GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

SPECIFICATION AND BID DOCUMENTS FOR THE RELOCATION OF 12.47 KV AND 34.5 KV DISTRIBUTION STRUCTURES ALONG OLD TAR ROAD

ISSUED FOR BIDS

ADVERTISEMENT FOR BIDS

Sealed proposals will be received in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834 until 2:00 PM (EST) on November 25, 2025 and immediately thereafter publicly opened and read for the Relocation of 12.47 kV and 34.5 kV Distribution Structures along Old Tar Road.

Instructions for submitting bids and complete specifications will be available in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina during regular office hours, which are 8:30AM – 5:00PM Monday through Friday.

Greenville Utilities Commission reserves the right to reject any or all bids. Late bids will not be considered.

<u>PRE-BID MEETING</u> – A Pre-Bid meeting will be held at Greenville Utilities Commission, New Operations Center, Engineering Building, 3355 NC 43N, Greenville, North Carolina 27834 on Thursday, October 30, 2025 at 1:00 pm to 3:00 pm (EST).

The intent of the Pre-Bid Meeting is to allow the bidders an opportunity to ask questions and make clarifications prior to submitting a bid.

Only portions of the bid/contract will be discussed. Lack of discussion or clarification of any portion of the bid/contract does not relieve the Bidder from conforming to the provisions of the same.

Questions regarding this Request for Bid (RFB) should be received by or before 5:00 pm, November 6, 2025. All questions shall be directed via e-mail to the attention of Cleve Haddock, Lifetime CLGPO, Procurement Manager at: haddocgc@guc.com, (252) 551-1533.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

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SECTION I

GENERAL INSTRUCTIONS FOR FORMAL BIDS

RELOCATION OF 12.47 KV AND 34.5 KV DISTRIBUTION STRUCTURES ALONG OLD TAR ROAD

1. NOTICE TO BIDDERS

Sealed bids, subject to the conditions made a part hereof, will be received in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834 until 2:00 PM (EST) on November 25, 2025, the day of opening. Bids submitted in a fax or e-mail in response to this Invitation for Bids will not be acceptable.

2. STANDARD FORMS REQUIRED

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.

3. PREPARATION OF BID

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 PROCUREMENT MANAGER, GREENVILLE UTILITIES COMMISSION, 401 S. GREENE STREET, GREENVILLE, NORTH CAROLINA 27834.

4. TIME FOR OPENING BIDS

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

5. BID SECURITY

5.1. Each Proposal shall be accompanied by a cashier's check, or certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation, or the Savings Association Insurance Fund, or an original signed/sealed Bid Bond in an amount equal to not less than five percent (5%) of the total amount of the Proposal; said deposit to be retained by the Owner as liquidated damages in event of failure of the Successful Bidder to execute the Contract within ten (10) days after the award.

- 5.2. 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 execute the Contract in accordance with the Bid Bond, and upon failure to immediately make payment, the Surety shall pay to the Obligee an amount equal to double the amount of said Bond. Standard Form of Bid Bond is included in these Specifications.
- 5.3. Only one (1) bid Surety is required, the amount of which shall be based on the total amount of all bid schedules.

6. BULLETINS AND ADDENDA

Any bulletins issued during the time of bidding or addenda to Specifications are to be considered covered in the Proposal, and in executing a Contract will become a part thereof. Receipt of addenda shall be acknowledged by the bidder in the *Form of Proposal*.

7. NC SALES TAX

Do not include NC sales taxes in bid figure; however, Greenville Utilities Commission (GUC) does pay sales tax. Sales tax should be added to the invoice as a separate item.

8. FEDERAL EXCISE TAX

GUC is exempt from Federal Excise Tax and will issue a Federal Exemption Certificate upon request to the successful bidder.

9. FORM OF EXCEPTIONS

Proposals shall include a *Form of Exceptions* utilizing forms provided which shall itemize each exception from the Specifications. 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 Proposals. 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.

