

**GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR THE  
STRUCTURES AND EQUIPMENT FOR  
GREENVILLE SOUTH 230 KV POD NO. 3**

**ISSUED FOR BIDS**



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

© April 2016

**GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA**

**SPECIFICATIONS AND BID DOCUMENTS FOR THE  
STRUCTURES AND EQUIPMENT FOR  
GREENVILLE SOUTH 230 KV POD NO. 3**

<b>TABLE OF CONTENTS</b>
--------------------------

**REQUEST FOR PROPOSAL**

Notice to Prospective Bidders.....	N-1
Definitions .....	D-1
Instructions to Bidders .....	IB-1
General Conditions .....	GC-1
Contract Agreement.....	C-1

**FORM OF PROPOSAL**

Terms and Conditions.....	P-2
Bid Schedules .....	P-4
Affidavit of Bidder .....	P-6
Form of Exceptions.....	P-7
Bid Bond.....	P-8
E-Verify Compliance.....	P-9
Iran Divestment Act Certification.....	P-11
Addenda / Clarifications / Bulletins.....	P-12

**TECHNICAL SPECIFICATIONS**

1.0	Scope .....	S-1
2.0	General Conditions .....	S-1
3.0	Special Conditions .....	S-2
4.0	Standards .....	S-3
5.0	Basic System Ratings .....	S-3
6.0	Drawings and Documentation .....	S-3
7.0	Material and Equipment Not Included.....	S-5
8.0	Structural Steel .....	S-5
9.0	Power Transformers.....	S-6
10.0	230 kV and 115 kV Circuit Breakers .....	S-6
11.0	Group-Operated 115 kV Disconnect Switches .....	S-6
12.0	Surge Arresters .....	S-7
13.0	Station Power and Metering Transformers .....	S-7
14.0	Bus and Leads.....	S-8
15.0	Insulators .....	S-8
16.0	Conductor Clamps .....	S-8
17.0	Ground Grid and Lightning Masts.....	S-9
18.0	Connectors .....	S-9
19.0	Danger Signs.....	S-9
20.0	Security Lights.....	S-10
21.0	Miscellaneous Hardware .....	S-10
22.0	Trade Names.....	S-10

**APPENDICES**

Drawing List  
Materials List  
Vicinity Map

**NOTICE TO PROSPECTIVE BIDDERS**

Sealed Proposals for the furnishing and delivery of all structures and equipment (except materials and equipment specified to be furnished by the Owner) complete and conforming to the bid documents for the Greenville South 230 kV POD No. 3, as set forth in the Bid Schedules, will be received by Greenville Utilities Commission of Greenville, North Carolina (hereinafter referred to as the Owner) at the offices of the Buyer II, Greenville Utilities commission, 401 S. Greene Street, Greenville, North Carolina 27834, on or before **2:00 PM, local time, Thursday, April 28, 2016**, at which time the Proposals will be opened and read. Any Proposal received subsequent to that time will be promptly returned to the Bidder unopened. Bids submitted in a fax or e-mail in response to this Invitation for Bids will not be acceptable. **All questions concerning this bid must be received by Thursday, April 21, 2016.**

Instructions for submitting bids and complete specifications will be available in the Office of the Buyer II, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina during regular office hours, which are 8:30 AM – 5:00 PM Monday through Friday. Greenville Utilities Commission reserves the right to reject any or all bids.

Each bidder must submit a proposal on the enclosed bid forms. **The bid must be signed by an authorized official of the firm. Return only the attached Proposal Form. Do not return the Advertisement for Bids, Instructions to Bidders or Specifications.**

Bids must be in sealed envelopes clearly marked on the outside with the name of the bid and the bid opening date and time. Bid shall be addressed to BUYER II, GREENVILLE UTILITIES COMMISSION, 401 S. GREENE STREET, GREENVILLE, NORTH CAROLINA 27834.

Bids will be opened promptly and read at the hour and on the date set forth in the advertisement in the Office of the Buyer II, Greenville Utilities Main Office, 401 S. Greene Street, Greenville, North Carolina 27834. Bidders or their authorized agents are invited to be present.

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 THE STRUCTURES AND EQUIPMENT FOR GREENVILLE SOUTH 230 KV POD NO. 3, NOT TO BE OPENED UNTIL 2:00 PM, THURSDAY, APRIL 28, 2016"**.

Each Proposal shall be accompanied by cash, cashier's check, or certified check drawn on a bank insured with the Federal Deposit Insurance Corporation or the Savings Association Insurance Fund, payable to the Owner, in an amount not less than five percent (5%) of the total bid as a guarantee that a Purchase Order, if awarded, will be accepted. In lieu thereof, a Bid Bond may be submitted by the Bidder in an amount not less than five percent (5%) of the total bid (see attached Bid Bond form). The total bid price for which the five percent (5%) applies shall be the total of all schedules.

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 lowest responsible, responsive bid from the standpoint of quality, performance, delivery and price; and (4) award Purchase Order(s) to Bidder(s) for any Schedule(s) individually or collectively from the Bid Schedules.

**GREENVILLE UTILITIES COMMISSION OF THE  
CITY OF GREENVILLE, NORTH CAROLINA**

By: Anthony C. Cannon Date: \_\_\_\_\_  
General Manager / CEO

## DEFINITIONS

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

<b>Owner</b>	Greenville Utilities Commission Greenville, North Carolina
<b>General Manager / CEO</b>	Anthony C. Cannon
<b>Consulting Engineer</b>	Booth & Associates, LLC
<b>Observer</b>	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
<b>Bidder</b>	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 Contract, acting directly or through a duly authorized representative
<b>Subcontractor</b>	An individual, firm, or corporation who contracts with the Bidder to perform part of the latter's Contract
<b>Surety</b>	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
<b>Form of Proposal, Proposal</b>	The approved, prepared form on which the Bidder is to submit or has submitted his Proposal for the work contemplated
<b>Bid Security</b>	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 the Savings Associates Insurance Fund, or in lieu thereof, a Bid Bond
<b>Plans, Drawings</b>	All Drawings or reproductions of Drawings pertaining to the construction under the Contract
<b>Technical Specifications</b>	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 Contract
<b>Purchase Order</b>	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

<b>Contract</b>	The agreement covering the furnishing of equipment and/or apparatus and the performance of the work. The Contract shall include the "Instructions to Bidders", "General Conditions", "Form of Proposal", "Plans", "Technical Specifications", and Acknowledgments
<b>Performance Bond (Not Required)</b>	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 Contract
<b>Payment Bond (Not Required)</b>	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 Contract
<b>Work</b>	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
<b>Emergency</b>	A temporary unforeseen occurrence or combination of circumstances which endangers life and property and calls for immediate action or remedy
<b>Work at Site of Project</b>	Work to be performed, including work normally done on the location of the project
<b>Bid Documents</b>	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**

- 1.1 Bids will be accepted only from 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.
- 1.2 Prospective Bidders who wish to submit a bid, but are not presently qualified, may receive consideration by submitting a completed Bidder's Qualification Form, which requires product line and user list, to the Engineer at least ten (10) days prior to the specified bid opening date and time. The Bidder's Qualification Form may be obtained from the Engineer.

### **2.0 Proposals**

- 2.1 To warrant consideration, Proposals must comply with these instructions. Strict adherence to these specifications and drawings is requested to facilitate review and consideration of the proposal.
- 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.
- 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. 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.
- 2.10 No Bid Proposal may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) 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, responsive 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 Firm quotations should be based upon placement of an order within sixty (60) days from bid date.
- 2.14 The Owner reserves the right to accept any schedule, combination of schedules, or any portion of a schedule.

### **3.0 Bid Security**

- 3.1 Each Proposal shall be accompanied by a cash deposit, cashier's check, or certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation or Savings Association Insurance Fund, or a Bid Bond in an amount not less than five percent (5%) of the Proposal. The Owner will retain said deposit as liquidated damages in the event of failure of the Successful Bidder to execute the Purchase Order within ten (10) days after the award.
- 3.2 Bid Bond shall be conditioned that the Surety will, upon demand, forthwith make payment to the Obligee upon said Bond if the Bidder fails to accept a purchase order in accordance with the Bid Bond, and that upon failure to forthwith make payment, the Surety shall pay to the Obligee an amount equal to double the amount of said Bond.
- 3.3 Only one (1) Bid Bond is required, the amount of which shall be based on the total amount of the bid. The value for the Bid Bond shall be based on the Bid Schedule of maximum total amount.

### **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 Quoted prices for materials and equipment shall include shipment F.O.B. point of delivery to the substation site and point-of-delivery via open-top truck or open trailer. Owner will be responsible for unloading and installing the structures and equipment. **Trusses and columns shall be assembled before shipment to insure correctness, and shall be shipped assembled.**
- 6.2 The location of the station is shown on the vicinity map found in the Appendices.
- 6.3 A Delivery Schedule is provided as part of the Proposal on which the Bidder shall indicate the delivery schedule for his materials and equipment. Strict adherence to the acceptance of delivery schedule is expected. Special attention should be given to the stipulations for delivery outlined in the General Conditions. Furthermore, the Bidder shall match his scheduled deliveries to the schedule preferred by the Owner if noted in the *Form of Proposal* section.
- 6.4 Advance shipment of anchor bolts is required. Upon approval of anchor bolts, anchor bolts may be shipped exclusive of the substation deliveries.
- 6.5 **Coordinated shipment shall be made to reduce storage** by the Owner and to facilitate the accumulation of component parts. **A maximum of two (2) shipments will be permitted for delivery of the entire lot of structures and equipment. One (1) shipment of anchor bolts will be permitted and will not count toward the two (2) shipments. Small partial shipments at scattered times will not be acceptable.**
- 6.6 In the event that delays occur, the Bidder shall be responsible for all shipping demurrage unless such delays are caused solely by the Owner.
- 6.7 All components shall be distinctly marked or identified and shall be completely assembled before shipment insofar as is practical. Each bidder shall so state in his Proposal the manner in which trusses and columns will be shipped. Unless otherwise stated as a part of the Bidder's Proposal, all trusses and box columns are to be shipped completely assembled. Box columns and/or box trusses **over 4'-0" x 4'-0"** may be shipped two sides assembled/two sides knocked down.
- 6.8 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 Contract

- 7.1 The award of contract will be made to the lowest acceptable 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 Bidder 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:
  - 7.3.1 Equipment delivery (days),
  - 7.3.2 Adherence to the Plans and Technical Specifications,
  - 7.3.3 Evaluation of equipment suitability to the system as noted and submitted by the Bidder



7.3.4 The Bidder's intended method of shipment of the materials and equipment,

7.3.5 Firm prices and

7.3.6 Weight of structural steel

## **8.0 Approval Drawings**

8.1 Receipt of "Approval Drawings" by the Bidder constitutes authorization for manufacture predicated upon the Drawings and corrections found thereon. After the return of Approval Drawings, release for shipment is to be granted by either the Owner or its Engineer, based upon the Manufacturer's compliance with the following:

8.1.1 Furnishing of the requested number of copies of the Final Drawings as called for in the Specifications.

8.1.2 Thirty (30) days notification of tentative shipping schedule and forty-eight (48) hours notification prior to delivery.

