

**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**


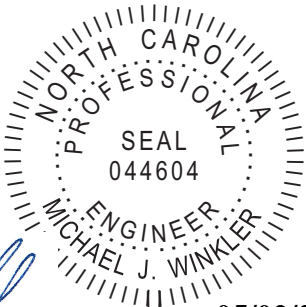
**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION
OLD MILL ROAD, ROCKY MOUNT, NC
BID # RFP 320-190422RP**

ISSUED FOR BIDS

**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION
OLD MILL ROAD, ROCKY MOUNT, NC
BID # RFP 320-190422RP**

ISSUED FOR BIDS



05/02/2022

**Booth & Associates, LLC
Consulting Engineers
5811 Glenwood Avenue, Suite 109
Raleigh, North Carolina 27612
Firm License No. F-0221**

Rev 1: 05/02/2022: Submissions accepted via email

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**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION
OLD MILL ROAD, ROCKY MOUNT, NC**

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NOTICE TO PROSPECTIVE BIDDERS

Sealed Proposals for the furnishing and delivery of all materials and equipment (except materials and equipment specified to be furnished by the Owner) complete and conforming to the bid documents for **one (1) 69 kV circuit breaker** for the **230 kV South POD Substation**, located in Rocky Mount, North Carolina, as set forth in the Bid Schedules, will be received by **The City of Rocky Mount** of Rocky Mount, North Carolina (hereinafter referred to as the Owner) at the offices of their Purchasing Manager, City of Rocky Mount, Purchasing Division, PO Box 1180, Rocky Mount, North Carolina 27802-1180, **4:00 PM, Local Time, Monday, May 16, 2022**, at which time the Proposals will be opened and read. Proposals can be hand delivered to the Purchasing Office at 331 South Franklin Street, Rocky Mount, NC 27804. Any Proposal received subsequent to that time will be promptly returned to the Bidder unopened.

The Specifications, together with all necessary forms and other documents for the Bidder, may be obtained from the Owner's website https://rockymountnc.gov/departments_services/finance/purchasing/bids. Questions and comments can be submitted to Ramona Plemmer (ramona.plemmer@rockymountnc.gov).

Proposals and all supporting instruments must be submitted on and in the format of the forms furnished in the Form of Proposal of these bid documents and must be delivered in a sealed envelope addressed to the Owner. Proposals must be filled in with indelible ink. No alterations or interlineations will be permitted unless made before submission and initialed and dated.

Prior to the submission of the Proposal, the Bidder shall make and shall be deemed to have made a careful examination of the bid documents on file with the Owner and with the Engineer and of all other matters that may affect the cost and the time of the work.

The name and address of the Bidder, its license number (if a license is required by the State), and the following description must appear on the envelope in with the Proposal is submitted:

**"BID FOR 69 kV CIRCUIT BREAKER
FOR 230 kV SOUTH POD SUBSTATION, NOT TO BE OPENED UNTIL
4:00 PM, LOCAL TIME, MONDAY, MAY 16, 2022"**

The Owner reserves the rights to (1) waive minor irregularities or minor errors in any Proposal if it appears to the Owner that such irregularities or errors were made through inadvertence. Any such irregularities or errors so waived must be corrected on the Proposal prior to its acceptance by the Owner; (2) reject any or all Proposals and to hold any or all Proposals for a period of sixty (60) days from the date of opening thereof; (3) accept the bid, in its opinion, that represents the best value for the Owner, regardless of whether such bid is the lowest price; and (4) award Purchase Order(s) to Bidder(s) for any Schedule(s) individually or collectively from the Bid Schedules.

CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA

By: Ramona Plemmer Date: May 2, 2022
Senior Purchasing Technician

**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION**

IMPORTANT DATES

Event	Responsibility	Date and Time	Location
Issued	City	Monday, May 2, 2022	
Submit Written Questions No Later Than	Vendor	4:00 PM Monday, May 9, 2022	Email or Mail
Provide Responses to Questions	City	5:00 PM Wednesday, May 11, 2022	City's Bid Website
Submit Bids	Vendor	4:00 PM Monday, May 16, 2022**	Mail or Hand Delivered *Email also accepted

Bid updates can be found at the City website at
https://rockymountnc.gov/departments_services/finance/purchasing/bids

Questions can be sent to:
Ramona Plemmer ramona.plemmer@rockymountnc.gov

***Final submissions may be submitted via email, mailed, or hand delivered**

****Bid opening shall not be open to the public.**

DEFINITIONS

Whenever the following terms or pronoun in place of them are used in these "Instructions to Bidders", "Form of Proposal", "Technical Specifications", "Purchase Order", bond, etc., the intent and meaning shall be interpreted as follows:

Owner	City of Rocky Mount Rocky Mount, North Carolina
Senior Purchasing Technician	Ramona L. Plemmer; or authorized assistant
Consulting Engineer	Booth & Associates, LLC
Observer	An authorized representative of the Owner assigned to make any or all necessary observations of work performed and equipment and/or apparatus furnished by the Bidder
Bidder	Any individual, firm, or corporation submitting a Proposal for the work contemplated, acting directly or through a duly authorized representative; or party of the second part of the Purchase Order, acting directly or through a duly authorized representative
Subcontractor	An individual, firm, or corporation who contracts with the Bidder to perform part of the latter's Purchase Order
Surety	The body, corporate or individual, approved by the Owner, which is bound with and for the Bidder who is primarily liable and which engages to be responsible for his acceptable performance of the work for which he has contracted
Form of Proposal, Proposal	The approved, prepared form on which the Bidder is to submit or has submitted his Proposal for the work contemplated
Bid Security (Not Required)	To all bids there shall be attached cash, cashier's check, or certified check from the Bidder upon a bank or trust company insured by the Federal Deposit Insurance Corporation, or in lieu thereof, a Bid Bond
Plans, Drawings	All Drawings or reproductions of Drawings pertaining to the construction under the Purchase Order
Technical Specifications	The directions, provisions, and requirements contained herein pertaining to the method and manner of performing the work or to the quantities and qualities of materials to be furnished under the Purchase Order
Purchase Order	The agreement covering the furnishing of equipment and/or apparatus and the performance of the work. The Purchase Order shall include the "Instructions to Bidders", "General Conditions", "Form of Proposal", "Plans", "Technical Specifications", and Acknowledgments
Performance Bond (Not Required)	The approved form of security to be approved by the Owner furnished by the Bidder and his Surety as a guarantee of good faith on the part of the Bidder to accept the work in accordance with the terms of the Specifications and Purchase Order

**Payment Bond
(Not Required)**

The approved form of security to be approved by the Owner furnished by the Bidder and his Surety as a guarantee for payment of all Subcontractors on the part of the Bidder in acceptance of the work in accordance with the terms of the Specifications and Purchase Order

Work

The performance of the project covered by the Specifications or the furnishing of labor, machinery, equipment, tools, or any other article or item being purchased by the Owner

Emergency

A temporary unforeseen occurrence or combination of circumstances which endangers life and property and calls for immediate action or remedy

Work at Site of Project

Work to be performed, including work normally done on the location of the project

Bid Documents

Include all sections of the Request for Bids, Form of Proposal, Technical Specifications and Appendices, Addendum/Clarifications/ Bulletins, and Drawings

The subheadings in these Specifications are intended for convenience or reference only and shall not be considered as having any bearing on the interpretations thereof.

INSTRUCTIONS TO BIDDERS

1.0 Bidder Qualification

Bids will be awarded only to Bidders deemed by the Owner or the Engineer to be qualified to provide the materials, equipment, and services described by these Specifications. The experience of Bidders in providing the same or similar materials, equipment, and services will be a major factor in determining qualification. The Bidder shall include information to establish qualifications, which may include technical specifications of the product, Bidder's product line, and/or an extensive user list in their proposal.

Qualified bidders will be evaluated based on the exceptions to this request for proposal and will favor proposals with a strict adherence to the technical specifications.

2.0 Proposals

- 2.1 To warrant consideration, Proposals must comply with these instructions.
- 2.2 Bids not received on Booth & Associates, LLC Form of Proposal contained herein will be considered unresponsive. The forms shall be filled out complete; any omissions may cause the entire Proposal to be rejected.
- 2.3 Proposals must be made on the Form of Proposal provided herein and must not be altered, erased, or interlined in any manner. The Bidder shall fill in the Form of Proposal as detailed in the Terms and Conditions. The Bidder may retain one (1) copy, but the original, fully executed, must be inserted in, or attached to the Bid Documents. Also, one (1) additional copy of all executed forms and supporting information shall be supplied.
- 2.4 The Bidder shall furnish certain information, as required by the Bid Documents regarding the equipment on which he is bidding. Two (2) copies of the information, together with the manufacturer's literature setting forth the guarantees and describing the equipment on which he is bidding shall be included as part of the Proposal. If one manufacturer is bidding through two or more agents or representatives, descriptive literature, guarantees, etc., may be submitted in duplicate in one sealed envelope, which will be considered and treated as though it contained a sealed bid. This envelope shall contain a list of the names of Bidders to whom the information applies. Each sealed Bid Proposal without this information shall state the name of the manufacturer who is furnishing the information. Additional sets of the Specifications may be obtained upon a payment of Fifty Dollars (\$50) non-refundable deposit by approved Bidders.
- 2.5 Bids may be modified by the Bidder's removal of his original and the submittal of a completely revised bid package in full compliance with the Bid Documents if received prior to the time of opening bids and if included in the public reading of such bids. No oral or telephonic Proposals will be considered.
- 2.6 Proposals shall include a Form of Exceptions utilizing forms provided which shall itemize each and every exception from the Bid Documents. The Form of Exceptions shall state the section, subsection, and paragraph designations from the part of the Specifications to which exception is taken and explain in detail the nature of the exception. A copy of this Form of Exceptions is included in the Form of Proposal. Exceptions will not necessarily eliminate a Bidder from consideration, even if bids without exceptions are received from others. The treatment of exceptions will be based entirely on the overall best interests of the Owner. All exceptions must be stated on the Form of Exceptions. Failure to submit a Form of Exceptions will imply strict adherence to the Plans and Specifications. **Certain exceptions, e.g., failure to provide rigging and unloading at the site, or failure to properly provide field assembly testing and supervision on testing may result in the entire Bid Proposal being rejected.**