10. DISCREPANCY

Should the Bidder find discrepancies in or omissions from the Drawings or Documents or should he be in doubt as to their meaning, he shall at once notify the Engineer who will send written instructions to all Bidders. Neither the Owner nor the Engineer will be responsible for any oral instructions. If Plans and Specifications are found to disagree after Contract is awarded, the Engineer shall be the judge as to what was intended. The Successful Bidder is hereby made responsible for the furnishing of the necessary labor, tools and equipment reasonably inferred or evidently necessary for the proper execution and completion of the work; for any additional work involved in the correction of apparent errors or

inconsistencies, and in executing the true intent and meaning of the Drawings and Specifications as interpreted by the Engineer and all such labor and equipment shall be provided at the Contractor's expense, and under no condition will any such labor and equipment be allowed as an extra.

11. EVALUATION AND AWARD OF BIDS

- 11.1. The award of the Contract will be made to the lowest responsible, responsive Bidder as soon as practicable. The bid shall be awarded to the Bidder who, in the judgment of the Owner, offers the best value to the Owner. Factors to be considered by the Owner are specified in Paragraph 11.3. The Owner reserves the right to reject any and all bids.
- 11.2. 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. Any such irregularities or errors so waived must be corrected on the Proposal prior to its acceptance by the Owner.
- 11.3. In estimating the lowest cost to the Owner as one of the factors in deciding the award of the Contract, the Owner will consider, in addition to the prices quoted in the Proposal, the following:
 - 11.3.1. Completion date
 - 11.3.2. Adherence to the Plans and Specifications
 - 11.3.3. Contractor capabilities, crew experience, and past performance
 - 11.3.4. Conditional quotations (Only firm fixed prices in U.S. dollars)
 - 11.3.5. Any additional factors deemed appropriate by the Owner.
- 11.4. In the event the Bidder proposes any change or deviation from the Engineer's Plans and Specifications, such proposed changes or deviations must be submitted at the time bids are opened on the *Form of Exceptions* included. The Owner reserves the right to reject any proposed changes or deviations. All exceptions must be stated on the *Form of Exceptions*. Failure to provide a *Form of Exceptions* with the Proposal shall imply strict adherence to all details of the Plans and Specifications.
- 11.5. The Contract, when awarded, 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 any officer, agent, or employee of the Owner or by any other person.

12. PROMPT PAYMENT DISCOUNTS

Bidders are urged to compute all discounts into the price offered. If a prompt payment discount is offered, it may be considered in the award of the contract.

13. NUMERICAL ERRORS

In the case of a discrepancy between a unit price and the extension (the unit price multiplied by the number of units) the unit price governs. In the case where numerical bids are stated both in numbers and in words, the words govern.

14. BID WITHDRAWAL

If, within 24 hours after bids are opened, any Bidder files a duly signed written notice with the Owner and promptly thereafter demonstrates to the reasonable satisfaction of the Owner that there was a substantial mistake in the preparation of its bid, that Bidder will not be permitted to modify its bid, but may withdraw its bid in its entirety, and the Bid Security will be returned. Thereafter, the bidder will be disqualified from further bidding on the installation of the project herein specified.

15. MINORITY BUSINESS PARTICIPATION PROGRAM

GUC 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.

16. PERFORMANCE AND PAYMENT BONDS

- 16.1. The Successful Bidder shall be required to furnish separate Performance and Payment Bonds executed on the forms bound herein in amounts at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and as security for the payment of all persons performing labor and furnishing materials and equipment in connection with this Contract.
- 16.2. Performance and Payment Bonds shall be with a Surety company authorized and licensed to do business in the State of North Carolina and shall be for the full Contract sum.

17. EXAMINATION OF CONDITIONS

Prior to the 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.

SUBCONTRACTORS

The Bidder shall include in the Proposal a listing of all subcontractors (if any) and their respective support services to be utilized during the project. All subcontractors will be subject to approval by the Owner and Engineer.

18. COMPLETION

- 18.1. The award of this Contract shall be issued as soon as possible, subsequent to the bid opening, by issuance of written contract to the Contractor by the Engineer or notification from the Owner. Work on the project shall begin after award of Contract and no later than January 5, 2026.
- 18.2. The completion date for the projects' on-site activities shall be December 3, 2026.
- 18.3. Time for completion shall be extended for delays due to bad weather days or other special cases with the written consent of the Owner and/or Engineer.
- 18.4. The Contractor shall include in the Proposal a project construction schedule using the completion date above, indicating each major construction activity with duration and the total number of calendar days of construction time he proposes to perform his work based on the above completion date.

