be accessible without removal of dead-front covers.
C. The switchboard shall be constructed so that all line and load conductors will enter and exit from the bottom of the enclosure.
D. An arc ventilation system shall be provided within each breaker cell to redirect arc energy away from operating personnel.
E. The circuit breaker door design shall be such that the following functions may be performed without the need to open the circuit breaker door: operate manual charging system, close and open circuit breaker, examine and adjust trip unit, and read circuit breaker rating nameplate. The circuit breaker door shall be one-piece, covering the primary and secondary compartments for each breaker, and shall be specifically designed to resist forces produced during an arcing event. A two-point latch shall be provided for additional rigidity. A door bellows system shall be placed around the front of each breaker to prevent arc gasses from escaping around the breaker escutcheon.
F. An insulating flash shield shall be mounted above each circuit breaker to prevent flashover from the arc chutes to ground.
G. The switchgear shall have a ventilation system that allows exhaust of dangerous arc gasses regardless of the origination location of the arc event. The ventilation system shall be designed to exhaust arc events originating in the breaker cell, bus compartment, and rear cable compartment.
H. The arc rating of the switchgear shall be Type 2 (operator protected around entire perimeter of equipment) as defined by ANSI C37.20.7
I. The assembly shall be provided with adequate lifting means.

2.3 BUS:

A. All bus bars shall be silver plated copper and sized so as to limit the temperature rise to 65 degrees C over a 40 degrees C ambient external temperature.
B. A full capacity neutral bus shall be supplied.
C. A copper ground bus shall be furnished and shall extend the entire length of the switchboard.
D. All hardware used on conductors shall be zinc plated high-tensile strength. All bus joints shall be provided with conical spring type washers.

2.4 WIRING/TERMINATIONS:

A. Small wiring, necessary fuse blocks and terminal blocks within the switchboard shall be furnished as required. Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification corresponding to appropriate designations on manufacturer's wiring diagrams.
B. A minimum of six (6) NEMA 2-hole mechanical-type lugs shall be provided for all line and load terminations. The terminals shall be suitable for copper cable rated for 75 degrees C. The terminals shall be sized to accept a maximum of 600 KCM cables. Furnish provision for line and load cables to enter the bottom of the cable compartment.
C. Lugs shall be provided in the incoming line section for connection of the main grounding conductor.
D. Reusable insulating boots shall be provided to cover all power cable terminations.
E. All control wire shall be type SIS. Control wiring shall be 14 ga for control circuits and 12 ga for current transformer circuits. Wire bundles shall be secured with nylon ties and anchored to the assembly with the use of pre-punched wire lances or nylon non-adhesive anchors. All current transformer secondary leads shall first be connected to conveniently accessible shorting terminal blocks before connecting to any other device. Shorting screws with provisions for storage shall be provided. All groups of control wires leaving the switchgear shall be provided with terminal blocks with suitable numbering strips and provisions for #10 AWG field connections. Each control wire shall be marked to the origin zone/wire name/destination zone over the entire length of the wire using a cured ink process. Provide wire markers at each end of all control wiring. Plug-in terminal blocks shall be provided for all shipping split wires.

2.5 CIRCUIT BREAKERS:

A. All protective devices shall be low voltage power circuit breakers, Cutler-Hammer type Magnum SB Non-Drawout type or approved equal. All breakers shall be UL listed for application in their intended enclosures.

B. All power circuit breakers shall be constructed and tested in accordance with ANSI C37.13, C37.16, C37.17, C37.50, UL 1066 and NEMA SG-3 standard. The breaker shall carry a UL label.
C. Breakers shall be provided in a 2500 ampere frame with a non-drawout configuration.
D. Power circuit breakers shall utilize a two-step stored-energy mechanism to charge the closing springs. The closing of the breaker contacts shall automatically charge the opening springs to ensure quick-break operation.
E. Breakers shall be electrically operated (EO).
F. Electrically operated breakers shall be complete with 120 Vac motor operators. The charging time of the motor shall not exceed 6 seconds.
G. The power circuit breaker shall have a closing time of not more than 3 cycles.
H. The primary contacts shall have an easily accessible wear indicator to indicate contact erosion.
I. The breaker control interface shall have color-coded visual indicators to indicate contact open or closed positions, as well as mechanism charged and discharged positions. Manual control pushbuttons on the breaker face shall be provided for opening and closing the breaker. The power circuit breaker shall have a "Positive On" feature. The breaker flag will read "Closed" if the contacts are welded and the breaker is tripped or opened.