- 2.7 Should the Bidder find discrepancies in the documents or fail to understand their meaning, he shall immediately notify the Engineer, who will send written instructions to all Bidders. Neither the Owner nor the Engineer will be responsible for any oral instructions.
- 2.8 The Bidder shall be the manufacturer of the equipment, or the Bidder shall submit with the Form of Proposal a notarized statement that the Bidder is authorized by the manufacturer to tender the Proposal as submitted and that the manufacturer will guarantee the suitability and adequacy of the equipment proposed, and will be bound by the Specifications, as though the manufacturer had submitted the Proposal.
- 2.9 In the event that the Bidder proposes any change or deviation from the Engineer's Plans and Specifications, such Proposal changes or deviations must be submitted at the time bids are opened. The Owner reserves the right to reject any such proposed changes or deviations.
- 2.10 Bid Proposals may be withdrawn before the scheduled closing time for the receipt of bids, but no Bid Proposal may be withdrawn after that time for a period of ninety (90) days pending the purchase order by the successful Bidder. Should the successful Bidder default and not accept a purchase order, then the purchase order may be offered to the next lowest responsible Bidder whose Proposal is evaluated as acceptable
- 2.11 Prior to submission of the Proposal, the Bidder shall make and shall be deemed to have made a careful examination of the Plans and Specifications on file with the Owner and with the Engineer and all other matters that may affect the cost and the time of completion of the work.
- 2.12 The Purchase Order, when accepted, shall be deemed to include the Specifications for the equipment, and the Bidder shall not claim any modification thereof resulting from any representative or promise made at any time by an officer, agent, or employee of the Owner or by any other person.
- 2.13 The Owner reserves the right to accept any schedule, combination of schedules, or any portion of a schedule.

3.0 Bid Security

A Bid Security is not required for this project.

4.0 Performance Bond/Payment Bond

A Performance Bond/Payment Bond is not required for this project.

5.0 Bulletins and Addenda

Any bulletins or addenda to the Specifications issued during the time of bidding are to be considered covered in the Proposal, and in accepting a purchase order, they will become a part thereof. Receipt of addenda shall be acknowledged by the Bidder on the Form of Proposal.

6.0 Shipment and Delivery

- 6.1 The Power Circuit Breaker shall be shipped to the site with unloading by the Owner, as defined by the attached vicinity map. Assembly of any component parts removed for shipment and field testing of the unit will be performed by the Owner. The Manufacturer's field service engineer shall supervise the assembly and test unit in accordance with manufacturer's recommendations under a separate line item in Proposal.
- 6.2 Units are to be shipped utilizing an open-top truck to facilitate unloading with a crane or fork truck. Units are to be shipped direct from the manufacturing site, with no intermediate transfers. Shipping with the manufacturer's own trucks is preferred.
- 6.3 Before shipment, power circuit breaker shall be completely assembled to determine that all parts fit properly. Parts removed for shipment shall be marked so as to permit easy identification when reassembling.

- 6.4 Method of packing and loading shall be such as to protect all parts from dampness, corrosion, breakage, or vibration injury that might reasonably be encountered in transportation, storage, and handling.
- 6.5 Release for shipment is to be granted by the Owner or the Engineer based upon the manufacturer's compliance with the following:
 - 6.5.1 Fourteen (14) consecutive days prior notification of tests so the Owner may have a representative present for witness of the tests. The bid price shall include the cost for all travel expenses for one (1) representative of the Owner to be present for witness of the tests.
 - 6.5.2 Furnishing of the requisite number of copies of the Final Drawings as called for in the Specifications.
 - 6.5.3 Coordination of manufacturing and delivery with Owner's construction schedule as may be noted in these Specifications.
 - 6.5.4 Thirty (30) days notification of tentative shipping schedule and forty-eight (48) hours notification prior to all deliveries.
- 6.6 Delivery of all items of equipment shall be made at such time as to permit unloading between the hours of 9:00 a.m. and 3:00 p.m., Monday through Thursday, holidays excluded. The Owner will furnish escort to the substation site. Ultimate delivery shall be at the discretion of the Owner.

7.0 Award of Purchase Order

- 7.1 The issue of a purchase order will be made to the lowest responsive Bidder as soon as practical, provided that in the selection of materials and equipment a purchase order may be awarded to a responsible Bidder other than the lowest in the interest of standardization, or ultimate economy if the advantage of such standardization or ultimate economy is clearly evident. The Owner reserves the right to reject any and all bids.
- 7.2 The Owner reserves the right to waive minor irregularities or minor errors in any Proposal if it appears to the Owner that such irregularities or errors were made through inadvertence. The Owner must correct any such irregularities or errors so waived on the Proposal prior to its acceptance.
- 7.3 In estimating the lowest cost to the Owner as one of the factors in deciding the Award of the purchase order, the Owner will consider, in addition to the prices quoted in the Proposal, the following:
 - a. Equipment delivery (days),
 - b. Adherence to the Plans and Technical Specifications,
 - c. Evaluation of equipment suitability to the system as noted and submitted by the Bidder
 - d. The Bidder's intended method of shipment of the materials and equipment

8.0 Approval Drawings

Receipt of "Approval Drawings" by the Bidder constitutes authorization for manufacture predicated upon the Drawings and corrections found thereon.

9.0 Payment

- 9.1 Payment by the Owner to the Successful Bidder shall be made in a lump sum after delivery and it has been verified that the equipment meets the Specifications. Compliance to Specifications shall be verified within ninety (90) days of the date of delivery. Invoices shall be submitted in triplicate to the Purchasing Manager, City of Rocky Mount for review and approval. The address for submittal of all invoices is: City of Rocky Mount,

Purchasing Division, PO Box 1180, Rocky Mount, NC 27802-1180, Attention: Ramona L. Plemmer (ramona.plemmer@rockymountnc.gov).

- 9.2 There shall be a ten-percent (10%) retainage on invoices until all equipment, with proper instruction books per Specifications, and certified test reports have been approved and accepted by the Owner and the Engineer. The Owner reserves the right to hold this retainage for a period of up to ninety (90) days without penalty to verify completeness of delivery. Deviation from the foregoing payment provisions will be considered less than responsive.

GENERAL CONDITIONS

1.0 Drawings and Specifications

The Drawings and Specifications are complementary, one to the other. That which is shown on the Drawings or called for in the Specifications shall be as binding as if it were both called for and shown. The intention of the Drawings and Specifications is to include all labor, materials, transportation, equipment, and any and all other things necessary to do a complete job, which may include manufactured items and field service assistance. In case of discrepancy or disagreement in the Purchase Order, the order of precedence shall be: Purchase Order, Specifications, Drawings.

2.0 Clarifications and Detail Drawings

In such cases where the nature of the work requires clarification by the Engineer, such clarification shall be furnished by the Engineer with reasonable promptness by means of written instructions or Detail Drawings or both. Clarifications and Drawings shall be consistent with the intent of Bidding Documents, and shall become a part thereof.

3.0 Copies of Drawings and Specifications

The Engineer will furnish free of charge to the Bidder one (1) copy of the Drawings and Specifications. Additional sets of these Specifications may be obtained upon request and a non-refundable deposit of Fifty Dollars (\$50.00) by approved Bidders.

4.0 Ownership of Drawings and Specifications

All Drawings and Specifications are instruments of service and remain the property of the Engineer whose name appears thereon. The use of these instruments on work other than these Bid Documents without permission is prohibited. All copies of Drawings and Specifications other than final copies shall be returned to the Engineer upon request after completion of the work.

5.0 Royalties, Licenses, and Patents

It is the intention of the Bidding Documents that the work covered herein will not constitute in any way an infringement on patents. The Bidder shall protect and save harmless the Owner against suit on account of alleged or actual infringement. The Bidder shall pay all royalties and/or license fees required on account of patented articles or processes, whether or not the patent rights are evidenced hereinafter.

6.0 Uncorrected Faulty Work

The Bidder shall be notified of faulty or damaged work and shall have the option to respond in a reasonable period of time. Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the Owner or the Engineer, the Owner shall be reimbursed by the Bidder for the same by a deduction in the Purchase Order prices arrived at by a fair estimate of the probable cost of correction, approved by the Engineer.

7.0 Liquidated Damages

The Bidder shall commence manufacture upon issuance of a Purchase Order from the Owner, and shall fully complete delivery as per the Delivery Schedule in the Form of Proposal. For each day in excess of the proposed dates, the Bidder shall be made payable to the Owner the sum of five hundred dollars (\$500.00) as liquidated damages (and not as a penalty), reasonably estimated in advance to cover the losses to be incurred by the Owner by reason of failure of said Bidder to complete delivery within the time specified, such time being in the essence of this Purchase Order and material consideration thereof.