8.1.3 Coordination of manufacturing and delivery with the Owner's construction schedule.

## **9.0 Payment**

9.1 Invoices shall be submitted in triplicate to the Engineer for review and approval. The address for submittal of all invoices is: Booth & Associates, 5811 Glenwood Avenue, Suite 109, Raleigh, North Carolina, 27612, Attention: Michael L. Clements, PE.

9.2 Payment by the Owner of ninety (90) percent of the purchase price shall be made to the Successful Bidder in a lump sum after delivery

9.3 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. A ten-percent (10%) Performance Bond may be provided in lieu of retainage provisions. 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 make 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 Assignments**

The Bidder shall not assign any portion of this Purchase Order nor subcontract in its entirety except as fully explained in the *Form of Proposal* and accepted by the Owner. No funds or sums of money due or to become due to the Bidder under this Purchase Order may be assigned.

## **10.0 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.

## **11.0 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.

## **12.0 Insurance**

During the term of the Contract, the Bidder at its sole cost and expense shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with the Contract. As a minimum, the Bidder shall provide and maintain the following coverage and limits:

- 12.1 Worker's Compensation - The Bidder shall provide and maintain Worker's Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of \$1,000,000.00, covering all of Bidder's employees who are engaged in any work under the Contract. If any work is sublet, the Bidder shall require the subcontractor to provide the same coverage for any of his employees engaged in any work under the Contract.
- 12.2 Commercial General Liability - General Liability Coverage on a Comprehensive Broad Form on an occurrence basis in the minimum amount of \$1,000,000.00 Combined Single Limit. (Defense cost shall be in excess of the limit of the liability.)
- 12.3 Automobile - Automobile Liability Insurance, to include liability coverage, covering all owned, hired, and non-owned vehicles, used in connection with the Contract. The minimum combined single limit shall be \$150,000.00 uninsured/under insured motorist; and \$1,000.00 medical payment.
- Public Liability Insurance for bodily injury or death \$1,000,000 for one person, and \$2,000,000 for each accident.
  - Property Damage Insurance \$2,000,000 for each accident and \$2,000,000 aggregate for accidents during the policy period.

- 12.4 Motor Vehicle Liability Insurance shall be for not less than the following amounts:
- Bodily injury or death \$1,000,000 for one person and \$2,000,000 for each accident.
  - Property damage is \$2,000,000 for each accident.
- 12.5 Copies of Certificates of Insurance for all aforementioned policies shall be furnished by the Bidder and shall be attached to the respective pages of the Contract Agreement at the time of signing.
- 12.6 It shall be understood that the above-required insurance shall not be canceled or changed until thirty (30) days after written notice of such termination or alteration has been sent by registered mail to GUC Buyer II.

BUYER II:  
Greenville Utilities Commission.  
401 South Greene Street  
Greenville, North Carolina 27835

- 12.7 Each certificate must not terminate before the contract completion date.

Requirements - Providing and maintaining adequate insurance coverage is a material obligation of the Bidder and is of the essence of this Contract. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized by the Commissioner of Insurance to do business in North Carolina. The Bidder shall at all times comply with terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina laws or this Contract. The limits of coverage under each insurance policy maintained by the Bidder shall not be interpreted as limiting the Bidder's liability and obligations under the Contract.

**13.0 Inspection at Bidder's Site**

The Owner reserves the right to inspect, at a reasonable time, the equipment/item, plant or other facilities of a prospective Bidder prior to Contract award, and during the Contract term as necessary for the Owner's determination that such equipment/item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the Contract.

**14.0 Advertising**

Bidder agrees not to use the existence of this Contract or the name of the Owner as part of any commercial advertisement.

**15.0 Access to Persons and Records**

An independent auditor shall have access to persons and records as a result of all Contracts or grants entered into by the Owner in accordance with General Statute 147-64.7 insofar as they relate to transactions with the Owner.

**16.0 Equal Employment Opportunity, Minority Business Participation Program**

During the performance of this work, the Bidder agrees as follows:

- 16.1 The Bidder will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap. The Bidder will take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Bidder agrees to post in conspicuous places available to

employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.

- 16.2 The Bidder, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, will state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or physical handicap.
- 16.3 The Bidder will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Purchase Order or understanding, a notice advising the labor union or workers' representative of the Bidder's commitments under the Equal Employment Opportunity Section of this Specification and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 16.4 In the event of the Bidder's noncompliance with the nondiscrimination clauses of this Specification or with any of such rules, regulations, or orders, the Purchase Order may be canceled, terminated, or suspended in whole or in part and the Bidder may be declared ineligible for further Owner contracts.
- 16.5 The Bidder will include the provisions of this section in every Subcontract or Purchase Order unless exempted by rules, regulations, or orders of the Owner, so that such provisions will be binding upon each Subcontractor.
- 16.6 The Owner has adopted an Affirmative Action and Minority and Women Business Enterprise Plan (M/WBE) Program. Firms submitting a proposal are attesting that they also have taken affirmative action to ensure equality of opportunity in all aspects of employment, and to utilize M/WBE suppliers of materials and/or labor.

## **17.0 Indemnification**

Bidder agrees to indemnify and save GUC of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, its co-owners, joint-venturers, agents, employees, and insurance carriers harmless from any and all Third Party claims, actions, costs, expenses, including reasonable attorney fees, judgments, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to third party tangible property arising out of the negligent performance of the terms of this Contract by Bidder; including, but not limited to, Bidder's employees, agents, subcontractors, and others designated by Bidder to perform work or services in, about, or attendant to, the work and services under the terms of this Contract. Bidder shall not be held responsible for any losses, expenses, claims, subrogation, actions, costs, judgments, or other damages, directly and proximately caused by the negligence of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina. Insurance covering this indemnity agreement by Bidder in favor of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, shall be provided by the Bidder.

## **18.0 Mediation/Binding Arbitration**

In the event of any dispute between the Parties, the Parties agree to submit any dispute to non-binding mediation before a mutually agreeable Mediator prior to initiating litigation. If the Parties are unable to agree upon a Mediator within thirty (30) days after demand therefore, either Party may petition a Court of competent jurisdiction for the designation of a qualified Mediator for these purposes. Each Party shall bear its own costs and expenses of participating in the mediation (including, without limitation, reasonable attorneys' fees), and each Party shall bear one-half (1/2) of the costs and expenses of the Mediator. Unless otherwise agreed, the Parties will hold the mediation in Greenville, North Carolina. The matters discussed or revealed in the mediation session shall not be disclosed in any subsequent litigation.

In the event the matter is not resolved in mediation, either Party may request arbitration. The parties shall jointly select an Arbitrator, and shall be bound by the decision of the Arbitrator with respect to any dispute between the parties with respect to this Agreement. If the parties are unable to mutually agree upon an Arbitrator, the Parties shall each select an Arbitrator, and the two

Arbitrators so selected shall select a third Arbitrator, and the decision of the majority of the Arbitrators shall be conclusive and binding upon the Parties. The Parties at all times agree to equally split the costs of any Arbitrator(s) selected in an effort to resolve the dispute between the Parties. Any party desiring to resolve a dispute under the terms of this Agreement shall notify the other Party in writing, and the Parties shall seek to agree upon a mutually agreed-upon Arbitrator within a period of ten (10) days from the date of such written demand. If the Parties are unable to agree within such ten (10) day period, the Parties shall each select an Arbitrator, and the two (2) Arbitrators so selected shall select a third Arbitrator within fifteen (15) days from the date of the written demand for arbitration, and a decision shall be rendered by the Arbitrator(s) so selected within five (5) days after such Arbitrator(s) is selected.

#### **19.0 Government Restrictions**

In the event any Governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship, or performance of the items offered on this bid prior to their delivery, it shall be the responsibility of the successful Bidder to notify the GUC Buyer II, at once, indicating in its letter the specific regulation which required such alterations. GUC reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or, in the sole discretion of GUC, to cancel the contract

#### **20.0 Patents And Copyrights**

The Bidder shall hold and save GUC, its officers, agents, and employees, harmless from liability of any kind, including costs and expenses, including reasonable attorney fees, on account of any copyrighted articles or any patented or unpatented invention, device or appliance manufactured or used in the performance of this contract.

#### **21.0 Patent And Copyright Indemnity**

The Bidder will defend or settle, at its own expense, any action brought against GUC to the extent that it is based on a claim that the product(s) provided pursuant to this agreement infringe any U.S. copyright or patent; and will pay those costs, damages, and attorney fees finally awarded against GUC in any such action attributable to any such claim, but such defense, settlements, and payments are conditioned on the following: (1) that Bidder shall be notified promptly in writing by GUC of any such claim; (2) that Bidder shall have sole control of the defense of any action on such claim and of all negotiations for its settlement or compromise; (3) that GUC shall cooperate with Bidder in a reasonable way to facilitate the settlement of defense of such claim; (4) that such claim does not arise from GUC modifications not authorized by the Bidder or from the use of combination of products provided by the Bidder with products provided by GUC or by others; and (5) should such product(s) become, or in the Bidder's opinion likely to become, the subject of such claim of infringement, then GUC shall permit Bidder, at Bidder's option and expense, either to procure for GUC the right to continue using the product(s), or replace or modify the same so that it becomes non-infringing and performs in a substantially similar manner to the original product.

#### **22.0 Exceptions**

All proposals are subject to the terms and conditions outlined herein. All responses will be controlled by such terms and conditions and the submission of other terms and conditions, price catalogs, and other documents as part of a Bidder's response will be waived and have no effect on this Request for Proposal or any other contract that may be awarded resulting from this solicitation. The submission of any other terms and conditions by a Bidder may be grounds for rejection of the Bidder's proposal. The Bidder specifically agrees to the terms and conditions set forth in this set of Terms and Conditions by affixing its name on the signatory page contained herein.

#### **23.0 Confidential Information**

GUC will keep trade secrets which the Bidder does not wish to be disclosed, except as provided by statute and rule of law. Each page shall be identified in boldface at the top and bottom as

“CONFIDENTIAL” by the Bidder. Cost information shall not be deemed confidential. The determination of whether a matter is confidential will be determined by North Carolina law.