2.6 TRIP UNITS:

A. Each low voltage power circuit breaker shall be equipped with a solid-state tripping system consisting of three current sensors, microprocessor-based trip device and flux-transfer shunt trip. Current sensors shall provide operation and signal function. The trip unit shall use microprocessor-based technology to provide the basic adjustable time-current protection functions. True rms sensing circuit protection shall be achieved by analyzing the secondary current signals received from the circuit breaker current sensors and initiating trip signals to the circuit breaker trip actuators when predetermined trip levels and time delay settings are reached. Interchangeable current sensors with their associated rating plug shall establish the continuous trip rating of each circuit breaker. The trip unit shall be Cutler-Hammer type Digitrip RMS 1150 or approved equal.
B. The trip unit shall have an information system that utilizes battery backup LEDs to indicate mode of trip following an automatic trip operation. The indication of the mode of trip shall be retained after an automatic trip. A reset button shall be provided to turn off the LED indication after an automatic trip. A test pushbutton shall energize a LED to indicate the battery status.
C. The trip unit shall be provided with a display panel, including a representation of the time/current curve that will indicate the protection functions. The unit shall be continuously self-checking and provide a visual indication that the internal circuitry is being monitored and is fully

operational.

D. The trip unit shall be provided with a making-current release circuit. The circuit shall be armed for approximately two cycles after breaker closing and shall operate for all peak fault levels above 25 times the ampere value of the rating plug.
E. Trip unit shall have selectable powered and unpowered thermal memory for enhanced circuit protection.
F. The trip unit shall provide zone interlocking for the short-time delay and ground fault delay trip functions for improved system coordination. The zone interlocking system shall restrain the tripping of an upstream breaker and allow the breaker closest to the fault to trip with no intentional time delay. In the event that the downstream breaker does not trip, the upstream breaker shall trip after the present time delay.
G. The trip unit shall have a 4-character LCD display showing phase, neutral, and ground current. The accuracy of these readings shall be +/- 2% of full scale.
H. The trip unit shall include a power/relay module which shall supply control to the readout display. Following an automatic trip operation of the circuit breaker, the trip unit shall maintain the cause of trip history and the mode of trip LED indication as long as its internal power supply is available. An internal relay shall be programmable to provide contacts for remote ground alarm indication.
I. The trip unit shall include a voltage transformer module, suitable for operation up to 600V, 50/60 Hz. The primary of the voltage transformer module shall be connected internally to the line side of the circuit breaker through a dielectric test disconnect plug.
J. Metering display accuracy of the complete system, including current sensors, auxiliary CTs, and the trip unit, shall be +/- 1% of full scale for current values. Metering display accuracy of the complete system shall be +/- 2% of full scale for power and energy values.
K. The trip unit shall utilize Arc Flash Reduction Maintenance System. The Arc Flash Reduction Maintenance System Technology shall be provided in a system that shall reduce the trip unit Instantaneous pickup value when activated. The Arc Flash Reduction Maintenance System shall not compromise breaker phase protection even when enabled. Once the unit is disabled, the recalibration of trip unit phase protection shall not be required. Activation and deactivation of the Arc Flash Reduction Maintenance trip setting shall be accomplished without opening the circuit breaker door and exposing operators to energized parts. The device shall provide a clearing time of 0.04 seconds, adjustable with a minimum of five settings ranging from 2.5X to 10X of the sensor value.

    1. The Arc Flash Reduction Maintenance System shall be enabled via a switch on the trip unit. It shall also provide confirmation of protection via a visual indication.

2.7 MISCELLANEOUS DEVICES:

A. Control power transformers with primary and secondary protection shall be provided as required for proper operation of the equipment.