8.0 Delays and Extension of Time

8.1 The time to be allowed for delivery is stated in the Form of Proposal. The Bidder, upon notice of award of the Purchase Order, shall prepare a delivery schedule based on the allowed time and submit such schedule to the Engineer for approval.

- 8.2 If Bidder is delayed at any time in the progress of the work by any act of negligence by the Owner or the Engineer, by any separate Bidder employed by the Owner, or by changes ordered in the work, then the time of completion shall be extended for such reasonable time as the Engineer may decide.
- 8.3 No extension of time for completion will be made for ordinary delays and accidents. Extensions may be granted for delays ordered by the Engineer if the request has been made in writing within forty-eight (48) hours after the order to cease work has been given.

9.0 Guarantee

The Bidder shall guarantee his materials and workmanship against defect due to faulty materials, faulty workmanship, or negligence for a period of one (1) full year from date of energization and/or eighteen (18) months from date of delivery, whichever applies. He shall make good such defective materials or workmanship and any damages resulting therefrom without cost to the Owner. Each class of equipment shall carry a full one (1) year warranty against defects from the date of energization.

10.0 Change In Drawings and/or Specifications

The Owner, or the Engineer on behalf of the Owner, may make changes to Drawings and/or Specifications after award of the Purchase Order or while fabrication is in progress. The compensation for such changes shall be agreed upon in writing between the Bidder and the Owner prior to commencement of work involving the change. No payment shall be made to the Bidder for correcting work not in compliance with Specifications.

**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION
ROCKY MOUNT, NORTH CAROLINA**

FORM OF PROPOSAL

*(Provide **one** original and **one** copy)*

Respectfully submitted this ____ day of _____, 2022

OWNER:	BIDDER:	
City of Rocky Mount 331 South Franklin Street Rocky Mount, NC 27804 PO Box 1180 Rocky Mount, NC 27802-1180 Mrs. Ramona Plemmer Senior Purchasing Technician Phone: (252) 972-1226 Fax: (252) 972-1662 ramona.plemmer@rockymountnc.gov		
	NAME	TITLE
	STREET ADDRESS	
	CITY/STATE/ZIP	
	PHONE:	
	FAX:	
	E-MAIL:	
	SIGNATURE	
SUPPLIER OF PROPOSED EQUIPMENT		
MANUFACTURER		
STREET ADDRESS		
CITY / STATE / ZIP		

TERMS AND CONDITIONS

1. The undersigned (hereinafter called the "Bidder") hereby proposes to sell and deliver to the Owner upon the terms and conditions herein stated, the materials, equipment, and services (hereinafter called the "Material") specified in the Bid Schedule(s) attached hereto, and by this reference made a part hereof, for the Materials for the Owner, and:
 - a. These bid documents that include *Notice to Prospective Bidders*, *Instructions to Bidders*, *General Conditions*, and *Technical Specifications* for the circuit breaker(s).
 - b. Manufacturer's specifications, both as set forth herein and in Manufacturer's literature (two [2] sets) attached hereto, or furnished separately as provided for in the *Instructions to Bidders*;
 - c. Legal negotiations, with low bidder only, after bids are opened, for budgetary compliance.
2. The prices as quoted herein:
 - a. Are firm unless otherwise stated,
 - b. Are FOB to the location(s), as outlined in the Instructions to Bidders,
 - c. Do include the cost of delivery to the site at the Bidder's Risk, assuming unloading by Others, and
 - d. Have state sales tax shown as a separate item, if applicable.
3. The Material prices set forth herein do not include any sums which are or may be payable by the Bidder on account of State Sales Tax upon the sale, purchase, or use of the material. If any such tax is applicable to the sale, purchase, or use of the material hereunder, the amount thereof shall be added on a separate line to the purchase price and paid by the Owner after the Bidder has ascertained the actual sales tax to be included in the purchase order price.
4. Invoice shall list the appropriate state sales tax as a separate item
5. The Bidder further declares that he has examined the site of the work and informed himself fully regarding all conditions pertaining to the location where the Material is to be delivered; that he has examined the *Technical Specifications* for the work and Bid Documents relative thereto; has read all special provisions furnished prior to the opening of the bids; and that he has satisfied himself relative to the work to be performed.
6. The Bidder proposes and agrees if the following Bid Schedule(s) in this Proposal is accepted, to contract with the Owner, in the form of a purchase order specified, to furnish all necessary equipment and materials, except materials and equipment specified to be furnished by the Owner, complete in accordance with the Bid Documents, to the full and entire satisfaction of the Owner, with a definite understanding that no money will be allowed for extra work except as set forth in the *General Conditions*, and as filed on Change Order Forms.
7. The Owner may accept any schedule or portion thereof.
8. A *Form of Exceptions* to the *Technical Specifications*, prepared in accordance with the *Instructions to Bidders*, is attached hereto. The Bidder shall document any exceptions with deviation from the bid documents and specifications in the *Form of Proposal*. Otherwise, the complete compliance is assumed.
9. Proposals shall include a complete bill of materials, identifying each item by catalog number, manufacturer, ratings, characteristics, types, sizes, etc., of all materials and equipment required for a complete and coordinated substation. A simple statement that all necessary materials and equipment will be provided is not acceptable.
10. The Bidder warrants the accuracy of all statements contained in the Bidders Qualifications, if any shall be submitted, and agrees that the Owner shall rely upon such accuracy as a condition of the Purchase Order in the event that this Proposal is accepted.

11. Title to the materials shall pass to the Owner upon delivery.
12. The Bidder warrants that the Materials will conform to the performance data and guarantees which are attached hereto and by this reference made a part thereof.
13. The Bidder warrants the accuracy of all statements contained in the Bidder's Qualifications and agrees that the Owner will rely upon such accuracy as a condition of the award of Purchase Order in the event that this Proposal is accepted.
14. By the submission of this bid, the Bidder certifies that:
 - a. The bid has been arrived at by the Bidder independently and has been submitted without collusion with any other Bidder of materials, supplies, or equipment of the type described in the *Notice to Prospective Bidders* or the *Technical Specifications*, and
 - b. The contents of the bid have not been communicated by the Bidder, nor, to its best knowledge and belief, by any of its employees or agents, to any person not an employee or agent of the Bidder or its Surety on any Bond furnished herewith, and will not be communicated to any person prior to the official opening of the bid.
15. The Bidder further agrees that in case of failure on his part to accept said purchase order within ten (10) consecutive calendar days after written notice has been given of the award of the Purchase Order, the Bid Security accompanying this bid, and the monies payable thereon, shall be paid into the funds of the Owner account set aside for this project, as liquidated damages for such failure; otherwise the check or cash accompanying the *Form of Proposal* shall be returned to the Bidder.
16. If, in submitting this Proposal, the Bidder has made any change in the *Form of Proposal*, the Bidder understands that the Owner may evaluate the effect of such change as they see fit or they may exclude the Proposal from consideration in determining the issue of Purchase Order.

BID SCHEDULES

**69 kV CIRCUIT BREAKER FOR
230 kV SOUTH POD SUBSTATION**

BID SCHEDULE NO. 1 – Base Bid

<u>Description</u>	<u>Quantity</u>	<u>Total Cost</u>
Power Circuit Breaker rated 69 kV nominal, 2000 amperes continuous current carrying capacity at 60 Hertz with a minimum of 20,000 amperes symmetrical interrupting rating, furnished with current transformers, all as per Specification and attached Data Sheet, preferred delivery to site by November 28, 2022 and one day of field service.	1	\$
Delivery Charge	1	\$
Sales Tax (if applicable)	1	\$
	BASE BID:	\$

Manufacturer _____ Type _____

BID SCHEDULE NO. 1 – Delivery Schedule

Instructions to Bidders, 6. Shipment and Delivery

The prices of the materials and equipment set forth herein shall include the cost of delivery to the site at the Bidder's risk. The time of delivery shall be as follows:

Delivery (Days)*

Approval Drawings** _____
Final Drawings _____
Delivery of Material _____

- * Number of consecutive calendar days after receipt of written order from the Owner.
** Allow two (2) weeks for receipt and return of Approval Drawings.

BID SCHEDULE NO. 1 – Field Service Engineering (Per Day Rate of Additional Field Services)

Per Day Rate (including expenses) for field service engineering, including all necessary Testing Supplies \$ _____/Day
Rate per one round trip (including expenses) to the site: \$ _____/Day
Option for spare parts pricing: \$ _____/Recommended Lot

FOR CITY USE ONLY: Offer accepted and Contract awarded this ____ day of _____, 20____, as indicated on the attached certification, by _____

(Authorized Representative of City of Rocky Mount Purchasing Office.

PRE-AUDIT: This instrument has been preaudited in the manner required by the Budget and Fiscal Control Act.

Finance Director

Date

AFFIDAVIT OF BIDDER

The final payment of retained amount due the Bidder on account of the Purchase Order shall not become due until the Bidder has furnished to the Owner through the Engineer an affidavit signed, sworn, and notarized to the effect that all payments for Material, services, or any other reason in connection with this Purchase Order have been satisfied and that no claims or liens exist against the Bidder in connection with this Purchase Order. In the event that the Bidder cannot obtain similar affidavits from Subcontractors to protect the Bidder and the Owner from possible liens or claims against the Subcontractor, the Bidder shall state in his affidavit that no claims or liens exist against any Subcontractor. If any liens or claims appear afterward, the Bidder shall save the Owner harmless on account thereof.