#### **24.0 Assignment**

No assignment of the Bidder’s obligations or the Bidder’s right to receive payment hereunder shall be permitted without the express written consent of GUC, provided however, upon written request approved by the GUC Buyer II, solely as a convenience to the Bidder, GUC may:

- Forward the Bidder’s payment check directly to any person or entity designated by the Bidder, and
- Include any person or entity designated by Bidder as a joint payee on the Bidder’s payment check.
- In no event shall such approval and action obligate GUC to anyone other than the Bidder, and the Bidder shall remain responsible for fulfillment of all contract obligations.

#### **25.0 Availability Of Funds**

Any and all payments of compensation of this specific transaction and any continuation or any renewal or extension are dependent upon and subject to the allocation of GUC funds for the purpose set forth in this Agreement.

#### **26.0 Governing Laws**

All contracts, transactions, agreements, etc., are made under and shall be governed by and construed in accordance with the laws of the State of North Carolina.

#### **27.0 Administrative Code**

Bids, proposals, and awards are subject to applicable provisions of the North Carolina Administrative Code.

#### **28.0 Execution**

In the discretion of GUC, failure of a duly authorized official of Bidder to sign the Signatory Page may render the bid invalid.

#### **29.0 Clarifications/Interpretations**

Any and all questions regarding these Terms and Conditions must be addressed to the GUC Buyer II. Do not contact the user directly. **These Terms and Conditions are a complete statement of the parties’ agreement and may only be modified in writing signed by Bidder and the GUC Buyer II.**

#### **30.0 Situs**

The place of all contracts, transactions, agreements, their situs and forum, shall be North Carolina, where all matters, whether in contract or tort, relating to the validity, construction, interpretation, and enforcement shall be determined.

#### **31.0 Termination of Agreement**

GUC or Bidder may terminate this Agreement for just cause at any time. Bidder will be paid for all time and expenses incurred as of the termination date. Termination for just cause by either party shall be by certified letter and shall be effective thirty (30) days after signed and acknowledged receipt of said letter. Just cause shall be based on reasonable grounds, and there must be a fair and honest cause or reason for such action. The causes for termination, include, but are not limited to: (1) Bidder’s persistent failure to perform in accordance with the Terms and Conditions, (2) Bidder’s disregard of laws and regulations related to this transaction, and/or (3) Bidder’s substantial violation of the provisions of the Terms and Conditions

**32.0 Force Majeure**

Neither party shall be considered in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party. In any such event of force majeure, the parties shall advise each other of such event, and the parties shall negotiate an equitable adjustment to their respective obligations under this Agreement.

**33.0 Integrated Contract**

These Terms and Conditions, Instructions to Bidders, Specifications, and the selected Bidder's bid represents the entire contract between the Parties. No verbal or other written agreement(s) shall be held to vary the provisions of this Agreement.

**34.0 Contract Provisions**

Each of the provisions of these Terms and Conditions shall apply to the full extent permitted by law, and the invalidity in whole or in part of any provision shall not affect the remainder of such provision or any other provisions.

**35.0 E-Verify**

E-Verify - I understand that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25 et seq. I am aware of and in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes. To the best of my knowledge, any subcontractors employed by me as a part of this contract are in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes.

**36.0 Iran Divestment Act Certification**

By acceptance of this purchase order, Vendor/Contractor certifies that, as of the date of the purchase order or contract, it is not on the Final Divestment List as created by the State Treasurer pursuant to N.C.G.S. § 143-6A-4. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 143C-6A-5(b), Vendor/Contractor shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

**37.0 Notices**

Notices to the Parties should be sent to the names and addresses specified below:

Mr. Cleve Haddock  
Purchasing, Buyer II  
Greenville Utilities Commission  
P.O. Box 1847  
Greenville, NC 27835-1847



## CONTRACT AGREEMENT

THIS CONTRACT, made this \_\_\_\_\_ day \_\_\_\_\_, 2016, by \_\_\_\_\_, hereinafter called Bidder, and GREENVILLE UTILITIES COMMISSION (GUC) OF THE CITY OF GREENVILLE, PITT COUNTY, NORTH CAROLINA, a corporation, hereinafter called the Owner.

### WITNESSETH

THAT WHEREAS, a Contract for

### **STRUCTURES AND EQUIPMENT FOR GREENVILLE SOUTH 230KV POD NO. 3**

has recently been awarded to Bidder by the Owner at and for a total price of \_\_\_\_\_ (\$ \_\_\_\_\_) named in the Bidder's Proposal attached hereto;

AND WHEREAS, it was provided in said award that a formal Contract would be executed by and between Bidder and Owner, evidencing the terms of said award, and that Bidder would commence the work to be performed under this agreement on a date to be specified in a written order of Owner, and would fully complete all work thereunder no later than \_\_\_\_ days from the date of contract.

NOW, THEREFORE, Bidder doth hereby covenant and agree with Owner that it will well and faithfully perform and execute such work and furnish such work and furnish such materials and equipment in accordance with each and every one of the conditions, covenants, stipulations, terms, and provisions contained in said Specifications in accordance with the Plans, at the total price named therefore in the Bidder's Proposal attached hereto, and will well and faithfully comply with and perform each and every obligation imposed upon it by said Plans and Specifications and the terms of said award.

Bidder shall promptly make payments to all laborers and others employed thereon.

Bidder shall be responsible for all damages to the property of the Owner that may be consequent upon the normal procedure of its work or that may be caused by or result from the negligence of Bidder, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. Bidder must restore all property so injured to a condition as good as it was when Bidder entered upon the work.

By execution of this Contract, both parties acknowledge the following conditions as a part of their respective obligations:

- a) Governing Law - This Contract shall be construed and enforced in accordance with the laws of the State of North Carolina. All parties agree to the jurisdiction of the Courts of North Carolina with respect to any action or dispute arising between the parties.
- b) Further Assurances - The parties hereto agree to execute and deliver any and all papers and documents which may be necessary to carry out the terms of this Contract.
- c) Entire Contract - This Contract (including materials incorporated herein by reference) constitutes the entire agreement between the parties hereto and there are no agreements, representations, or warranties which are not set forth herein. All prior negotiations, agreements, and understandings are superseded hereby. This Contract may not be amended or revised except by a writing signed by all parties hereto. This Contract shall be construed and interpreted without any presumption either for or against the party who caused its preparation.

- d) Binding Effect - This Contract shall be binding upon an inure to the benefit of the heirs, legal representatives, successors and assigns of the respective parties hereto, provided that this Contract and all rights hereunder may not be assigned by any party hereto without the written consent of the other party.
- e) Time of Performance - Time is of the essence with regard to the performance of this Contract.
- f) Survivability - The terms of this Contract shall survive execution and delivery of any deeds or bills of sale called for hereunder.
- g) Headings - The headings in the paragraphs of this Contract are inserted for convenience only and do not constitute a part hereof.

Bidder shall furthermore be responsible for and required to make good at its expense any and all damages of whatever nature to persons or property arising during the period of the Contract caused by carelessness, neglect, or want of due precaution on the part of Bidder, its agents, employees, or workmen. Bidder shall also indemnify and save harmless the Owner, and the officers and agents thereof, from all third party claims, suits, and proceedings of every name and description which may be brought against the Owner, or the officers and agents thereof, for or on account of any injuries or damages to persons or property received or sustained by any person or persons, firm, or corporation, by or in consequence of any materials used in said work, to the extent caused by the negligence of Bidder, its agents, employees, servants, or workmen.

It is agreed and understood that the Notice to Prospective Bidders, Definitions, Instructions to Bidders, and Technical Specifications, the accepted Bidder's Proposal, and the enumerated addenda are incorporated in this Contract by reference and are an integral part thereof as set forth herein.

And the Owner doth hereby covenant and agree with Bidder that it will pay to Bidder, when due and payable under the terms of said Specifications and said award, the above-mentioned sum; and that it will well and faithfully comply with and perform each and every obligation imposed upon it by said Specifications and the terms of said award.

Bidder shall, upon completion of all work awarded under this Contract, furnish to the Owner invoices or copies of invoices for all materials purchased for said work; and such invoices shall state the amount of North Carolina sales tax paid for said materials. Bidder shall also furnish the Owner an affidavit certifying the total costs of materials purchased for all work performed under the Contract and the total amount of state sales tax paid for said materials.

Whenever used herein, the singular shall include the plural, the plural the singular, and the use of any genders shall be applicable to all genders as the context may require.

## **PROVIDE CURRENT LIABILITY INSURANCE CERTIFICATE(S)**

*General Conditions, 12.0 Insurance*

### **COVERAGES:**

1. Workmen's Compensation Insurance shall include all of the Bidder's employees employed at the site of the project under his Contract. In case any class of employees engaged in hazardous work under this Contract at the site of the project is not protected under the Workmen's Compensation Statute, the Bidder shall provide adequate coverage for the protection of his employees not otherwise protected.
2. Public Liability and Property Damage Insurance shall be in such amounts as to adequately protect the Owner and the Bidder from claims for damages for personal injury, including accidental death, as well as from claims for property damages which may arise from operations under this Contract, whether such operations be by himself or by anyone directly or indirectly employed by him. The amount of such insurance shall be for the following:

Public Liability Insurance for bodily injury or death \$1,000,000 for one person, and \$2,000,000 for each accident.

Property Damage Insurance \$2,000,000 for each accident and \$2,000,000 aggregate for accidents during the policy period.

3. Motor Vehicle Liability Insurance shall be for the following amounts:

Bodily injury or death \$1,000,000 for one person and \$2,000,000 for each accident.

Property damage is \$2,000,000 for each accident.

Copies of Certificates of Insurance for all aforementioned policies shall be furnished by the Bidder and shall be attached to the respective pages of the Contract Agreement at the time of signing.

It shall be understood that the above-required insurance shall not be canceled or changed until thirty (30) days after written notice of such termination or alteration has been sent by registered mail to the certificate holder.

### **CERTIFICATE HOLDER:**

Greenville Utilities Commission  
401 South Green Street  
Greenville, NC 27835-1847  
Contact: Mr. Cleve Haddock  
Phone: 252-551-1533

### **EXPIRATION:**

Each certificate must not terminate before the contract completion date.

IN TESTIMONY WHEREOF, Bidder and Owner have duly signed and sealed this Contract.