19. LIQUIDATED DAMAGES

Time is of the essence, and it is critical that the work be performed on schedule and time is allowed for the completion of the work in the Contract Agreement included herewith. Damages for delay shall be at the rate of four-thousand dollars (\$4,000.00) per calendar day for failure of the Contractor to complete the work within the Construction Schedule. No credit shall be given for early completion of the work.

20. BIDS TO BE RETAINED

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days pending the execution of a Contract by the Successful Bidder. Should the Successful Bidder default and not execute a Contract, the Contract will be offered to the next lowest responsible, responsive Bidder.

21. DELIVERY LOCATION

The prices quoted shall include delivery of any Contractor-furnished materials and equipment to the project site, and complete installation of said materials and equipment and installation of the Owner- furnished materials. The location of the distribution facilities is shown on the Vicinity Map in the Appendices.

22. FORM OF PROPOSAL

Those bids not received on the Form of Proposal contained herein will be considered unresponsive. The forms shall be filled out completely. Any omissions may cause the entire Proposal to be rejected.

23. CONTRACTOR'S INSURANCE

- 23.1. General Liability: Commercial General Liability Insurance, (with coverage consistent with ISO Form CG 00 01 12 07 or its equivalent) with a limit of not less than One Million Dollars (\$1,000,000) per occurrence and Two Million Dollars (\$2,000,000) per project or per location general aggregate, and a deductible or self-insured retention not to exceed Twenty-five Thousand Dollars (\$25,000) per occurrence, covering liability for bodily injury and property damage, arising from premises, operations, independent contractors, personal injury/advertising injury, contractual liability, and products/completed operations for not less than two (2) years from the Substantial Completion Date.
- 23.2. <u>Automobile Liability</u>: Commercial Automobile Liability Insurance, including coverage for liability arising out of the use of owned (if any), non-owned, leased or hired automobiles, for both bodily injury and property damage in accordance with Applicable Legal Requirements, with a limit of not less than One Million Dollars (\$1,000,000) combined single limit per occurrence.
- 23.3. <u>Workers Compensation</u>: Worker's Compensation Insurance, with statutory limits, covering all of Subcontractor's employees, on terms and conditions as required by applicable Law and imposed by worker's compensation, occupational disease or similar laws, including the Longshore and Harbor Workers' Act, the Federal Employers' Liability and the Jones Act, if applicable.
- 23.4. Employers Liability: Employers' Liability Insurance with limits of not less than One Million Dollars (\$1,000,000) each accident for bodily injury by accident, One Million Dollars (\$1,000,000) each employee for bodily injury by disease, and One Million Dollars (\$1,000,000) policy limit.
- 23.5. <u>Umbrella Liability</u>: Subcontractor must provide an Umbrella form (not Excess Liability form) that provides additional liability for underlying General Liability, Auto Liability, and Employer Liability.
 - 23.5.1. Level 1 Contracts (Contract Value \$200,000 to \$499,999) \$1,000,000
 - 23.5.2. Level 2 Contracts (Contract Value \$500,000 to \$999,999) \$3,000,000
 - 23.5.3. Level 3 Contracts (Contract Value \$1,000,000 & up) \$5,000,000

24. CONTRACTOR'S LICENSE

In accordance with the State of North Carolina General Statues, Contractors performing work of this caliber in the State must be licensed to do so. A current copy of the Contractor's State of North Carolina Board for General Contractor's License must be submitted with this Proposal in the Form of Proposal. Additionally, a valid license must be maintained during the course of the work.

Contractor represents and warrants that it is fully experienced in projects of the nature, scope and magnitude of the Work, properly qualified, registered, licensed, equipped, organized and financed to perform the Work.