Bidder: _____

By: _____

Date: _____

Instructions to Bidders, Paragraph 2.6 and Section 7. Award of Contract

CITY OF ROCKY MOUNT

ROCKY MOUNT, NORTH CAROLINA

69 kV CIRCUIT BREAKER FOR THE 230 kV SOUTH POD SUBSTATION

The following is a list of exceptions to the Bidding Documents and/or Technical Specifications pertaining to the furnishing of the subject materials. Bidders shall identify each exception by Specification page and paragraph number on this form. The omission of exception implies complete compliance with Plans and Specifications.

EXCEPTION/VARIATION

[illegible]

INSERT

ADDENDA / CLARIFICATIONS / BULLETINS

Instructions to Bidders, 5. Bulletins and Addenda

**CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR
69 kV CIRCUIT BREAKER FOR THE
230 kV SOUTH POD SUBSTATION
ROCKY MOUNT, NORTH CAROLINA**

TECHNICAL SPECIFICATIONS

1.0 Scope

- 1.1 The Owner is procuring one (1) circuit breaker for installation into the 230 kV South POD Substation. Bids will be received on one (1) schedule for the purchase of one (1) 69 kV, 2000 amp power circuit breaker.
- 1.2 The Bidder's work shall include furnishing the circuit breaker so represented these Technical Specifications, and as set forth in the Bid Schedule(s) and attached data sheet. The Owner reserves the right to select any combination of alternate schedules as may be allowed. The Owner also reserves the right to reject any or all bids.

2.0 General Conditions

- 2.1 All materials and equipment shall be new, manufactured in the United States or Mexico.
- 2.2 These Specifications and data sheet describe the type, size, and characteristics of the various materials and equipment required to be furnished.
- 2.3 Strict adherence to these general Specifications is requested to facilitate checking and consideration of the Proposal.
- 2.4 It is the intent of these Specifications that the breaker shall be complete and fully operable. Any details not mentioned in the Specifications but required for satisfactory operation shall be furnished and installed by the Bidder.
- 2.5 Station power and control DC voltage at the substation will be located on the attached Data Sheet. The equipment on the breaker shall coordinate with these voltages as appropriate.
- 2.6 Where a manufacturer's name and type of equipment is indicated in these Specifications, it is for clarity and the establishment of a standard and is not restrictive.
- 2.7 The power circuit breaker shall be suitable for outdoor operation and shall be dead tank, three-pole, single throw. The breaker shall consist of an outdoor dead tank, frame-mounted power circuit breaker having a weatherproof mechanism and relay cabinet with hinged panel containing the control wiring. Breaker shall meet all its ratings as defined in IEEE C37.04, latest edition, and as listed in IEEE C37.06, latest edition.

3.0 Special Conditions

3.1 Defective Materials, Equipment, and Workmanship

- 3.1.1 All materials and equipment furnished hereunder shall be subject to the inspection, tests, and approval of the Owner; and the Bidder shall furnish all information required concerning the nature or source of any materials and equipment and provide adequate facilities for testing and inspecting the materials and equipment at the plant of the Bidder.
- 3.1.2 The materials and equipment furnished hereunder shall become the property of the Owner when delivered at the point to which shipment is to be made; provided, however, that the Owner may reject any such materials and equipment as does not comply with the Specifications for materials and equipment and warranties of the Bidder and manufacturers. Recognition and subsequent rejection of any defective materials and equipment may occur either before or after incorporation of such materials and equipment into the facilities, provided such rejection is made within the warranty period of the materials and equipment. Upon any such rejection, the Bidder

shall replace the rejected materials and equipment with materials and equipment complying with the Specifications for materials and equipment and warranties FOB open-top truck or open trailer at suitable destination as determined by the Owner. The Owner shall return the rejected materials FOB open-top truck or open trailer at the same destination. In the event of the failure of the Bidder to so replace rejected materials and equipment, the Owner may make such replacement; and the cost and expense thereof shall be paid by and be recoverable from the Bidder.

- 3.1.3 The breaker to be provided herein shall include a full warranty on the complete units together with all parts. The warranty shall extend for not less than twelve (12) months from the date of initial energization and up to eighteen (18) months from date of delivery, whichever is applicable.

4.0 Standards

- 4.1 All equipment and materials covered by these Specifications shall be in accordance with the applicable provisions of the latest editions of the Standards of the ASTM, ANSI, NEMA, IEEE, OSHA, and latest revision of the NESC. Where a manufacturer's name and type of equipment is indicated in the Specifications, it is for clarity and the establishment of a standard and is not restrictive unless use of an approved equal is specifically mentioned.
- 4.2 The Bidder may offer alternate pricing for equivalent items by other manufacturers. However, **all** base bids must explicitly comply with the designated materials specified herein. The Owner may elect to purchase alternates, as proposed by the Bidder. The alternate materials are subject to review and approval by the Owner's Engineer.

5.0 Drawings and Documentation

5.1 Preliminary Drawings

Before proceeding with fabrication, the manufacturer shall submit for approval to the Owner and the Engineer sufficient Drawings to demonstrate that all parts conform to the requirements and intent of these Specifications. The Drawings shall include Breaker, Operator, and Current Transformer (CT) Nameplates, Breaker, and Bushing Outlines, Elementary and Connection (Control Wiring) Diagrams, and CT Secondary Exciting Curves and Ratio Correction Factor Curves. The drawings shall be submitted electronically to the contact listed on the attached Data Sheet. The drawings shall be compatible with AutoCAD® 2018. If the bidder elects to submit paper copies in lieu of electronic copies, they shall submit four (4) copies of each drawing. All Drawings submitted shall be a minimum of a "D" (24" x 36") size print. Submittal of Drawings smaller than "D" size will be immediately returned stamped "not approved" and proper size Drawing will have to be submitted. All Drawings shall be dimensioned in feet and inches; metric measurements alone will not be acceptable. However, dual dimensioning in feet and inches and centimeters will be acceptable.

5.2 Approval Drawings

Receipt of "Approval Drawings" by the Bidder constitutes authorization for manufacture predicated upon the Drawings and corrections found thereon.

Design and Fabrication Drawings

The Outline Drawing shall show dimensions of equipment, including bushings, base anchor dimensions, conduit entrance panel location, and all other important external features. These Drawings shall show weights, vertical and horizontal dimensions, bushing catalog numbers and ampere ratings, description of top bushing terminals, and arrangement of all external accessory devices, as well as the complete breaker rating. Cut sheets and catalog descriptive bulletins shall be submitted for any components of the breaker, along with the Drawings for review.

- 5.3 Approval of Drawings shall not be held to relieve the Bidder of obligations to meet all requirements to the Specifications, of responsibility for correctness of the Drawings, or of responsibility to meet original shipping promise on the basis of the Owner and the Engineer being allowed two (2) weeks for approval.

- 5.4 The Owner or its Engineer may require a second submittal of Shop Drawings if, in the opinion of the Owner or its Engineer, such is required due to the extent of changes required on the first submittal. If an extension of time is required due to a protracted drawing approval process, the price will remain as quoted for the quoted delivery.
- 5.5 All drawings shall have marked on each sheet or group of sheets which always remain together, a label that shall match the "Drawing Stamp" on the attached Data Sheet.
- 5.6 The manufacturer shall submit with the preliminary Drawings all information needed to design an adequate foundation for the breaker, including the exact positioning and size of anchor bolts.
- 5.7 Final Drawings
Contingent upon Approval Drawing review and product manufacture, the Bidder shall issue final documentation as follows:
- 5.7.1 One (1) complete set of all Drawings revised to "as-built" status, released on paper.
- 5.7.2 Two (2) complete sets of all Drawings, revised to "as-built" status, released on two (2) separate USBs, compatible with AutoCAD® 2018. Product manuals, leaflets, CT curves, etc. shall be provided on the same USB in Adobe (.pdf) format. USBs shall contain .pdf copies of certified test reports as well.
- 5.7.3 Two (2) copies of applicable instruction books, including one (1) print each of all Drawings representing physical and electric details.
- 5.7.4 Two (2) copies of certified test reports corresponding to functional performance measurements after final assembly.
- 5.7.5 All Drawings are to be certified correct and supplied within a reasonable length of time prior to shipment of the equipment. Each set of Drawings and documentation shall include the following information:
- 1) Outline and Assembly Drawings showing size and location of major components and all principal dimensions.
 - 2) Control and relay panel front view.
 - 3) Details of bushing and bushing terminal connectors.
 - 4) Diagram of bushing current transformers, connection, number of turns, polarity marking, ratios, and bushing orientation.
 - 5) Current transformer performance characteristic curves and data for all relay accuracy CTs.
 - 6) Details of control cabinet.
 - 7) Panel connection diagram showing exact connection for all components furnished.
 - 8) Ac and DC elementary circuit diagrams for all relay and control equipment furnished.
 - 9) Wiring control and schematic diagrams.
 - 10) Instruction books.
 - 11) Renewal parts catalog.
- 5.7.6 All Drawings and documentation are to be forwarded to Booth & Associates, LLC, 5811 Glenwood Avenue, Suite 109, Raleigh, North Carolina 27612, to the attention of the contact on the attached Data Sheet.