**BIDDER:**

(Imprint Corporate Seal \_\_\_\_\_(SEAL)  
Below this line)

By \_\_\_\_\_(SEAL)  
Brian G. Mason

Title \_\_\_\_\_  
President

**ATTEST:**

By: \_\_\_\_\_  
John W. Nurkin

Title: \_\_\_\_\_  
Secretary

**GREENVILLE UTILITIES COMMISSION (GUC)  
OF THE CITY OF GREENVILLE, PITT COUNTY,  
NORTH CAROLINA**

By \_\_\_\_\_  
Anthony C. Cannon

Title: \_\_\_\_\_  
General Manager / CEO

**APPROVED AS TO FORM AND LEGALITY:**

By: \_\_\_\_\_  
Phillip R. Dixon

Title: \_\_\_\_\_  
General Counsel

**ATTEST:**

By: \_\_\_\_\_  
Amy Carson Quinn

Title: \_\_\_\_\_  
Executive Secretary

**CONTRACT INSTRUCTIONS**

**INSTRUCTIONS FOR PROPER SIGNING**

If Bidder is an individual, sign on first line only and designate trade name below first line, thus:

\_\_\_\_\_ John Jones \_\_\_\_\_ (SEAL)  
Trading as Jones Paving Company

If Bidder is a partnership, sign partnership name on first line; have at least one general (not limited) partner sign on second line, and put his designation as partner on third line, thus:

\_\_\_\_\_ JONES PAVING COMPANY \_\_\_\_\_ (SEAL)  
By \_\_\_\_\_ John Jones \_\_\_\_\_ (SEAL)  
Title \_\_\_\_\_ General Partner \_\_\_\_\_

If Bidder is a corporation, sign corporate name on first line (exactly) as such appears on the corporate seal, have the President or a Vice President sign on second line, put his title on third line, have the Secretary or Assistant Secretary sign on the left "Attest" line (adding the word "Assistant" before the word "Secretary" if the Assistant Secretary is signing), and imprint corporate seal above the word "Attest", thus:

\_\_\_\_\_ JONES PAVING COMPANY, INC. \_\_\_\_\_ (SEAL)  
By \_\_\_\_\_ John Jones \_\_\_\_\_ (SEAL)  
Title \_\_\_\_\_ President \_\_\_\_\_

ATTEST:

\_\_\_\_\_ Thomas Jones \_\_\_\_\_  
Assistant Secretary

**CERTIFICATE OF ATTORNEY**

**GREENVILLE UTILITIES COMMISSION (GUC)  
OF THE CITY OF GREENVILLE,  
PITT COUNTY, NORTH CAROLINA**

This is to certify I have examined the attached Contract Documents, and after such examination I am of the opinion that such Documents conform to the laws of the State of North Carolina, the execution of the Contract is in due and proper form, the representatives of the respective contracting parties have full power and authority to execute such Contract on behalf of the respective contracting parties, and the foregoing agreements constitute valid and binding obligations on such parties.

By: \_\_\_\_\_  
Phillip R. Dixon

Title: \_\_\_\_\_  
General Counsel

Date: \_\_\_\_\_

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

By: \_\_\_\_\_  
Jeff W. McCauley

Title: \_\_\_\_\_  
Chief Financial Officer

Date: \_\_\_\_\_

**GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA**

**STRUCTURES & EQUIPMENT FOR THE  
GREENVILLE SOUTH 230 KV POD NO. 3**

**FORM OF PROPOSAL**  
*(Provide **one** original and **one** copy)*

Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2016

<b>OWNER:</b>	<b>BIDDER:</b>
Greenville Utilities Commission 401 South Greene Street Greenville, North Carolina 27834 P.O. Box 1847 Greenville, North Carolina 27835  Mr. Cleve Haddock Purchasing, Buyer II Office: 252-551-1533 Cell: 252-551-3302	NAME
	TITLE
	STREET ADDRESS
	CITY/STATE/ZIP
	PHONE:
	FAX:
	E-MAIL:
SIGNATURE	
<b>SUPPLIER OF PROPOSED EQUIPMENT</b>	
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.*
  - 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.
  - 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 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. Structural Calculations and a bill of material of structural members shall be furnished as a part of the Bidder's Proposal to verify quoted structural weights.
11. 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 Contract in the event that this Proposal is accepted.
12. Title to the materials shall pass to the Owner upon delivery to the location(s) specified in the *Instructions to Bidders*.



13. 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.
14. 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.
15. 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.
16. 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.
17. 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**

**BID SCHEDULE NO. 1 – Base Bid**

<u>Description</u>	<u>Quantity</u>	<u>Total Price</u>
Furnish and Deliver Complete the Structures and Equipment for the <b>GREENVILLE SOUTH 230KV POD NO. 3</b> as per the Plans and Specifications for a Station Utilizing <u>Steel</u> Structures no later than <b>November 1, 2016</b>	1 Lot	\$ _____
Delivery Charge		\$ _____
Sales Tax (if applicable)		\$ _____
	<b>BASE BID:</b>	\$ _____

The approximate weight of steel structures to be furnished will be: \_\_\_\_\_ pounds.

Bidders will be evaluated on a per-unit steel price. Final invoicing to be adjusted based on actual steel weight.

Note: These weights include all substation structures including structural members and anchor bolts. They do not include the switch mounting bases, switch operator grounding plates, or miscellaneous parts of electrical equipment. Steel weight is after galvanizing. Proportions of the total price for this schedule must be itemized below:

**BID SCHEDULE NO. 1 - Proportionate Prices (Base Bid)**

Structural Steel	\$ _____
Bus, Connectors, Insulators, Fuses, and all other miscellaneous equipment	\$ _____
Grounding System – Connectors	\$ _____
Group-Operated Switches	\$ _____
Single-Pole Disconnecting Switches	\$ _____
Lightning Arresters	\$ _____
Potential Transformers	\$ _____

**BID SCHEDULE NO. 1 – Field Engineering Services (Optional)**

Rate for optional field service engineering for  
any unit included in Schedule 1, including expenses:

RATE PER DAY: \$ \_\_\_\_\_  
ONE ROUND TRIP: \$ \_\_\_\_\_

**BID SCHEDULE NO. 1 - Delivery Schedule**

The prices of the materials and equipment set forth herein shall include the cost of delivery at the Bidder's risk as per the following quoted time table. The time for delivery shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Bidder, including acts of God, fires, floods, strikes, and delays in transportation.

Delivery of all items of equipment to the Owner's designated delivery point shall be made to permit unloading between the hours of 9:00 a.m. and 3:00 p.m., Monday through Thursday, holidays excluded.

<b>Item</b>	<b>Delivery Schedule (Days)*</b>
Submittal of Anchor Bolt Plans	
Delivery of Materials and Steel	

- \* After the receipt of the written order from the Owner in consecutive calendar days and per Instructions to Bidder.

Equipment required no later than **November 1, 2016**

**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, and if any liens or claims appear afterward, the Bidder shall save the Owner harmless on account thereof.

Bidder: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

**FORM OF EXCEPTIONS**

*Instructions to Bidders, Paragraph 2.6 and Section 7. Purchase Order*

BIDDER:

GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA

OWNER:

PROJECT  
DESCRIPTION

STRUCTURES AND EQUIPMENT FOR  
GREENVILLE SOUTH 230 KV POD NO. 3

**INSTRUCTIONS:**

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.

**BID DOCUMENT/  
SPECIFICATION  
PAGE NO. AND  
PARAGRAPH**

**EXCEPTION/VARIATION**


**BID BOND**

KNOW ALL MEN BY THESE PRESENT, THAT WE \_\_\_\_\_  
\_\_\_\_\_  
as Principal, and \_\_\_\_\_  
as Surety, who is duly licensed to act as Surety in North Carolina, are held and firmly bound unto the Greenville Utilities Commission of Greenville, North Carolina, as Obligee, in the penal sum of \_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_  
\_\_\_\_\_) (5% Bid Bond), lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.

SIGNED, Sealed and dated this \_\_\_\_\_ day of \_\_\_\_\_, 2016.

WHEREAS, the said Principal is herewith submitting a Proposal for

**STRUCTURES AND EQUIPMENT FOR  
GREENVILLE SOUTH 230 KV POD NO. 3**

and the Principal desires to file this Bid Bond in lieu of making the cash deposit as required by the bidding documents contained herein;

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such that if the principal shall be awarded the Purchase Order for which the bid is submitted and shall accept the Purchase Order within ten (10) days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so accept such Purchase Order as required by the bidding documents contained herein, the Surety shall, upon demand, forthwith pay to the Obligee the amount set forth in the first paragraph hereof, and upon failure to forthwith make such payment, the Surety shall pay the Obligee an amount equal to double the amount of this Bid Bond as set forth in the first paragraph hereof. Power of Attorney from the Surety to its Attorney-in-Fact is attached hereto.

\_\_\_\_\_  
Principal

By \_\_\_\_\_ (SEAL)

\_\_\_\_\_  
Corporate Surety

By \_\_\_\_\_ (SEAL)

**Letter of Compliance to E-Verify for Greenville Utilities Commission**

1. I have submitted a bid for contract or desire to enter into a contract with the Greenville Utilities Commission;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
  - a. \_\_\_\_ After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
  - b. \_\_\_\_ I employ less than twenty-five (25) employees in the State of North Carolina.
3. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this bid and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
  - a. \_\_\_\_ After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or
  - b. \_\_\_\_ Employ less than twenty-five (25) employees in the State of North Carolina.

Specify subcontractor: \_\_\_\_\_

\_\_\_\_\_ (Company Name)

By: \_\_\_\_\_ (Typed Name)

\_\_\_\_\_ (Authorized Signatory)

\_\_\_\_\_ (Title)

\_\_\_\_\_ (Date)

**LETTER OF COMPLIANCE TO THE  
IRAN DIVESTMENT ACT CERTIFICATION**

Name of Vendor or Bidder: \_\_\_\_\_  
\_\_\_\_\_

**IRAN DIVESTMENT ACT CERTIFICATION  
REQUIRED BY N.C.G.S. 143C-6A-5(a)**

---

**As of the date listed below, the vendor or bidder listed above is not listed on the Final Divestment List created by the State Treasurer pursuant to N.C.G.S. 143-6A-4.**

**The undersigned hereby certifies that he or she is authorized by the vendor or bidder listed above to make the foregoing statement.**

---

---

---

Signature \_\_\_\_\_ Date \_\_\_\_\_

---

Printed Name \_\_\_\_\_ Title \_\_\_\_\_



**INSERT**

**ADDENDA / CLARIFICATIONS / BULLETINS**

*Instructions to Bidders, 5. Bulletins and Addenda*

**GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA**

**STRUCTURES AND EQUIPMENT FOR THE  
GREENVILLE SOUTH 230 KV POD NO. 3**

<b>TECHNICAL SPECIFICATIONS</b>
---------------------------------

**1.0 Scope**

Greenville Utilities Commission of the City of Greenville, North Carolina (Owner), is procuring materials for the installation of a new 230 to 115 kV substation to be known as the Greenville South 230 kV POD No. 3. These Technical Specifications describe the structural steel and the associated components of the substation bus required to erect each substation.