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GENERAL CONDITIONS

1. 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 items necessary to do a complete job which may include manufactured items and field service assistance. In case of discrepancy or disagreement in the Contract, the order of precedence shall be: Contract, Specifications, Drawings.

2. CLARIFICATIONS AND DETAILED 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 Contract Documents and shall become a part thereof.

3. CHANGE OF DRAWINGS AND/OR SPECIFICATIONS

- 3.1. The Owner, or the Engineer on behalf of the Owner, may make changes to Drawings and/or Specifications after award of the Contract or while construction is in progress. The compensation for such changes shall be agreed upon in writing between the Contractor and the Owner prior to commencement of work involving the change. No payment shall be made to the Contractor for correcting work not in compliance with Specifications. Once the change of work has been agreed upon between all parties, the Engineer will initiate a change order. Change order pricing shall be based on unit pricing provided in this bid.
- 3.2. Records of conditions above and below ground, water records or other observations which may have been made by or for Owner shall be made available to Contractor for its information, upon request. Site sub-surface conditions which differ materially from the results reasonably indicated in any reports furnished by Owner or undertaken by Contractor shall be deemed to be changed work.
- 3.3. Except as otherwise set forth in the Contract, all loss or damage to Contractor arising out of the Work or from the action of the elements, or from any unforeseen circumstance in the prosecution of the Work including inefficiencies or claims of inefficiencies, shall be sustained and borne by Contractor at its own cost and expense.

4. COPIES OF BID DOCUMENTS

The Engineer will furnish free of charge to each pre-qualified Bidder one (1) copy of bid documents. Additional sets of these Specifications for approved Bidders and sets for Bidders seeking approval may be obtained upon request for a non-refundable payment of Fifty Dollars (\$50) per set.

5. WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

Contractor shall maintain, in readable condition at his office, one (1) complete set of as-built working Drawings and Specifications for his work. Such Drawings and Specifications shall be available for use by the Engineer or Owner. During construction, the Contractor will work diligently to keep the Owner abreast of electric system conditions, so as not to interfere with normal or emergency operations.

6. 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 this Contract without permission is prohibited. All copies of Drawings and Specifications other than Contract copies shall be returned to the Engineer upon request after completion of the work.

7. MATERIALS, EQUIPMENT, AND EMPLOYEES

- 7.1. The Contractor shall, unless otherwise specified, supply and pay for all labor, equipment, transportation, tools, apparatus, lights, heat, sanitary facilities, water, and incidentals necessary for the entire proper and substantial completion of his work. The Contractor shall install, maintain, and remove all equipment of the construction and be responsible for the safe, proper, and lawful construction, maintenance, and use of same. The Contractor shall construct, in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the Plans, stated in the Specifications, or reasonably implied there from, all in accordance with the Contract Documents. Some of the major material items required for the work will be furnished by the Owner as outlined in the Technical Specifications. All other necessary materials are to be furnished by the Contractor as outlined in the Technical Specifications.
- 7.2. The Contractor shall not re- use any "removed" materials in the completion of this project unless indicated as a transfer unit on the construction drawings. Materials damaged or lost during construction of the work due to carelessness of the Contractor's personnel, shall be replaced in kind by the Contractor at no cost to the Owner.

- 7.3. If at any time during the construction and completion of the work covered by these Specifications, the conduct of any workman of the various crafts is adjudged ungentlemanly and a nuisance to the Owner or the Engineer, or if any workman is considered incompetent or detrimental to the work, the Contractor shall order such parties to be immediately removed from the grounds.
- 7.4. Any superintendent or foreman of the Contractor who ignores or refuses to follow written instructions of the Owner or the Engineer or his representative at the site shall be immediately removed and replaced.
- 7.5. The Contractor shall always ensure that he has sufficient crew compliments, both in terms of numbers and experience of personnel to perform work tasks safely. both for workers and the general public. Any instance noted to the contrary of this requirement may result in the complete shutdown of work on the project.

8. ROYALTIES, LICENSE, AND PATENTS

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

9. INDEMNIFICATION

Bidder agrees to indemnity 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, shall be provided by the Bidder.