6.0 Manufacturer's Field Representative

- 6.1 The manufacturer shall provide the services of a Field Service Engineer for a period of one (1) day per breaker. Additional time required shall be provided at the per-day rate quoted in the Form of Proposal.
- 6.2 Services provided by the Field Engineer shall include all pre-service inspection procedures outlined in the manufacturer's literature, breaker inspection before unloading at the site or as requested by the Owner, supervision of installation of component parts including bushings, and testing of the breaker operations and controls. The Field Service Engineer shall give approval for energizing the breaker. The Field Service Engineer shall also provide training to the Owner's maintenance personnel during checkout of the breaker.
- 6.3 The Field Service Engineer will also be required by the Owner to perform a series of tests including high potential testing of interrupters, breaker mechanism travel, synchronization of group operation, current transformer ratio tests, and current polarity tests. The Owner and the Engineer shall specify those tests desired in addition to standard pre-service inspection procedures not listed above.

7.0 Power Circuit Breaker

7.1 Ratings

- 7.1.1 Breaker shall meet all its ratings as defined in ANSI/IEEE C37.04, latest edition, and as listed in ANSI C37.06, latest edition. The Power Circuit Breaker shall be rated as per the attached Data Sheet.
- 7.1.2 The breaker shall be designed to withstand seismic events for the applicable seismic zone according to IEEE 693 "Recommended Practice for Seismic Design of Substations" to the extent that a force applied in the direction of least resistance to that loading will not cause the breaker tank(s), cover, frame, bushings, control cabinet, contact assembly, or fastenings to be overstressed.
- 7.1.3 The breaker shall be suitable for operation at an ambient temperature of -30°C (22°F). Maximum ambient temperature rating shall be 50°C (122°F). Humidity rating shall be up to 100 percent.
- 7.1.4 The breaker will be installed at an altitude as shown on attached data sheet.
- 7.1.5 The breaker shall be designed to withstand wind loading of 90 mph with 120 mph gusts and ice loading up to 0.75 inches.
- 7.1.6 The completely assembled breaker, including bushings, current transformers, and all other appurtenances shall be designed and tested to withstand voltages in accordance with ANSI/IEEE C37.06, Table 4, latest edition, and as shown in the attached Data Sheet. The breaker shall be able to withstand tabulated values without puncture or flashover with contacts either closed or fully open:
- 7.1.7 The breaker shall have standard interrupting capacities as listed in the attached Data Sheet for each schedule.
- 7.1.8 The breaker shall interrupt the arc within three (3) cycles or less measured from the instant the trip coil is energized with normal voltage. Three (3) cycles or less interruption shall be achieved over a range of 25 percent to 100 percent of rated interrupting capacity.
- 7.1.9 The breaker shall be capable of interrupting the full rated fault current at least twice in succession without intentional delay (Open Close Open).

7.2 Details

- 7.2.1 The insulation structure of the breaker shall meet the requirements of Section 6 of ANSI C37.12, latest revision.

- 7.2.2 The structural features of the breaker shall meet the requirements of Section 8 of ANSI C37.12, latest revision, including the rated short-circuit current and seismic events as described in these Specifications.
- 7.2.3 Original and renewal parts shall be so manufactured that they can be assembled in the field without undo fitting.
- 7.2.4 The main breaker contacts shall be designed to have adequate thermal and current-carrying capacity for carrying full-rated current without exceeding the allowable temperature rise as specified in ANSI C37. They shall be designed to have long life so that frequent replacement or maintenance will be unnecessary. The surfaces of either or both moving and stationary arcing contacts which are exposed directly to the arc shall be faced with suitable arc-resisting material.
- 7.2.5 All surfaces of steel parts (framework, tank, etc.) shall be cleaned in accordance with the Bidder's standards to remove dirt, scale, and grease prior to painting or galvanizing. This shall be immediately followed by an application of priming of rust-inhibitive paint and the necessary base coat or the galvanization process. All steel surfaces shall have a minimum of 3 mils of paint or hot dipped galvanized.
- 7.2.6 The exterior surfaces of all bolts, nuts, and washers shall be primed and painted as above, or such parts shall be stainless steel or hot-dipped galvanized. No exposed cadmium-plated parts or zinc chromate-plated parts will be allowed.
- 7.2.7 Color specification shall be ANSI #70 light grey.
- 7.2.8 There shall be viewing windows for annunciator, open/close mechanism, and anything else determined by breaker manufacturer. All viewing windows for viewing gauges, relays, and indicators shall be Lexan.
- 7.2.9 One (1) painted or hot-dipped galvanized, welded steel supporting framework with two (2) ground terminals for bonding. The connections are to be located on diagonally opposite corners at the bottom of the frame with NEMA 2-hole (one and three-fourths inch (1-3/4") spacing) and mounted with one-half inch (1/2") - 13 NC thread bolts.
- 7.2.10 Bidder shall provide six (6) bushings or enclosures, standard creepage, with external terminals including flat spade connections with NEMA four-hole drilling either built in or furnished separately. The bushings shall be rated to match the full capacity of the breaker. The terminal connectors shall be rated for the bushing continuous current capacity.
- 7.2.11 Bushings or enclosures shall be light gray, constructed of high-strength wet-process porcelain, and rated at circuit breaker Full-Wave withstand BIL.
- 7.2.12 All metal cabinets attached to the breaker shall be solidly grounded to the breaker frame.
- 7.2.13 The circuit breaker shall be completely assembled, wired, adjusted, and tested at the factory before shipment.
- 7.2.14 The breaker shall be designed so that no gas-handling service trailer or gas-recovery facilities are required, and so that no SF₆ seals will have to be made in the field. However, it shall be permissible for the breaker to be brought up to final pressure in the field by use of a gas cylinder furnished by the Bidder.

7.3 Operating Mechanisms

- 7.3.1 The operating mechanism shall consist of a high-speed electrically trip-free and mechanically trip-free magnetic or charged spring-operated device. The mechanism shall operate to open the three phases of the breaker simultaneously. The operating mechanism shall not permit tripping from any position except fully closed. In the event that any pole of the breaker fails to close, the mechanism shall operate to trip all poles.

- 7.3.2 The stored energy mechanism shall be capable of at least one open-close-open operation without recharging. The time for the motor to recharge the mechanism shall not exceed ten (10) seconds. The charging motor shall not draw more than twenty (20) amperes during the charging operation.
- 7.3.3 The breaker shall be equipped for DC tripping and closing. Two (2) separate and independent trip coils (or set of coils) shall be furnished so the breaker can be tripped independently from two separate and independent relaying sources. The trip coils and all necessary circuits, including pressure switches and reset devices, shall be provided on the mechanism. Tripping current shall not exceed 20 amperes.
- 7.3.4 Each tripping circuit shall operate satisfactorily over a voltage range of 60% to 115% of nominal DC voltage. Where more than one trip coil is furnished on each trip for primary relaying and/or back-up relaying, the trip coils associated with the same tripping circuit shall be series connected. Parallel connection is not acceptable.
- 7.3.5 Operating mechanism auxiliary switches of the rotary type shall be mechanically coupled to the mechanism providing a positive indication of the position of the main contacts of the breaker. Each operating mechanism shall be equipped with a 20 stage auxiliary switch with ten (10) "a" and ten (10) "b" contacts for customer use only in addition to those normally required for breaker operation and light indication functions. All spare auxiliary switch contacts and unused contacts on control devices shall be wired to terminal blocks in the control cabinet, even if the contacts are not used.
- 7.3.6 A Veeder-Root type operation counter, visible from outside of mechanism housing shall be provided.
- 7.3.7 Emergency trip control, mechanically linked to mechanism trip latch shall be provided. The manual trip lever shall be externally accessible to operating personnel and upon operation, shall set an interlock (69) to block electrical closing. The interlock shall be manual reset only.
- 7.3.8 Mounting facilities for application of a time travel device and instructions for timing of the breaker shall be furnished with the breaker.

7.4 Gas Insulation and Interruption Systems

- 7.4.1 The breaker, if closed, shall remain closed and locked and provide an alarm if the air or gas pressure should decrease to the point where the breaker is not capable of a successful operation at rated interrupting capabilities. If open, the breaker shall lock open and provide an alarm. The detection schemes for these air and/or gas pressure conditions shall be fail safe. Each trip coil shall have independent pressure sensing and relaying to provide the stated features.
- 7.4.2 The breaker shall be provided with a means of maintaining the appropriate dryness and pressure of the dielectric gas.
- 7.4.3 A gas pressure manifold valve assembly shall be provided and shall be easily accessible for routine maintenance checks.
- 7.4.4 Air and gas valves and connections shall be furnished to permit unit servicing as far as practical. Bidder shall verify with the Owner and the Engineer before construction.
- 7.4.5 All tubing used for SF₆ gas-pressure monitoring and for air pressure from the air compressor discharge outlet to the rest of the air system shall be stainless steel. Copper tubing is not acceptable.
- 7.4.6 "Twist-Lock" 3-wire outlet rated 50 amperes, 240 volts AC shall be provided for connection of the Owner's gas cart.
- 7.4.7 The gas insulation system shall be provided with a temperature-compensated, gas-monitoring system which provides an alarm circuit, a command signal, and a blocking signal. Each device using SF₆ gas under pressure for insulating purposes shall be

equipped with dial-type pressure and temperature gauges. Provisions shall be made for remote alarm indication. For breaker pole unit interconnected devices, a centrally located gauge and alarm device shall be provided. Location shall be subject to Owner's approval.