The Bidder will furnish for the Greenville South 230 kV POD No. 3 only those structures and bus materials associated with "Transformer No. 6" and "Bus No. 6", encompassing 115 kV lines Nos. 61 and 62. Static protection includes two (2) direct embedment tubular steel pole equivalent to an 85CL2 wood pole. The pole will be supplied by the Bidder with a ten foot (10') mast and all metallic hardware for bonding the mast to the ground grid.

These Specifications strictly limit the rating and type of switches that may be supplied in the Bidder's base proposal. Where noted in these Specifications, alternate switches may be offered. However, all base bids must strictly comply with the designated switch descriptions.

The Bidder's work shall include furnishing all equipment and materials so represented by the Bill of Materials, the accompanying Drawings, these Technical Specifications, and as set forth in the Bid Schedule. The Owner reserves the right to select any combination of alternate schedules as may be allowed. The Owner reserves the right to reject any or all bids.

**The Bill of Materials supplied with these Specifications represents the minimum quantity and type of materials to be supplied. The Bidder has the responsibility of furnishing all mounting hardware, and all other materials necessary for a complete and functional substation, except for items designated to be furnished by Owner. Any discrepancies found in the attached Bill of Materials should be brought to the attention of the Engineer at least ten (10) days prior to the bid opening. Discrepancies of a significant nature will be issued to all bidders through addenda.**

**2.0 General Conditions**

All materials and equipment shall be new.

These Specifications describe the type, size, and characteristics of the various materials and equipment required to be furnished. The Drawings indicate general arrangement, equipment location, and spacing.

Strict adherence to these general Specifications and Drawings is requested to facilitate checking and consideration of the Proposal.

Proposals shall include the following:

- 2.1 Catalog numbers, manufacturer, ratings, characteristics, types, sizes, etc., of all materials and equipment included. A simple statement that all necessary materials and equipment will be provided is not satisfactory. A List of Materials is included at the end of these Specifications for providing this information.
- 2.2 Performance data for the several items as set forth in the detailed Specifications. Structural calculations and a bill of material of structural members shall be furnished as a part of the Proposal to verify quoted structural weights.
- 2.3 **Proposal for the substations shall include all materials and equipment required for a complete and coordinated substation.** The successful bidder shall submit along with his quotation a complete list of materials to be furnished for the substation.

- 2.4 Prices shall include the cost of framing, assembly and delivery to the substation site.
- 2.5 Coordinated shipment shall be made to reduce storage by Greenville Utilities and to facilitate the accumulation of component parts. **Small piecemeal shipments will not be accepted.** The number of shipments shall not exceed six (6) unless approved by the Engineer. Direct-manufacturer, factory-drop shipments shall not be accepted. Advanced shipment of anchor bolts, however, is welcomed.
- 2.6 All components shall be distinctly marked or identified and shall be completely assembled before shipment, insofar as is practical. Each Bidder shall so state in his Proposal the manner in which trusses and columns will be shipped.
- 2.7 The Bidder shall furnish specification sheets (and installation manuals when required) for all switches, connectors, fittings, insulators, and lightning arresters not explicitly called out in the approved Bill of Materials. These specification sheets shall be provided with the approval drawings.

### **3.0 Special Conditions**

#### **3.1 Material Shipments**

The structures, crates, pallets, boxes, packing lists, etc. shall be maintained and clearly marked to correspond appropriately with the correct project.

#### **3.2 Defective Materials, Equipment, and Workmanship**

All materials and equipment furnished hereunder shall be subject to the inspection, tests, and approval of Greenville Utilities 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.

The materials and equipment furnished hereunder shall become the property of Greenville Utilities when delivered at the point to which shipment is to be made; provided, however, that Greenville Utilities 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 one (1) year of date of delivery 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 Greenville Utilities. Greenville Utilities 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, Greenville Utilities may make such replacement; and the cost and expense thereof shall be paid by and be recoverable from the Bidder.

#### **3.3 Miscellaneous**

The Bidder shall hold harmless and indemnify the Owner, its agents, and employees from any and all claims, suits, and proceedings for infringement of any patent or patents covering materials and equipment purchased hereunder. The Bidder shall defend any suit or proceeding brought against the Owner, its agents, or employees based upon a claim that the materials and equipment or any part thereof constitute an infringement of any patent; or if the Bidder shall fail to defend such suit or proceeding, the Owner may do so and the Bidder shall make reimbursement for the expense of such litigation. If the materials and equipment, or any part thereof, are held to constitute infringement and the use thereof is enjoined, the Bidder shall, at its own expense, either procure for the Owner the right to continue to use the materials and equipment, or such part thereof, or shall replace the materials and equipment, or such part thereof, with non-infringing materials and equipment.

The breaker(s) to be provided herein shall include a full warranty on the complete unit(s) together with all parts. The Bidder shall include a full warranty. Warranty shall cover complete breaker together with all parts. This warranty shall extend for not less than twelve (12) months from date of initial energization, or up to eighteen (18) months from date of delivery, whichever is acceptable.

**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 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.

**5.0 Basic System Ratings**

The basic system rating for the substation shall be as follows:

Incoming Primary Voltage	230,000 volts, three-phase wye, Basic Insulation Level shall be 1050 kV, 60 Hertz
Outgoing Secondary	115,000 volts, three-phase, wye, Basic Insulation Level shall be 550 kV, 60 Hertz. Designed for four (4) circuits ultimately, two (2) to be installed under this Contract
Transformer Capacity	One (1) power autotransformer initially, two (2) ultimately, 230 to 115 kV, rated 120/160/200 MVA OA/FOA/FOA
Voltage Regulation	The power transformer is equipped for load tap-changing (LTC) regulation of +/- 10% on secondary voltage
Structure Design	Medium Loading District, plus allowance for 0.5 inches of ice and 110-mph wind
Incoming Circuit	Strain bus by Transmission Contractor
Primary and Secondary Bus	Strength requirements to match weight of equipment, ice and wind loadings
Outgoing Circuits	By Transmission Contractor
<b>Service Requirements</b>	
230 kV Breaker	125 volt dc and 230 volt ac single-phase
Transformer	125 volt dc and 230 volt ac single-phase
115 kV Breakers	125 volt dc and 230 volt ac single-phase
Protective Relay Panels	125 volt dc and 230 volt ac single-phase
Incoming Circuit	Overhead 795 kcmil conductor
Outgoing Circuits	Overhead 795 kcmil conductor

**6.0 Drawings and Documentation**

- 6.1 The work shall conform to the Booth & Associates, LLC Drawings listed in Appendix-1, all of which form a part of these Specifications.
- 6.2 Approval of shop drawings, specification sheets, bus cutting schedule and bill of materials will be required. The Bidder shall supply three (3) paper copies of all shop drawings and bill of materials to the Owner's Engineer so they may ascertain that all materials and equipment being furnished by the Bidder meet the Specifications. Specifications sheets shall be supplied for all switches, connectors, fittings, insulators and surge arresters.

**ELECTRONIC SUBMITTAL OF APPROVAL DRAWINGS IS NOT PERMITTED UNLESS ACCOMPANIED BY REQUIRED NUMBER OF PAPER COPIES LISTED ABOVE.**

6.3 Final Bill of Materials shall be furnished by the Bidder for installation of each substation. All final documentation shall be delivered to Owner's Engineer for distribution and shall include five (5) copies of Bill of Materials.

6.4 All Drawings and documentation are to be forwarded to Booth & Associates, LLC, 5811 Glenwood Avenue, Raleigh, North Carolina 27612, Attention: Michael L. Clements, PE.

6.5 Load Calculations

The Owner requests that the bidder prepare and submit load calculations and calculated loading reactions to Owner's Engineer **not later than three (3) weeks following receipt of order**. Three (3) copies of Load and Reaction Calculations shall be submitted to the Engineer for review and approval. Reactions shall include, where applicable: 1) vertical dead weight, 2) uplift, 3) shear, 4) overturning moments, 5) unfactored, 6) factored, and 7) anchor bolt loads. This will allow the Owner to prepare foundations ahead of steel erection.

6.5.1 All supporting structures shall be designed in accordance to a minimum of one (1), or all required, of the following codes or standards:

- NESC C2-2012
- ASCE Manual No. 113 *Substation Structure Design Guide*
- RUS Bulletin 1724E-300 *Design Guide for Rural Substations*
- ASCE Manual No. 7-10 *Minimum Design Loads for Buildings and Other Structures*
- IEEE 693 Recommended Practice for Seismic Design of Substations

6.5.2 For structures that extend outside the substation, or structures that support conductor which extends outside the substation, the strength and loading requirements of Part 2 of NESC C2-2012 shall be followed.

6.5.3 For structures that do not extend outside the substation, nor any conductor or equipment supported thereon, appropriate strength and loading requirements of an industry approved, good engineering resource shall be followed. The ASCE Manual No. 113 *Substation Structure Design Guide* is considered a preapproved resource. Any other resources, design guides, manuals or codes utilized must be provided to and approved by Booth & Associates. No edition of the AISC *Steel Construction Manual* may be referenced for the appropriate load factors and load combinations. NEMA *SG-6 Power Switching Equipment* has been rescinded and ASCE Manual No. 113 *Substation Structure Design Guide* shall be followed in its place.

6.5.4 Allowable Stress Design (ASD) or Load and Resistance Factor Design (LRFD) shall be used for design of substation structures. However, LRFD design is recommended.

The most recent edition of AISC Steel Construction Manual shall be used for design of structures using standard structural shapes.

ASCE/SEI 48 shall be used for design of structures using hollow tubular member shapes.

If C2-NESC is used for the load calculations of structures, LRFD design shall be used.

6.5.5 Deflection limits for all structures shall be those referenced in ASCE Manual No. 113.

6.5.6 For any project under jurisdiction of RUS, the strength, loading and deflection requirements of RUS Bulletin 1724E-300 *Design Guide for Rural Substations* shall be followed for all structures.