10. SURVEYS

Unless otherwise specified, the Owner, will furnish all surveys and locations for locating the principal component parts of the work. Stakes missing at the time of construction will be replaced within a reasonable amount of time after notification by the Contractor.

11. UNCORRECTED FAULTY WORK

The Contractor shall be notified of faulty or damaged work and shall have the option to respond in a reasonable period. 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 Contractor for the same by a deduction in the Contract prices arrived at by a fair estimate of the probable cost of correction, approved by the Engineer.

12. DELAYS AND EXTENSION OF TIME

- 12.1. The time to be allowed for construction of these facilities is stated in the Instructions to Bidders. The Contractor, upon notice of award of Contract, shall prepare a construction schedule based on the allowed time, and submit such schedule to the Engineer for approval. A Pre-Construction Conference will be scheduled for all parties concerned.
- 12.2. If the Contractor is delayed at any time in the progress of the work by any act of negligence by the Owner or the Engineer, or by any separate Contractor 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.
- 12.3. No extension of time for completion will be made for ordinary delays and accidents. Extensions may be granted for delays ordered by the Owner or the Engineer if the request has been made in writing within forty-eight (48) hours after the order to cease work has been given.

13. LIQUIDATED DAMAGES

Time is of the essence, and it is critical that the work be performed on schedule and time is allowed for the completion of the work in the Contract Agreement included herewith.

Damages for delay shall be at the rate of four-thousand dollars (\$4,000.00) per calendar day

for failure of the Contractor to complete the work within the Construction Schedule. No credit shall be given for early completion of the work.

14. CORRECTION OF WORK BEFORE FINAL PAYMENT

- 14.1. Any work, materials, or other parts of the work which have been condemned or declared not in accordance with the Contract by the Owner or the Engineer shall be removed from the work site by the Contractor and shall be immediately replaced by new work in accordance with the Contract at no additional cost to the Owner. Work or property of others or the Owner damaged or destroyed by virtue of such faulty work shall be made good at the expense of the Contractor whose work is faulty.
- 14.2. Correction of condemned work described above shall commence within twenty-four (24) hours after receipt of notice from the Owner or the Engineer and shall be pursued to completion.
- 14.3. Final payment will not be made until certificates of the engineer have been duly issued.

15. CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final certificate, final payment, acceptance of the premises by the Owner, nor any provision of the Contract, nor any other act or instrument of the Owner or Engineer shall relieve the Contractor from responsibility for negligence, or faulty materials or workmanship, or failure to comply with the Drawings and Specifications. He shall correct or make good any defects due thereto and repair any damage resulting there from which may appear during the period of the guarantee following final acceptance of the work by the Owner. The Owner will report any defects as they may appear to the Engineer who will give the instructions for a time limit for completion of corrections to the Contractor.

16. THE OWNER'S RIGHT TO PERFORM WORK

16.1. The Owner may perform or have performed by others work which is described in the Specifications to be performed by the Contractor, due to early delivery of equipment prior to the execution of this Contract. Upon the execution of the contract, the work performed will be deducted from the Contractor's price by the unit price set forth in the *Form of Proposal*.

16.2. If during the progress of the work or during the period of guarantee, the Contractor fails to execute the work properly or to perform any provision of the Contract, the Owner, after five (5) days' written notice to the Contractor from the Engineer or the Owner, may perform or have performed that portion of the work and may deduct the cost thereof from any amounts due or to become due the Contractor, such action and cost of same having been first approved by the Engineer. Should the cost of such action of the Owner exceed the amount due or to become due the Contractor, then the Contractor or his surety, or both, shall be liable for and shall pay to the Owner the amount of said excess.

17. CONTRACTOR'S AFFIDAVIT

The final payment of retained amount due the Contractor on account of the Contract shall not become due until the Contractor has furnished to the Owner, with a copy to the Engineer, an affidavit signed, sworn and notarized to the effect that all payments for materials, services, or any other reason in connection with his Contract have been satisfied and that no claims or liens exist against the Contractor in connection with this Contract. In the event that the Contractor cannot obtain similar affidavits from Subcontractors to protect the Contractor and the Owner from possible liens or claims against the Subcontractor, the Contractor shall state in his affidavit that no claims or liens exist against any Subcontractor to the best of his (the Contractor's) knowledge and if any appear afterwards, the Contractor shall save the Owner harmless on account thereof.