7.5 Mechanism Housing and Cabinet

- 7.5.1 The mechanism housing and cabinet shall be furnished and mounted on the breaker frame. The centerline of the mechanism housing shall not exceed sixty inches (60") above grade level.
- 7.5.2 The mechanism housing, cabinet, and cabinet door(s) shall be weatherproof and fabricated of sheet metal of sufficient thickness to prevent warping or buckling. The cabinet door(s) shall be vertically hinged and arranged to permit ready access to the inside of the cabinet housing. A continuous stainless steel hinge shall be used on cabinet door(s) or sufficient reinforcement of cabinet door(s) must be provided to prevent warping and buckling of door hinge side. The door shall have a cabinet-type 3-point latching device with a locking device in the closed position and shall include provisions for attaching a padlock with a 3/8-inch shackle diameter to the locking device. All doors shall open wide (135°), giving full access to interiors. The mechanism housing may be in a separate compartment with bolted covers, which can be removed and replaced without undue difficulty.
- 7.5.3 The cabinet shall be provided with a removable plate in the bottom for conduit entrances (to be drilled by others).
- 7.5.4 One or more 240 volt AC heaters for continuous operation shall be furnished to prevent moisture condensation in the cabinet and housing. Additional heaters with thermostatic control shall be provided to maintain normal operation of the cabinet and housing at air temperature to -30°C (-22°F). All heaters shall be equipped with guards, and the 240-volt electric terminals of the heaters shall also be covered.
- 7.5.5 A holder shall be furnished and mounted on the inside of the cabinet to store the Final Drawings and instruction book.
- 7.5.6 Convenience 120-volt GFCI receptacles and lamps shall be provided in the main cabinets, complete with fuses or equivalent. Light shall have door switch and shall be protected by a guard.
- 7.5.7 The control panel shall be dead front with all switches, breakers, etc., enclosed.

7.6 Wiring

All power wiring shall be made with #10 AWG tinned copper wire or larger sized wire. The primary insulation jacket of all wiring shall be 600-volt; 90°C; and water, oil, and flame resistant. Control wiring shall be 41 or 65 stranded cable, Type SIS, and not smaller in size than #14 AWG tinned copper wire, with the exception that wiring to alarm auxiliary relays and indicating lights may be smaller in size. All current transformer leads are to be #10 AWG tinned copper or larger in size.

- 7.6.1 Power wiring shall be sized as required in accordance with the National Electrical Code.
- 7.6.2 All wires shall be identified at each end with legible permanent labels depicting termination location at opposite end.
- 7.6.3 Wiring connections between fixed and hinged sections shall be minimum 41-strand, flexible wire.
- 7.6.4 Seven-stranded control wire is not acceptable.
- 7.6.5 All terminal connections for conductor sizes #10 AWG and smaller shall be made with pre-insulated, full ring tongue, crimp-type lugs. Lugs shall be AMP, Inc. "Pre-Insulated Diamond-Grip" (PIDG) with nylon sleeves. Spade-type terminals or slip-on connectors are not acceptable.

- 7.6.6 For Phoenix type terminals: All wiring shall be connected using pre-insulated, closed barrel, blade-type terminals: bare, stranded wire shall not be inserted into Phoenix terminals.
- 7.6.7 All terminal connections for conductors sizes #2 AWG through #9 AWG shall be made with Burndy Insulug Type YAEV.
- 7.6.8 All terminal connections for conductor sizes larger than #2 AWG shall be made with two-hole, long-barrel, double-indent crimp-type lugs; Burndy Hylug Type YA. (Single-hole lugs may be used only where necessary.)
- 7.6.9 High-temperature insulated wire shall be used for connections to heaters.
- 7.6.10 Grommets shall be provided for all openings in metal barriers used for wiring.
- 7.6.11 Uninsulated exposed conductor or terminal lug shall not extend beyond the sides of the terminal block or its insulating barriers.
- 7.6.12 All leads for multi-ratio current transformers shall be wired to shorting-type terminal blocks in the control cabinet. If junction boxes are required in wiring between current transformer and control cabinet, terminal blocks or splicing sleeves shall be used for wiring connections. In-line type disconnecting terminals such as American Petroleum Institute (API) No. 32448 or Burndy No. YZ10 will not be acceptable.
- 7.6.13 All current transformer shorting blocks shall have the sixth position grounded and bonded to the shorting rail.
- 7.6.14 If accidental short circuiting of certain wires can result in malfunction of equipment such as closing or tripping of the breaker, these wires shall not be terminated on adjacent terminal block points.
- 7.6.15 All wiring shall be neat and orderly.
- 7.6.16 The close circuit shall be wired out to two (2) terminal block points to provide external blocking of any close function with contact from the substation lockout relay. These two points shall have a field removable jumper.
- 7.6.17 The close circuit shall be wired out to two (2) terminal block points to provide external closing from the customer's controls.
- 7.6.18 Each trip circuit shall be wired out to two (2) terminal block points to provide external tripping from the customer's protective relays and controls.
- 7.6.19 No more than two (2) wires per terminal point are permissible.
- 7.6.20 The breaker shall be equipped with a ground bar. All components including, but not limited to, CT shorting blocks, case, door, back panel, AC receptacles shall be bonded to ground bus bar.

7.7 Terminal Blocks and Fuseholders

- 7.7.1 Molded-type terminal blocks, rated 600-volt, 30 amperes, for all control connections shall be provided. Terminal blocks with self-contained pressure-type connectors are not acceptable.
- 7.7.2 General Electric Type EB-25 or Marathon Type 1500 STD terminal blocks shall be provided furnished with white marking strips for identification of terminal wires for all connections except current transformer. Modular assembly style terminal blocks are not acceptable.
- 7.7.3 For current transformer leads, General Electric Type EB-27 or Marathon Type 1506SC shorting terminal blocks shall be provided.
- 7.7.4 Each block shall be equipped with at least two shorting screws. A separate, shorting-type terminal block shall be provided for each set of current transformer leads.

- 7.7.5 General Electric Type EB-1 or Marathon Catalog No. 1422123 power terminal blocks shall be provided for landing of Owner's single-phase, 3-wire, 240/120 volt AC control power leads and DC control power leads.
- 7.7.6 A minimum of 15 percent spare (but not less than 12 points) terminal points shall be provided in the mechanism housing and cabinet. These terminal points shall be furnished with all connection hardware.
- 7.7.7 A single-throw disconnect switch shall be installed on all fuseholders or incorporated into the fuseholder itself. If separate fuseholders are to be utilized then fuseholders shall be Marathon RF30AXS (X = 2 for 2 poles, 3 for 3 poles, etc.) series fuseblocks with hard-gripping fuse clips (reinforcing member) and straight slotted silicon bronze screws on each terminal, or approved equivalent.
- 7.8 Current Transformers
- 7.8.1 Current transformers shall be considered part of the breaker and shall be coordinated with the breaker to meet all currents, voltages, and mechanical requirements of the breaker for steady state, surge, and fault conditions.
- 7.8.2 Single and/or Multi-ratio bushing-type current transformers with accuracy as stated on attached Data Sheet suitable for relay and indicating instrument application, all wired to shorting terminal blocks in the mechanism and relay cabinet. The current transformer leads are to be permanently connected and properly identified to the shorting terminal blocks in the control cabinet. Each CT shall be wired to a separate terminal block; sharing of terminal blocks by different CTs shall not be allowed. Taps shall be provided in accordance with Table 11 of IEEE C57.13-2016.
- 7.8.3 The current transformers shall be furnished as per the attached Data Sheet.
- 7.9 Nameplates
- 7.9.1 Nameplates and their mounting screws shall be of noncorrosive metal and mounted in positions where they can be safely and easily read with the equipment in service.
- 7.9.2 Nameplates for the breaker shall include as a minimum the information required by ANSI C37.
- 7.9.3 Nameplates for current transformers which are mounted remote from the breaker shall be mounted on the current transformer secondary housing. Nameplates for bushing-type current transformers which are mounted in the breaker tank shall be mounted in the breaker control cabinet adjacent to their CT terminal blocks or by the main breaker nameplate. These nameplates shall include information required by ANSI C37.
- 7.9.4 All relays, switches, contactors, starters, and other devices shall be identified by nameplates.
- 7.10 Breaker Position Indicators
- 7.10.1 Mechanical-type breaker position indicators, positive as far as practical, shall indicate open and closed positions of the breaker; shall be clearly visible from the ground at reasonable distances; and shall not require opening of doors or special lighting. These shall be independent of control voltage.
- 7.10.2 Breaker position indicators shall be supplemented with LED indicating lamps operating on DC control voltage. Lamps shall be applied as follows:
- a. One green lamp to indicate that all three poles are open. This lamp shall be connected in the DC close circuit. The lamp(s) shall be located in the control cabinet.
 - b. One red lamp to monitor each trip circuit coil and to indicate that any breaker pole is in the closed position. This lamp shall be connected in the DC trip circuit. The lamp(s) shall be located in the control cabinet.