6.5.7 All drawings and calculations shall be sealed by a professional engineer licensed in the state of North Carolina.

## **7.0 Material and Equipment Not Included**

The following is a tabulation of those items of material and equipment required for the Substation that will be furnished by Greenville Utilities or others and should not be included in the Proposal:

- 7.1 Reinforced concrete footings and equipment pads
- 7.2 Power transformers, provided by Greenville Utilities
- 7.3 Breakers, provided by Greenville Utilities
- 7.4 Lighting, relaying, control wiring systems, provided by Greenville Utilities
- 7.5 Control house and panels, provided by Greenville Utilities
- 7.6 Station fence and gates, provided by Greenville Utilities
- 7.7 Below-grade ground grid conductor, ground rods and connectors will be provided by Others

## **8.0 Structural Steel**

- 8.1 The substation structures to be included in the *Form of Proposal* shall conform to the following specifications and are identified on the appropriate substation project drawing. They are:
  - 1) 230 kV line terminating structure
  - 2) 230 kV single-phase bus support structures
  - 3) 230 kV disconnect switch stands
  - 4) 115 kV disconnect switch stands
  - 5) 115 kV bus support structures
  - 6) 115 kV line exit structures
- 8.2 All steel work including bolts shall be hot-dip galvanized after fabrication. Galvanizing, tests and inspection shall be in accordance with the standard Specifications of the American Society for Testing Materials for zinc coating on structural steel shapes, plates, bars, and other products, Serial Designation A-123, as amended to date.
- 8.3 All anchor bolts required for the installation of the structure shall be furnished by the Bidder. Anchor bolts shall be completely hot-dip galvanized, complete with two (2) heavy hex nuts, and two (2) flat washers for leveling. **All base plates for structural columns shall be sized for double-nut mounting on anchor bolts.**
- 8.4 Structural steel shall conform to the standard Specifications of the American Society for Testing Materials, Serial Designation A36, as amended to date. Bolts may be made from the commercial grade of bolt and rivet steel, with an ultimate tensile strength of 50,000 to 55,000 pounds per-square-inch minimum. The minimum diameter of any bolt for the structure proper shall be five-eighths inch (5/8"); the size of bolts for electrical equipment shall be that size suitable for the installation of the equipment.
- 8.5 The maximum size of bolts to be used in any section, the sizes of lacing, the size of batten plates, the size of connection angles, clearances and general structural practice not definitely stated in the Specifications shall be in accordance with the standard of American Institute of Steel Construction and NEMA Standard SG-1969.
- 8.6 All parts of the structure shall be neatly finished. All members shall be free from kinks, twists, bends, or open joints. All members that are bent or out of line after galvanizing shall be carefully straightened with a straightening roll or straightening machine. The use of sledges in straightening bent material or other methods in which the material or its finish may be mutilated shall not be allowed.

- 8.7 All nuts shall be readily accessible to a wrench for adjustment. Bolts shall not be flushed but shall project approximately one-fourth inch (1/4") beyond the face of the nuts. Nuts shall fit the shanks so that they may be screwed on with the fingers and at the same time not fit so loosely that the value of the bolts acting with the tension of the head of the nut will be reduced.
- 8.8 All steel members shall be clearly marked to provide easy identification in the field. **Trusses and columns up to, and including, 4'-0" x 4'-0", shall be assembled before shipment to insure correctness, and shall be shipped assembled.** If the Bidder does not intend shipping the trusses and columns completely assembled, he shall so state in his bid. Markings on component parts shall indicate the structure to which they apply. 230-kV columns shall be uniquely identified to ensure proper installation in the field.
- 8.9 If any material whatsoever in any state of completion is found defective as to workmanship, details, or materials or is contrary to the design for these Specifications, it shall be rejected. This rejection may take place at the rolling mills, fabricating plant, galvanizing plant, or at the site of the structure. Any rejected materials shall be replaced without any expense whatsoever to Owner.
- 8.10 Sectional members combined to form columns of the required height will not be accepted. Angles for column legs must be continuous to provide the necessary height.
- 8.11 Continuous punching of structural sections for equipment mounting is not acceptable. Holes shall be provided as needed for erection and equipment installation, but unnecessary holes will not be accepted. However, mounting holes shall be provided for all equipment indicated as future.
- 8.12 In the design of all structural members and mounting arrangements of various pieces of equipment, every effort shall be made to avoid areas prone to allow birds to build nests. Equipment mounted back-to-back on trusses may have to be offset, as an example.

## **9.0 Power Transformers (By Greenville Utilities)**

The Greenville South 230 kV POD No. 3 autotransformer is to be provided by Greenville Utilities. It is rated 230 to 115 kV, three-phase, 120/160/200 MVA.

Dimensions of transformers shown on the Drawings are typical dimensions and subject to change.

## **10.0 230 kV and 115 kV Circuit Breakers (By Greenville Utilities)**

All outdoor 230kV and 115 kV Circuit Breakers for the Greenville South 230 kV POD No. 3 will be furnished by Greenville Utilities.

## **11.0 Group-Operated 115 kV Disconnect Switches**

### **11.1 Switch Construction**

Vertical-break and center-break disconnect switches shall be outdoor type, three-pole, single-throw, group-operated, mounted, of rotating insulator construction complete with arcing horns, operating mechanism for manual operation, outboard bearing, guide, operating pipe, and flexible grounding strap. Switch shall be two (2) or three (3) insulators per pole as indicated on the Drawings. Oilite bearings shall be used for moving parts not provided with greaseless ball-bearing assemblies having stainless steel balls and races. Connectors shall be provided with electro tin-plated (or aluminum) terminals for aluminum conductor or tubing attachments, as per the Drawings. Insulators shall be standard strength, sky gray, post type. A grounding operator platform with two grounding connectors (the size shown on the Drawings) shall be furnished with each switch. The platform shall be open-grating design with the grounding locations on opposite corners.

Group-operated switches may be either horizontally or vertically mounted as required by the General Arrangement Drawings accompanying these Specifications.

11.2 Ratings for Group-Operated Switches in 230 kV and 115 kV Bus

11.2.1 All 115 kV primary-bus vertical-break and center-break disconnect switches shall be rated 121 kV, 550 kV BIL, 2,000 amperes continuous, 61,000 amperes momentary, completely assembled with TR 286 post insulators. Switches shall be suitable for either horizontal or vertical mounting.

11.2.2 All 230kV primary-bus vertical-break disconnect switches shall be rated 230 kV, 900 kV BIL, 2,000 amperes continuous, 61,000 amperes momentary, completely assembled with TR 316 post insulators. Switches shall be suitable for either horizontal or vertical mounting.

11.3 Approved Switch Manufacturers and Alternates

All bids for substation structures and equipment shall incorporate only switches as approved and noted herein. Where noted, the Bidder may offer an alternate quotation for an approved alternate switch. The alternate quotation must be provided on the Bidder’s Proposal.

All Base Bids: Cleveland/Price  
Type V2-CA Style C06B033G04  
Type V2-CA Style C06B034G04  
Type CB-A Style C26A030G02

12.0 Surge Arresters

Surge arresters for the transformer high- and low-voltage side shall be provided as part of the power transformer furnished by Greenville Utilities.

Surge arresters for the incoming 230 kV circuit and the 115kV exits (by Greenville Utilities) shall be furnished by the Bidder and shall be surge type, sky gray metal oxide, rated as follows:

<u>Nominal Voltage</u>	<u>MCOV Arrester Rating</u>	<u>Location</u>	<u>Class</u>	<u>Ohio Brass Catalog No.</u>
115 kV	88 kV	115 kV LS	Station	219588
230 kV	152 kV	230 kV HS	Station	217740

Metal oxide surge arresters are rated in terms of maximum continuous operating voltage (MCOV). However, metal oxide arresters which are given conventional ratings may be furnished if the MCOV equivalent ratings are as specified here.

Station class arresters shall be base-mounted with NEMA 4-hole live part terminal connectors.

The station class surge arresters shall be provided with NEMA 4-hole pad connectors on the line-side bushing terminals and ground connectors suitable for a maximum 250 kcmil copper (loop configuration) on the arrester base.

The surge arresters shall comply with IEEE Standard C-62.11.

13.0 Station Power and Metering Transformers

13.1 One (1) Station Service Voltage Transformer (SSVT) for station power and secondary relaying of the substation 115 kV bus shall be furnished by the Bidder. Supporting plates or channels for these units shall also be furnished to mount the SSVT to the structural stands. The SSVT shall have the following ratings:

Relaying winding: 600/1000:1 volts  
Power winding: 276/552:1 volts (220/120 volts secondary) single primary, tapped secondary, 50kVA power rating.

13.2 Two (2) Voltage Transformers (VT) for secondary relaying of the substation 115 kV bus shall be furnished by the Bidder. Supporting plates or channels for these units shall also be furnished to mount the VTs to the structural stands. VTs shall have the following ratings:

Relaying windings: 600/1000:1 volts



## 14.0 Bus and Leads

The Drawings include a sheet of details to indicate the several methods to be used for connecting and supporting bus and conductor. Conductors shall be provided with the necessary supports and connectors as illustrated by these details.

Ground grid bus shall be connected by means of Cadweld connections.

Bus and leads shall be as follows:

Primary bus, 230 kV	795 kcmil ACSR "Drake"
Leads from A-frame to 230 kV CCVTs, 230 kV Breaker and from Breaker to Transformer	795 kcmil ACSR "Drake"
Leads from transformer secondary to 115 kV Breaker	1272 kcmil AAC 61 strand "Narcissus"
Secondary bus, main and transfer taps	4" aluminum tubing, Alloy 6063-T6, Schedule 40, with single conductor 336.4 kcmil ACSR internal damping cable
Transfer bus	4" aluminum tubing, Alloy 6036-T6, Schedule 80, with single conductor 336.4 kcmil ACSR internal damping cable
Leads from 115 kV Switches to 115 kV CTs, 115 kV PTs, and Breakers	1272 kcmil AAC, 61 strands "Narcissus"
Leads from 115 kV Bus to 115 kV PTs and SSVT	336.4 kcmil ACSR
Ground Grid bus	4/0 bare S.D. copper, 7-strand
Equipment and structure ground bonding leads	2/0 bare S.D. copper, 7-strand
Transformer neutral and tank bonds	Parallel 4/0 bare S.D. copper
Fence ground leads	#2 AWG copper, solid tinned
Surge Arrester Leads:	795 kcmil ACSR "Drake"

## 15.0 Insulators

All insulators shall be wet-processed porcelain colored sky gray, shall conform to the IEEE Standards for insulators, and shall have the following minimum electrical mechanical characteristics:

### 15.1 Bus Insulators

Bus insulators for supporting bus and leads shall be standard station post non-stacking type meeting ANSI - BIL units complete with connectors, bolts, and washers as required:

<b>Voltage Rating</b>	<b>230 kV</b>	<b>115 kV</b>
BIL, kV	1050	550
Dry Flashover – kV, 60-cycle	660	385
Wet Flashover – kV, 60-cycle	570	285
Leakage Distance, Inches	198	99
Mechanical Strength – Tension, Pounds	25,000	20,000
Insulators per Stack	3	2
Bolt Circle, Inches	5	5
Technical Reference Number	TR 316	TR 286

Bus insulators shall be as manufactured by Lapp, Ohio Brass, or approved equal. The 230kV and 115 kV Bus insulators shall be preassembled.