18. ASSIGNMENTS

The Contractor shall not assign any portion of this Contract nor subcontract it in its entirety. Except as may be required under terms of the Payment and/or Performance Bond, no funds or sums of money due or to become due the Contractor under this Contract may be assigned.

19. GUARANTEE

The Contractor shall guarantee his work against defect due to faulty workmanship or negligence for a period of two (2) years following final acceptance of the work. He shall make good such defective workmanship and any damage resulting therefrom without cost to the Owner.

20. ENGINEER'S STATUS

The Engineer shall, within a reasonable time after their presentation to him, make decisions on all claims of the Contractor and on all other matters relating to the execution and progress

of the work or the interpretation of the Contract Documents. All such decisions by the Engineer shall be final.

21. ENGINEER'S DECISIONS

The Engineer shall, within a reasonable time after their presentation to him, make decisions on all claims of the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents. All such decisions by the Engineer shall be final.

22. RIGHT-OF-WAY

The Owner will obtain all easements and/or rights-of-way required for the project.

23. ACCIDENTS

The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work. The Contractor will provide a written report to the Owner of all accidents within twenty-four (24) hours of the event.

24. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- 24.1. The Contractor 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 Contractor will take affirmative action to ensure 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 Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.
- 24.2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, 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.
- 24.3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or other understanding, a notice advertising the labor union or workers' representative of the Contractor's commitments under the Equal Employment Opportunity Section of this Contract and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 24.4. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Owner contracts.
- 24.5. The owner has adopted an Affirmative Action & Minority & Women Business Enterprise Plan (M/WBE) Program. Contractors 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 supplies of material and/or labor.

25. MEDIATION/BINDING ARBITRATION

- 25.1. 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.
- 25.2. 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.

26. 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 Procurement Manager, 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.

27. 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.

28. 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.

29. 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.

30. 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.

31. 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 Procurement Manager, solely as a convenience to the Bidder, GUC may:

- 31.1. Forward the Bidder's payment check directly to any person or entity designated by the Bidder, and
- 31.2. Include any person or entity designated by Bidder as a joint payee on the Bidder's payment check.

31.3. 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.

32. 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.

33. 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.

34. ADMINISTRATIVE CODE

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

35. EXECUTION

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

36. CLARIFICATIONS/INTERPRETATIONS

Any and all questions regarding these Terms and Conditions must be addressed to the GUC Procurement Manager. 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 Procurement Manager.

37. 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.

38. 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:

- 38.1. Bidder's persistent failure to perform in accordance with the Terms and Conditions.
- 38.2. Bidder's disregard of laws and regulations related to this transaction
- 38.3. Bidder's substantial violation of the provisions of the Terms and Conditions.

39. 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.

40. 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.

41. 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.

42. 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.

43. 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.

44. UNIFORM GUIDANCE

Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

45. NOTICES

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

Mr. Cleve Haddock, Lifetime CLGPO Procurement Manager Greenville Utilities Commission P.O. Box 1847 Greenville, NC 27835-1847

SPECIAL CONDITIONS

1. DEFECTIVE WORKMANSHIP

The acceptance of any workmanship by the Owner shall not preclude the subsequent rejection thereof if such workmanship shall be found to be defective after installation, and any such workmanship found defective before final acceptance of the work or within two (2) years after completion shall be remedied or replaced, as the case may be, by and at the expense of the Contractor. In the event of failure by the Contractor to do so, the Owner may remedy such defective workmanship and in such event the Contractor shall pay to the Owner the cost and expense thereof. The Contractor shall not be entitled to any payment hereunder so long as any defective workmanship, of which the Contractor shall have had notice, shall not have been remedied or replaced, as the case may be.