- 7.11 Terminal Connectors
Tin-plated terminal connectors, NEMA 4-hole spade type, shall be furnished with the breaker. They shall be adequately shielded and corona free.
- 7.12 Pressure Switches
- 7.12.1 Devices for all uses, air, and gases, for automatic control of pressure, for alarms, and for safeguard cutoffs, shall be of highest quality and proven reliability.
- 7.12.2 Contacts, ungrounded, shall be fully insulated and compatible with their associated equipment; those used in DC control circuits shall be suitable for the specified control voltage and shall withstand the full standard AC hi-pot test voltage required of switchboard control wiring.
- 7.12.3 All pressure switches shall have multiple electrically independent contacts and shall be furnished as needed:
- a. To alarm when pressure drops too low to permit full duty cycle operation.
 - b. To cut off closing if pressure is insufficient for safe and satisfactory closing.
 - c. A gas pressure manifold valve assembly shall be provided and shall be easily accessible for routine maintenance checks of pressure switches.
 - d. All pressure switches shall have dust covers.
 - e. All switch gauges shall have indicating dials.
- 7.13 Main Pole Interconnection and Adjustment
- 7.13.1 The main poles of the breaker shall be mechanically interlocked. The design and arrangement shall be such that the interrupting contacts may be readily adjusted to touch and to part essentially simultaneously; and other adjustments may be made as are necessary for the proper operation of the breaker.
- 7.13.2 The above requirement for adjustability will not be necessary if proper settings are fixed as part of the manufacturing process and not subject to drifting from the proper points.
- 7.14 Auxiliary Equipment and Accessories
- 7.14.1 The breaker shall be equipped with an operation counter.
- 7.14.2 Auxiliary relays shall be provided for loss of voltage on all AC and DC circuits; low SF₆ pressure; and for blocking of tripping or closing of the breaker.
- 7.14.3 Auxiliary relays, which perform either a trip or close, start-or-stop function, shall not be mounted on a hinged panel or door. All auxiliary relays shall have dust covers.
- 7.14.4 All alarm contacts shall be suitable for stated control voltage, with separate wiring from each device to terminal blocks in control cabinet.
- 7.14.5 Mounting facilities shall be furnished for a Doble Type MV motion velocity device.
- 7.14.6 Two normally open contacts from the breaker closing relay (52X) and one normally closed contact of the anti-pump relay (52Y) shall be wired to terminal block for use by the Owner. Either side of each contact shall be independently wired to the terminal block (two wires per contact). The 52Y relay coil shall be rated for continuous operation. Contact interruption rating for inductive circuit shall be 3 amperes. The normally open 52X contacts shall remain closed for a minimum of 10 cycles during a close operation.
- 7.14.7 Motors shall have voltage as indicated on attached Data Sheet. They shall be drip-proof, with Class B insulation. They shall have sufficient capacity for all conditions of starting and continuous operation which their pump or compressor may impose, with temperature rise not to exceed 90°C above an ambient of 40°C and a service factor of 1.15. Each motor shall be equipped with its own thermal protection.

- 7.14.8 Twenty (20) stage convertible auxiliary switch, directly connected to the main operating linkage. This switch shall be made consistent with the requirements of these Specifications.
- 7.14.9 All necessary SF₆ gas service connection fittings shall be provided for each breaker provided.
- 7.14.10 Gas vent, as required, shall be provided.
- 7.14.11 Provision for travel recorder shall be included.
- 7.14.12 Breaker shall be equipped with a control switch. Switch shall be Electroswitch Series 24, Catalog No. 24570 with pistol grip spring return handle.
- 7.14.13 All trip coils shall have a trip coil monitor in each individual circuit. These trip coil monitors shall be wired up to the local annunciator.
- 7.14.14 A ten (10) point annunciator, minimum, shall be provided for alarming all breaker alarms, tripping, or any breaker trouble. The annunciator shall be as listed in attached Data Sheet or approved equal. All text labels for the front of the annunciator shall be field installed. The bidder is to specifically NOT install permanent labels on the front of user configurable areas. The input shall be wired as follows:
 - a. InA1 - Trip Coil Monitor Trip Circuit #1
 - b. InA2 - Trip Coil Monitor Trip Circuit #2
 - c. InB1 - Low Gas Lockout Trip Circuit #1
 - d. InB2 - Low Gas Lockout Trip Circuit #2
 - e. InC1 - Low Gas Alarm
 - f. InC2 - Loss of voltage Close Circuit
 - g. InD1 - Motor trouble
 - h. InD2 - Loss of voltage Motor Circuit
 - i. InE1 - Loss of Voltage Heater Circuit
 - j. InE2 - Additional alarm specific to individual manufacturer standard design
 - k. InF1 - Loss of voltage Trip Circuit #1
 - l. InF2 - Loss of voltage Trip Circuit #2
 - m. InG1 - Additional alarm specific to individual manufacturer standard design
 - n. InG2 - Additional alarm specific to individual manufacturer standard design

7.15 Piping and Conduit

Furnish all necessary individual storage tanks, piping, valves, and conduit for the complete assembly of the breaker. Storage tanks required shall be manufactured to the requirements of the ASME Code Section VIII Division 1 and so stamped and registered with the National Board of Registration. Any safety and/or safety relief valves approved for service on these tanks shall also be constructed in compliance with the latest requirements of the ASME Boiler and Pressure Vessel Code. These valves shall also be stamped and registered with the National Board of Registration.

7.16 Special Tools and Lifting Devices per Each Breaker

- 7.16.1 Furnish a set of all special tools and hardware required for removal and maintenance of the breaker.
- 7.16.2 Furnish any special lifting devices required for installation and or maintenance of the breaker and/or their accessories.
- 7.16.3 Furnish lifting eyes and lugs for vertically lifting the entire breaker assembly.

8.0 Spare Parts

- 8.1.1 The Bidder shall furnish with the Proposal a recommended spare parts list and spare parts price list, applicable to the breaker described in the Proposal. This list shall include, but is not limited to, the following:
- a. Complete interrupter for one pole.
 - b. One full-capacity-rated bushing.
 - c. All pressure-limit switches, gauges, and alarm relays.
 - d. One close coil and one trip coil.
 - e. One each of each type of electric motor.
 - f. Three each of each type of gasket.
 - g. One each of each type of relay coil.
 - h. One heater element.
- 8.1.2 The above requirements are for spare parts and prices in the Proposal, but it is not the intention of this Specification that these parts be furnished as part of the Purchase Order.

9.0 Tests

- 9.1 The tests shall be performed on the breaker as a three-phase unit.
- 9.2 Production tests shall be performed on the breaker and associated bushing current transformer, bushings, and relays as required by present-day standards.
- 9.3 Design tests shall be conducted on the breaker unless design tests have been conducted on a duplicate breaker of previous manufacture. If design tests have been conducted previously, a certified copy of the tests shall be submitted.
- 9.4 Additional tests shall be conducted if not included in the production and design tests, as follows:
- 9.4.1 Take operations data on the interrupter by means of a Doble breaker analyzer or a Honeywell Visicorder or equivalent, under normal gas and air pressure and control voltage to demonstrate compliance with this Specification and guaranteed values.
- 9.4.2 Furnish charts showing:
- a. Opening at normal voltage and pressure.
 - b. Opening at minimum voltage and pressure.
 - c. Closing at normal voltage and pressure.
 - d. Closing at minimum voltage and pressure.
 - e. Close and trip free at normal voltage and pressure.
- 9.5 Above data shall show contact travel against cycle (60-Hertz basis) and shall have the following points marked thereon if applicable:
- 9.5.1 Opening Operation
- a. Trip coil energized
 - b. Air or gas blast starts
 - c. Main contacts part
 - d. Main contacts fully open
 - e. Air or gas blast stops

- 9.5.2 Closing Operating
 - a. Closing coil energized
 - b. Main contacts touch
 - c. Main contacts fully closed
- 9.5.3 Tank test - air or hydrostatic (ASME and State).
- 9.5.4 Dielectric test on all control wiring and accessories.
- 9.5.5 Ratio check of current transformers - submit correction curves.
- 9.5.6 If the breaker or any of their auxiliaries or accessories fails to pass the tests specified, additional tests shall be made to locate the failure. After rework or repair of the failure, the specified tests shall be repeated to ensure that the repaired breaker, auxiliary, or accessories will meet the Specification in all respects.
- 9.5.7 Rework or repair and retesting shall be done at Bidder's expense.
- 9.5.8 Bidder shall keep a record of all failures detected during tests, of rework or repair required, and of test data taken after rework or repairs have been completed.
- 9.5.9 Rework or repairs shall be made in accordance with an approved procedure signed by that party responsible to give in-process disposition of such rework or repairs.
- 9.6 Procedures for all tests and date of testing shall be submitted to the Owner and the Engineer 30 days before the testing is to occur.