2.8 ENCLOSURES:

A. The switchboard assembly shall be mounted in a non-walk in outdoor enclosure meeting all applicable NEMA 3RX UL requirements.
B. The enclosure shall have a roof that slopes downward towards the rear.
C. Outer sections shall be the same widths as indoor structures, except each end of the outdoor assembly shall have an end trim.
D. The enclosure shall be provided with bolt-on rear covers for each section.
E. Doors shall have provisions for padlocking.
F. Ventilating openings shall be provided complete with replaceable fiberglass air filters.
G. Provide thermostatically controlled space heaters for each structure with adequate wattage to prevent the accumulation of moisture.
H. Power for space heaters, lights and receptacles shall be obtained from a control power transformer within the switchboard.
I. All exterior and interior steel surfaces of the switchboard and enclosure shall be properly cleaned to SSPC – SP – 10 finish, provided with a zinc phosphate epoxy primer of minimum 100 microns, and provided with a polyurethane finish of a minimum of 60 microns. The coating system shall be rated for a ISO 12944 Class C3 environment with a 15 year coating life. Color and finish of the switchboard shall be ANSI 61 light gray.

2.9 NAMEPLATES:

J. Control components mounted within the assembly, such as fuse blocks, relays, pushbuttons, switches, etc., shall be suitably marked for identification corresponding to appropriate designations on manufacturer's wiring diagrams.

3.0 EXECUTION:

3.1 FACTORY TESTING:

A. The switchgear shall be completely assembled, wired, adjusted and tested at the factory. After assembly, the complete switchgear shall be tested to ensure the accuracy of the wiring and the functioning of all equipment. The main bus system shall be given a dielectric test of 2200 volts for one minute between live parts and ground and between opposite polarities.
B. The wiring and control circuits shall be given a dielectric test of 1500 volts for one minute, or 1800 volts for one second, between live parts and ground, in accordance with ANSI C37.20.1.
C. A certified test report of all standard production tests shall be shipped with each assembly.

3.2 WARRANTY:

A. The Equipment Manufacturer shall provide a one year onsite factory warranty. Warranty shall cover all non-conformities in workmanship and materials for one year from date of initial operation, or up to eighteen months from date of shipment.

3.3 FIELD QUALITY CONTROL:

A. Provide the services of a qualified factory-trained manufacturer's representative to assist the Owner in start-up of the equipment specified under this section for a period of three working days.

7.0 PROPOSAL

In submitting this Proposal, the Manufacturer agrees as follows:

The prices set forth herein do not include any sums which are or may be payable by the Manufacturer on account of taxes imposed by any taxing authority upon the sale, purchase, or use of the equipment. If any such tax is applicable to the sale, purchase, or use of the equipment, the amount thereof shall be added to the purchase price and paid by the Owner.

The prices set forth herein are firm if accepted by the Owner within sixty (60) days and shall include the cost of delivery to the job site, inspection, testing and certification.

The equipment shall be delivered to the Delivery Site on or before Delivery Date and certified for the Owner's use by the Manufacturer on or before the Certification Date. Include delivery dates with proposal.

Descriptive literature, including dimensions and weight of manufacturer equipment, shall be furnished with the proposal.

PROPOSAL FORM

TO: CITY OF OAK RIDGE, TENNESSEE

Manufacturer_____ Supplier_____

Price

Item 1 – Pump Station
1 NEMA 3R, 480 Volt Switchgear Unit, with 1200 Amp Trip Unit _____

Item 2 – Admin Building
1 NEMA 3R, 480 Volt Switchgear Unit, with 1600 Amp Trip Unit _____

Item 3 – Blower Facility
1 NEMA 3R, 480 Volt Switchgear Unit, with 2000 Amp Trip Unit _____

Total _____

Delivery ARO, including 5 working days for drawing review

_____

Local factory authorized service representative Name and Contact Information

_____

Country of Manufacture _____ Percent Made in the USA _____

Alternative Adders

Extended Onsite Factory Warranty to 5 years _____

Bidder :_____

Manufacturer:_____

Address:_____

City, State, Zip_____

Prepared By:_____

Title:_____

Telephone Number : _____

Fax Number :_____

email :_____

Date : _____

PROPOSAL FORM (cont.)

EEO Form Included?	Yes _____	No _____
Warranty Description Included?	Yes _____	No _____
Proposal Valid for 60 days ?	Yes _____	No _____
List Addenda Received:	No. _____	Dated _____
	No. _____	Dated _____
Exceptions to Specifications? (If yes, describe below)	Yes _____	No _____

** ATTACH MANUFACTURER'S PRODUCT DATA SHEET WITH PROPOSAL