## 16.0 Conductor Clamps

All substation aluminum tube bus shall be supported by either fixed or slip attachment to the station post insulators using compression aluminum bus support fittings as indicated on the Drawings. Clamps shall be radio noise-free, equal to Anderson for slip fit and DMC for fixed fit.

## **17.0 Ground Grid and Lightning Masts**

- 17.1 All below grade ground grid conductor, connectors, and rods shall be by Others. All above grade ground grid conductor and connectors for fence and structures shall be provided by Bidder.
- 17.2 Lightning masts shall be one-inch (1") diameter galvanized steel pipe capped at top end, of required length, and shall extend a minimum of ten feet (10'0") above the structure as shown on the Drawings. Lightning masts shall be supplied with mounting provisions for attachment to steel columns, complete with ground clamps. Lightning mast clamps shall be suitable for 2/0 AWG copper leads.
- 17.3 Two (2) hot-dip galvanized tubular steel pole shall be provided by the Bidder for primary bus static protection. The static pole shall be equivalent to wood pole class 2, 85-foot length, and include a 10'-0" static rod designed for top mast mounting. The ten foot (10') mast shall be electrically connected to the steel pole. Each pole shall be designed for direct embedment in natural soils.

## **18.0 Connectors**

Connectors shall be suitable for the purpose they are intended and shall provide an electrically and mechanically sound connection.

The Bidder is responsible for supplying connectors for all conductors and aluminum bus. A corrosion-inhibiting compound shall be furnished with the connectors.

- 18.1 All connector fittings to the tubular bus shall be aluminum compression type as manufactured by DMC. Alternate bids may be submitted based upon the substitution of equivalent connectors by others. However, such substitutions are subject to the approval or rejection by Greenville Utilities' Engineer.
- 18.2 NEMA 4-hole pad compression terminal fittings are required for incoming lines, jumpers around switches, and between switches and buses. Short barrel type compression sleeves are preferred on all terminal fittings for substation equipment jumpers and leads.
- 18.3 Expansion type connectors shall be furnished for various terminations as illustrated in the General Arrangement Drawings and as identified in the material list. Where the expansion joint requires fabrication of minor components (support plates, etc.), the Bidder shall fabricate such components in compliance with the illustrated details prior to shipment.
- 18.4 Connectors will be required for supporting 4/0 and 2/0 stranded copper conductors on steel columns and beams. Supporting connectors will be required a minimum of every four feet (4'). These connectors will be provided by the Bidder.
- 18.5 Cadweld connections shall be provided by others for all ground bus connections. Connections shall be supplied complete with all necessary hardware for installation.
- 18.6 A copper to aluminum bimetallic transition plate shall be provided for all bronze spade connections on transformers, breakers, and NEMA pads on switches where it is necessary to connect aluminum and the surface area of the aluminum is not sufficient to counteract the metallic corrosion. Plates shall be Anderson Type TP.
- 18.7 Corrosion-inhibitor compound shall be provided in a sufficient quantity to be applied to all connections.

## **19.0 Danger Signs (By Greenville Utilities)**

Thirty (30) "DANGER - HIGH VOLTAGE" signs must be furnished for the substation. Signs shall be fourteen inches (14") by ten inches (10") and shall read "DANGER - HIGH VOLTAGE - KEEP OUT". Letters shall be red on white background.

**20.0 Security Lights (By Greenville Utilities)**

Security floodlights, general-purpose, shall be heavy-duty, weatherproof, and shall conform to NEMA standards.

**21.0 Miscellaneous Hardware**

Miscellaneous fastener hardware shall conform to the industry standards for the purpose for which they are to be used. Bolts, nuts, and washers shall be hot-dip galvanized. Hardware shall be of low-alloy, corrosion-resistant steel, ASTM Specification A242.

All quantities of fastener hardware shall be shipped with a minimum of ten percent (10%) over count above the designated quantity necessary for assembly.

**22.0 Trade Names**

Where a manufacturer's name and type of equipment is indicated in the above Specifications, it is for clarity and the establishment of a standard and is restrictive unless use of an approved equal is specifically mentioned.

**GREENVILLE UTILITIES COMMISSION  
GREENVILLE, NORTH CAROLINA**

**STRUCTURES AND EQUIPMENT FOR  
GREENVILLE SOUTH 230 KV POD NO. 3**

<b>LIST OF DRAWINGS</b>
-------------------------

The work shall conform to the following Booth and Associates, LLC. Drawings, all of which form a part of these Specifications. The Bidder is responsible for contacting the Engineer if any drawings not indicated to be furnished at a later date are missing from their bid package. If the Bidder does not contact the Engineer regarding any drawings, their bid will be considered based on all Drawings and Specifications, as issued for bids.

<b>Sheet No. 14022</b>	<b>Title</b>
S1	Site Plan
S2	Plan View
S3, S4	Sections
S5	Details
E001	One-Line Diagram
E002	One-Line Diagram
F1	Fencing Plan and Details
G1	Grounding Plan
G2	Grounding Details

**GREENVILLE UTILITIES  
GREENVILLE, NORTH CAROLINA**

**STRUCTURES AND EQUIPMENT FOR THE  
GREENVILLE SOUTH 230 KV POD NO. 3**

**MATERIALS LIST**

April 11, 2016

<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>	<b>MANUFACTURER</b>	<b>NUMBER/TYPE</b>	<b>CATALOG</b>
1	Hot-dip galvanized structural steel complete with pedestals, anchor bolts, equipment mounting bolts, and all necessary bolts and nuts for assembly and erection in the field in accordance with Substation Drawings	1 Lot			
2	Lightning masts, 10'-0" length, complete with clamp connectors for attachment of 2/0 copper bonding conductor and U-bolts for structural mounting	5 each			
4	Operator grounding platform for group operated switch installations	9 each			
5	Direct embedment steel pole equivalent to wood pole, 75 foot class 2 for primary bus static protection system	2 each			
6	Strain Bus Support Structure and associated cross-arms and hardware (230 kV A-frame)	1 each			
7	Strain Bus Support Structure and associated cross-arms and hardware (115 kV H-frame)	1 each			

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
10	Power transformer, 230 to 115 kV, three-phase, 120/160/200 MVA with load-tap changer	1 each	By Greenville Utilities Commission	N/A	N/A
12	115 kV circuit breaker, outdoor, 1200 ampere, three-phase	3 each	By Greenville Utilities Commission	N/A	N/A
14	230 kV circuit breaker outdoor, 3-phase, 1200 ampere continuous, 40kA interrupting	1 each	By Greenville Utilities Commission	N/A	N/A
15A	Station Service Voltage Transformer (SSVT), outdoor, 115 kV to 120/240 volts, 550 kV BIL, 50 kVA, with 600/1000:1 relay winding	1 each			
15B	Voltage Transformer (VT), outdoor, 550kV BIL, with 600/1000:1 relay winding	2 each			
16	Coupling Capacitor Voltage Transformer (CCVT), 230 kV	3 each	By Duke Energy Progress	N/A	N/A
17	Potential Transformer (PT), 1000 x 600:1, 115 kV	3 each	By Duke Energy Progress	N/A	N/A
18	Current Transformer (CT), 1200 x 600:5, 115 kV	3 each	By Duke Energy Progress	N/A	N/A

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
101	Vertical-break disconnect switch, 115 kV, 1200 ampere, 550 kV BIL, 61,000 ampere momentary, outdoor type, three-pole, group-operated, complete with TR 286 insulators and power operating mechanism including operating pipe, outboard bearings, guide arcing horns, and flexible grounding strap for operating pipe. Terminals and mounting shall suit particular location per the Substation Drawings	6 each			
102	Vertical-break disconnect switch, 230 kV, 1200 ampere, 900 kV BIL, 61,000 ampere momentary, outdoor type, three-pole, group-operated, complete with TR 316 insulators and power operating mechanism including operating pipe, outboard bearings, guide arcing horns, and flexible grounding strap for operating pipe. Terminals and mounting shall suit particular location per the Substation Drawings	1 Each			
103	Center-break disconnect switch, 115 kV, 1200 ampere, 550 kV BIL, 61,000 ampere momentary, outdoor type, three-pole, group-operated, complete with TR 286 insulators and power operating mechanism including operating pipe, outboard bearings, guide arcing horns, and flexible grounding strap for operating pipe. Terminals and mounting shall suit particular location per the Substation Drawings	2 Each			
200	Surge arrester, station type, 152 kV rated metal-oxide, for 230 kV primary bushings on power transformer.	3 each	By Greenville Utilities Commission	N/A	N/A
201	Surge arrester, station type, 88 kV MCOV, Type VN, for 115 kV bus structure	6 each			
202	Surge arrester, station type, 88 kV rated metal-oxide, for 115 kV secondary bushings on power transformer	3 each	By Greenville Utilities Commission	N/A	N/A

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
203	Surge arrester, station-type, 152 kV MCOV, Type VN for 230 kV A-frame	3 each			
301	Conductor, aluminum, 795.0 kcmil ACSR/36/1 code name "Drake"	1000 LF	By Greenville Utilities Commission	N/A	N/A
302	Conductor, aluminum, 336.4 kcmil ACSR, 18/1, code name "Merlin"	50 LF	By Greenville Utilities Commission	N/A	N/A
303	Conductor, aluminum, 1272 kcmil AAC, 61-strand, code name "Narcissus"	1000 LF	By Greenville Utilities Commission	N/A	N/A
312	Conductor, copper, #4/0 AWG, bare S. D., 19-strand	5500 LF	By Greenville Utilities Commission	N/A	N/A
313	Conductor, copper, #2/0 AWG, bare S. D., 7-strand	3500 LF	By Greenville Utilities Commission	N/A	N/A
314	Conductor, copper, tinned #2 AWG, bare S. D., solid	400 LF	By Greenville Utilities Commission	N/A	N/A
315	Electrodes, Copperweld ground rod, sectional, 5/8" diameter x 10'-0" lengths		By Others	N/A	N/A
	a. Drive heads for ground rod electrodes		By Others	N/A	N/A



ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
	b. Couplers for ground rod electrodes		By Others	N/A	N/A
320	Aluminum tubing, 2" IPS, alloy 6063-T6 Schedule 40, 40' sections	40 LF			
321	Aluminum tubing, 3" IPS, alloy 6063-T6 Schedule 40, 40' sections	120 LF			
322	Aluminum tubing, 4" IPS, alloy 6063-T6 Schedule 40, 40' sections	1700 LF			
323	Aluminum tubing, 4" IPS, alloy 6063-T6 Schedule 80, 40' sections	320 LF			
401	Station post insulator, 115 kV, T. R. 286, Sky Gray, 5" bolt circle	57 each			
405	Weldment, aluminum bus support 4" aluminum tubing to 5" B.C. (Anderson WTH-30-5-B)	57 each			
501	Connector, aluminum compression short neck terminal, 795 kcmil ACSR to NEMA 4-hole pad, 90° (Anderson CCLS1081C90)	6 each			
503	Connector, bronze solderless lug, 1/0 AWG - 500 kcmil copper to flat pad (Anderson TLS-62-L)	12 each			

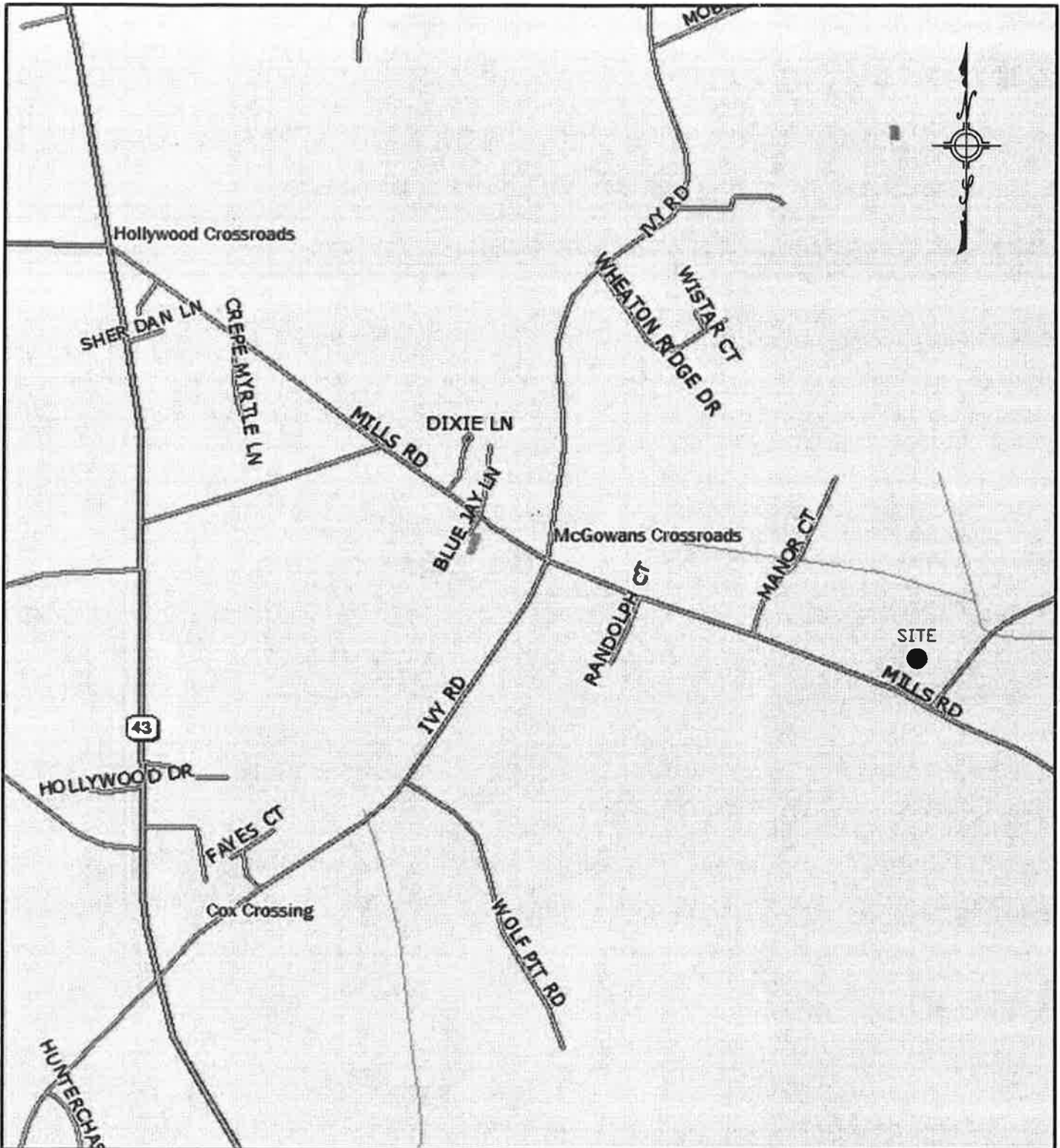
ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
504	Connector, bronze terminal, dual 4/0 AWG copper to NEMA 4-hole spade (Anderson SWHD-50-D)	2 each			
507	Connector, aluminum compression short neck terminal, 1272 kcmil AAC to NEMA 4-hole pad (Anderson CCLS-1300-C)	42 each			
509	Connector, aluminum compression short neck terminal, 336.4 kcmil ACSR to NEMA 4-hole pad (Anderson CCLS-684-C)	6 each			
511	Connector, aluminum, 4" tubing to 4-hole spade tap (DMC)	6 each			
512	Connector, aluminum compression terminal, #2 AWG tinned solid copper to one-hole spade (Anderson) VAUL 412 TP	36 each			
514	Connector, compression tee, 795 kcmil ACSR to NEMA 4-hole pad (Fargo) ORT 2111	15 each			
515	Connector, aluminum compression short-neck terminal, 795 kcmil ACSR to NEMA 4-hole pad (Anderson) CCLS 1081 C	15 each			
516	Connector, compression tee, 1272 kcmil to NEMA 4-hole pad (Fargo) ORT 2114	6 each			

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
519	Connector, 4" aluminum tube to 3" aluminum tube tap, 15 degree (DMC)	6 each			
520	Connector, 4" aluminum tube to dual 3" aluminum tube tap, 15 degree (DMC)	3 each			
521	Connector, 4" aluminum tube to 4" aluminum tube tap (DMC)	36 each			
523	Connector, 2" aluminum tube to NEMA 4-hole spade tap (DMC)	6 each			
524	Connector, 4" aluminum tube to NEMA 4-hole spade tap (DMC)	15 each			
526	Connector, 4" aluminum tube extension stud, grounding cluster (DMC)	15 each			
527	Connector, expansion terminal 4" aluminum tube to NEMA 4-hole pad (DMC)	15 each			
528	Connector, tube to tube coupler, 4" Schedule 40 (DMC)	40 each			

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
529	Weldment, Corona end bell for 4" aluminum tube (Anderson ACBI-40)	36 each			
533	Transition plate, aluminum to copper 4-hole (Anderson TP-C)	As Required			
534	Transition plate, aluminum to copper 2-hole (Anderson TP-B)	As Required			
538	Materials for each NEMA 4-hole electrical connection (typical), all components stainless steel	As Required			
	a. Bolt, HH 1/2" x length required with nut	4 each			
	b. Flat washer	8 each			
	c. Spring washer	4 each			
601	Connector, bronze ground clamp, for support of copper bonding conductors on and attachment to steel columns and beams (Anderson GC-141)	175 each			
602	Connector, bronze ground clamp, for support of parallel copper bonding conductors on and attachment to steel columns and beams (Anderson GC-143)	40 each			
603	Compression ground connector, 4/0 and 2/0 AWG copper to 5/8" copperweld ground rod (Burndy YGLR29C34)	40 each			

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
604	Compression ground connector, 4/0 AWG copper to 4/0 AWG copper cross connector (Burndy YGLR29C29)	40 each			
607	Compression ground connector, 2/0 AWG copper to 2/0 AWG copper tap (Burndy YGHC26C26)	30 each			
608	Compression ground connector, 4/0 AWG copper to 2/0 AWG copper tap (Burndy YGHC29C26)	72 each			
609	Connector, bronze grounding clamp, No. 2 AWG Copper to 1-5/8" O.D. Pipe ( <u>fence top rail</u> ) (Anderson GC-110)	53 each			
610	Connector, bronze grounding clamp, dual 2/0 AWG copper to 2-3/8" O.D. Pipe ( <u>fence line post</u> ) (Anderson GC-110)	35 each			
611	Connector, bronze grounding clamp, dual 2/0 AWG copper to 3" O.D. Pipe ( <u>fence corner post</u> ) (Anderson GC-110)	8 each			
612	Connector, bronze grounding clamp, to 2/0 AWG copper to 6.625" O.D. Pipe ( <u>fence gate post</u> ) (Anderson GC-111-14C)	2 each			
613	Connector, bronze grounding clamp, 2.0" O.D. Pipe ( <u>fence gate frame</u> to braided shunt) (Anderson GC-109)	2 each			

ITEM NO.	DESCRIPTION	QUANTITY	MANUFACTURER	NUMBER/TYPE	CATALOG
614	Connector, bronze grounding clamp, 6.0" O.D. Pipe ( <u>fence gate post</u> to braided shunt) (Anderson GC-109)	2 each			
615	Ground Shunt, braided copper, 200 ampere rated (Anderson <u>GB-200-7B</u> )	2 each			
616	Connector, tinned alloy, parallel split-bolt for No. 2 Solid AWG to 2/0 AWG stranded copper (Anderson <u>CPS-2/0</u> )	53 each			
617	Connector, bolted, tinned copper alloy, parallel split bolt, for attachment of No. 2 AWG to fence fabric and barbed wire (Anderson <u>CPS-1</u> )	328 each			
702	Inhibitor compound, anti-oxygen, conductive 16 oz. tubes (Anderson VS)	12 each			
703	Warning signs, "Danger-High Voltage – Keep Out" for attachment to substation fence	30 each			



SITE ADDRESS:  
2670 MILLS ROAD, GREENVILLE, NC

GREENVILLE UTILITIES  
GREENVILLE, NORTH CAROLINA

POD No. 3 230 TO 115kV  
VICINITY MAP

**Booth & Associates, LLC**

511 Clarendon Avenue | Raleigh, NC 27612 | CONSULTING ENGINEERS NO. F-0321

DWN.	AAI	DATE:	12/22/15
CKD.	BDE	APPD.	RSY
SCALE:	1" = 1000'	FILE:	14020VM
JOB NO.	147796	DATE	REVISION
	© 12/15		

DWG. NO.  
VM-1