HV CIRCUIT BREAKER SPECIFICATIONS

DATA SHEET

Booth Contact: Michael Winkler, PE
email: m.winkler@booth-assoc.com

Drawing Stamp: CITY OF ROCKY MOUNT- SOUTH 230 KV POD SUBSTATION

Preferred Delivery Date: November 28, 2022

Circuit Breaker Rating Information

Nominal Breaker Rating 69 kV

Maximum Breaker Rating 72.5 kV

Breaker BIL 350 kV

Continuous Current Rating 2,000 Amps

Interrupting Current Rating 20,000 Amps

Rated Interrupting Time 3 Cycles

Closing and Latching Capability 104 kA, rms

Low Freq. 1 Minute Dry rms 160 kV

Low Freq. 10 Second Wet rms 140 kV

Two microsecond chopped
wave impulse peak 452 kV

Minimum Creepage Distance
Of External Insulation to Ground 46.1 Inches

Frequency 60 Hz

Minimum Ambient Temp. -30 °C

Max. Ambient Temp. 50 °C

Humidity Rating 100 %

Max. Altitude 3,300 Feet

Interrupting medium: SF6

Construction type: Outdoor dead tank, three pole, single throw, frame-mounted

Station Power Information

Station Power Voltage (AC) 120/240 VAC

Station Power Frequency (Hz) 60 Hz

Station Control Voltage (DC) 48 VDC

Equipment Details

Tripping and Closing Voltage 48 VDC

DC Control Contact Ratings 48 VDC

Alarm Contact Voltage 48 VDC

Contact Interruption Voltage 48 VDC

Motor Voltage 120/240 VAC

Annunciator Power Voltage 48 VDC

Annunciator Control Voltage 48 VDC

Annunciator Manufacturer Schweitzer

Annunciator Model Number 2533022130XC2X0 48 VDC
Model

Bushings 1, 3, and 5 CT Ratings

Number of CT's per bushing: 2

CT ratings and placement:

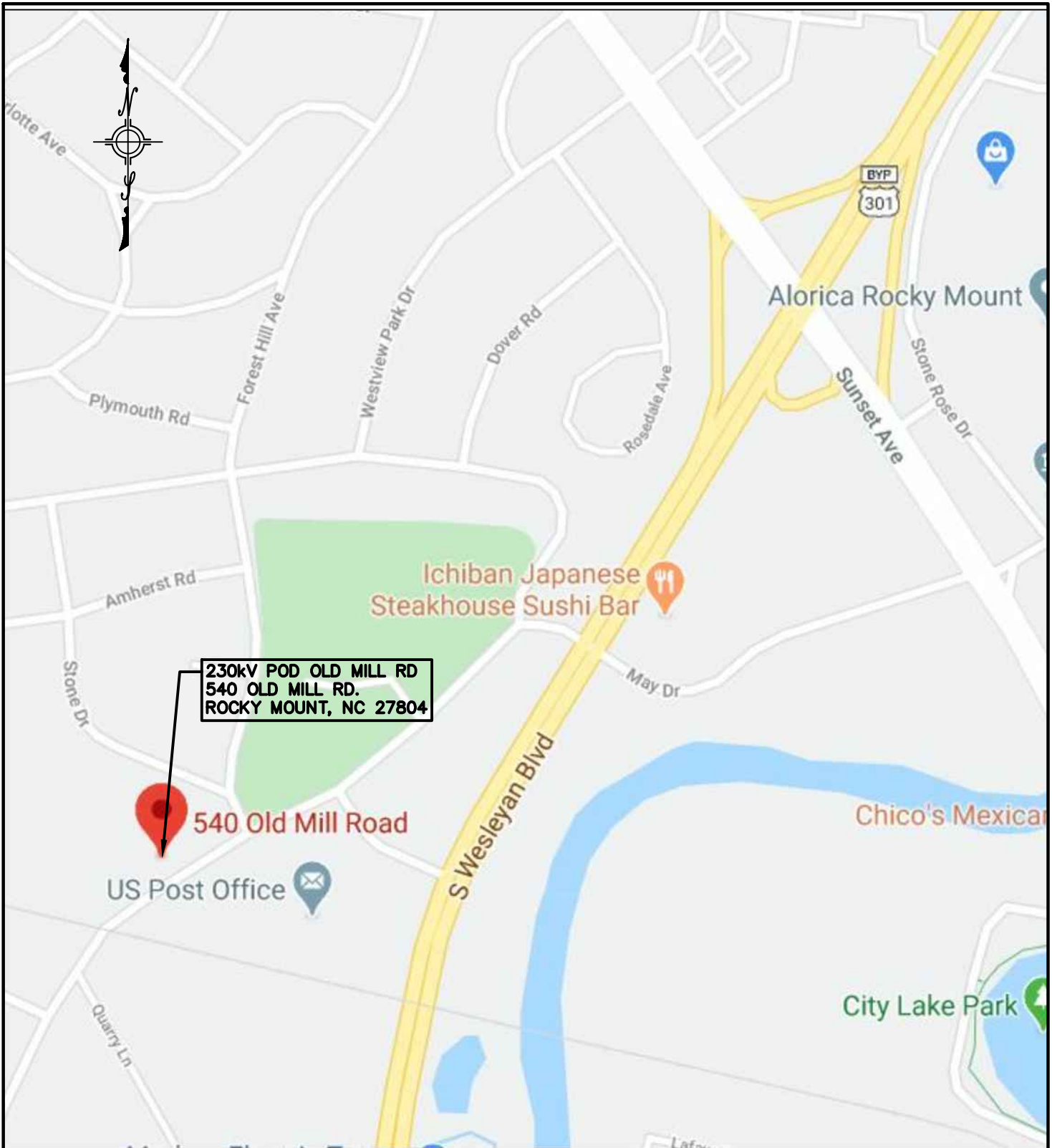
Top CT (X):	Ratio:	<u>2000 /5</u>	<u>MR</u>	Accuracy Class:	<u>C800</u>	Thermal Rating:	<u>2</u>
Center CT (Y):	Ratio:	<u>2000 /5</u>	<u>MR</u>	Accuracy Class:	<u>C800</u>	Thermal Rating:	<u>2</u>
Bottom CT (Z):	Ratio:	<u>N/A</u>		Accuracy Class:		Thermal Rating:	

Bushings 2, 4, and 6 CT Ratings

Number of CT's per bushing: 2

CT ratings and placement:

Top CT (X):	Ratio:	<u>2000 /5</u>	<u>MR</u>	Accuracy Class:	<u>C800</u>	Thermal Rating:	<u>2</u>
Center CT (Y):	Ratio:	<u>2000 /5</u>	<u>MR</u>	Accuracy Class:	<u>C800</u>	Thermal Rating:	<u>2</u>
Bottom CT (Z):	Ratio:	<u>N/A</u>		Accuracy Class:		Thermal Rating:	



SITE LOCATION

ADDRESS:
540 Old Mill Rd.
Rocky Mount, NC 27804

LATITUDE: 35.951766°
LONGITUDE: -77.8342348°

CITY OF ROCKY MOUNT
ROCKY MOUNT, NORTH CAROLINA

230kV POD OLD MILL RD
VICINITY MAP

Booth & Associates, LLC

5811 Glenwood Avenue | Raleigh, NC 27612 CONSULTING ENGINEERS NC F-0221

DWN. BAA	DATE: 4/4/20	DWG. NO. VM-1
CKD. KPM	APPD. KPM	
SCALE: 1"=2,000'	FILE: 18899VM	
JOB NO. 18899	DATE	
© 07/20	REVISION	

SUPPLEMENTAL VENDOR INFORMATION

HISTORICALLY UNDERUTILIZED BUSINESSES

Historically Underutilized Businesses (HUBs) consist of minority, women and disabled business firms that are at least fifty-one percent owned and operated by an individual(s) of the categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

Pursuant to G.S. 143B-1361(a), 143-48 and 143-128.4, the State invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled. This includes utilizing subcontractors to perform the required functions in this RFP. Any questions concerning NC HUB certification, contact the [North Carolina Office of Historically Underutilized Businesses](#) at (919) 807-2330. The Vendor shall respond to question #1 and #2 below.

- a) Is Vendor a Historically Underutilized Business? ☐ Yes ☐ No
- b) Is Vendor Certified with North Carolina as a Historically Underutilized Business? ☐ Yes ☐ No

If so, state HUB classification: _____

CONTRACTOR REGISTRATION

New vendors must complete a vendor registration form using the link below. If you are a current vendor that has not completed the online vendor registration also complete the form. Once registration is complete email a copy of your W9 and E-Verify Affidavit to the contact person listed on the coversheet.

<https://rockymountnc.gov/services-finance-vendor-registration/>

HOW TO DO BUSINESS WITH THE CITY OF ROCKY MOUNT

Becoming a Vendor <https://youtu.be/MGOjZxl4iQc>

Competing in the Bid Process <https://youtu.be/yy8dYzPOCUs>

Purchase Order, Payment and Performance <https://youtu.be/wA5zVTizZQM>

4.4 MINORITY BUSINESS PARTICIPATION

The Bidder has the responsibility to make a good faith effort to solicit minority proposals and to attain the aspirational ten percent (10%) goal. We encourage all Bidders even MWBE/HUBs to obtain the aspirational goal where sub-contracting and supplier opportunities exist. Use the table below to note the MWBE businesses that will be used as suppliers or subcontractors for this contract.

MWBE FIRM	OWNERSHIP STATUS	ADDRESS	WORK TYPE

If the goal of 10% participation by HUB Certified or minority businesses is not achieved, the Bidder shall provide the following documentation to the City of his/her good faith efforts:

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- a) Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- b) Copies of quotes or responses received from each MWBE responding to the solicitation.
- c) A telephone log of follow-up calls to each firm sent a solicitation.
- d) For subcontracts where a minority business is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- e) Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- f) Copy of pre-bid roster
- g) Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- h) Letter detailing reasons for rejection of minority business.
- i) Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in a non-responsive bid.

ATTACHMENT G: PROPOSED PRODUCTS FORM

No.	Item	Proposed Product(s)	Supplier Names & Addresses
1			
2			
3			
4			
5			

CERTIFICATION BY PRIME CONTRACTOR:

Each supplier listed above has established his ability and responsibility to supply the specified materials in accordance with the Contract Documents.

Contractor

By: _____ Date: _____
Signature & Title

Approved: CITY OF ROCKY MOUNT

By: _____ Date: _____
City of Rocky Mount