2. MATERIALS

- 2.1. At or prior to the commencement of construction, the Owner shall make available to the Contractor all materials which the Owner has on hand, and from time to time as such additional deliveries of materials, if any, are received by the Owner, the Owner shall make such materials available to the Contractor; Provided, however, that the Contractor or his authorized representative shall give to the Owner a receipt in such form as the Owner shall approve for all materials furnished to the Contractor by the Owner. Upon completion of the project, the Contractor shall return all materials furnished by the Owner which are in excess of those required for the construction. Excess will be determined by comparison of Contractor's material receipts with final inventory as approved by the Owner. The Contractor shall also return to the Owner all material, usable and scrap, removed during construction. The Contractor will reimburse the Owner, at the current invoice cost to the Owner, for loss and/or breakage resulting from Contractor's negligence, of materials furnished to the Contractor by the Owner.
- 2.2. The winning Bidder will use the material package supplied by the Owner. The structures and equipment lists are located in the Appendices.
- 2.3. The project foundation details (as applicable) will be provided to the Contractor prior to start of construction.

3. DEFECTIVE MATERIALS (SUPPLIED BY CONTRACTOR)

- 3.1. All materials supplied by the Contractor shall be subject to the inspection, tests and approval of the Owner. The Contractor shall furnish all information required concerning the nature or source of any materials and provide adequate facilities for testing and inspecting the materials at the plant of the Contractor.
- 3.2. The materials furnished hereunder shall become the property of the Owner when delivered at the point to which shipment is to be made. The Owner may, however, reject any materials and/or warranties of the Contractor and manufacturers. Recognition and subsequent rejection of any defective materials may occur either before or after incorporation of such materials into the work, provided such rejection is made within one (1) year of date of delivery of the materials. Upon any such rejection, the Contractor shall replace the rejected materials with materials complying with the Specification for Materials and warranties at the substation site. The Owner shall return the rejected materials F.O.B. truck at the same destination. In the event of the failure of the Contractor to so replace rejected materials, the Owner shall make such replacement and the cost and expense thereof shall be paid by and recoverable from the Contractor.

4. STORAGE OF MATERIALS

All material furnished by Owner shall be issued from the Owner's warehouse located at 701 Utility Way, Greenville, North Carolina. All driveways and public roadways must be kept clear. No parking, storage or staging of materials shall be placed in a driveway or roadway, causing said roadway impassable any time.

5. PROTECTION TO PERSONS AND PROPERTY

The Contractor shall always take all reasonable precautions for the safety of employees on the work and of the public, and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building and construction codes, as well as the safety rules and regulations of the Owner. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America unless such instructions are incompatible with Federal, State, or Municipal laws or regulations.

The following provisions shall not limit the generality of the above requirements:

- 5.1. The Contractor shall so conduct the construction as to cause the least possible obstruction of public highways or streets.
- 5.2. The Contractor shall provide and maintain all such guard lights and other protection for the public as may be required by applicable statutes, ordinances, and regulations or by local conditions.
- 5.3. The Contractor shall do all things necessary or expedient to protect properly any and all parallel, converging, and intersecting lines, joint line poles, highways, railways and any and all property of others from damage, and in the event that any such parallel, converging and intersecting lines, joint line poles, highways, railways or other property are damaged in the course of the construction of the line, the Contractor shall at his own expense immediately restore any or all of such damaged property to as good a state as before such damage occurred.
- 5.4. The Contractor shall enter and exit the right-of-way at those locations specified by Owner or the Engineer.

It shall be the responsibility of the Contractor to maintain safe and unobstructed control of traffic along all state roads, highways, and all other streets within the project area. The Contractor shall obtain sufficient and suitable traffic cones, barriers, warning signs, and other devices necessary to maintain a safe work environment for crews and the general public. Traffic control must be provided for in accordance with the Manual of Uniform Traffic Control Devices (MUTCD), the North Carolina Department of Transportation (NC D.O.T.) Supplement to the MUTCD, all local ordinances, and as approved by local and state authorities.

- 5.5. All ditches and access ways disturbed shall be returned to their pre-existing condition at the end of construction.
- 5.6. Any and all excess earth, rock, debris, underbrush, and other useless material shall be removed by the Contractor from the site of the work as rapidly as practicable as the work progresses.
- 5.7. Before beginning work in or around any areas where underground facilities are known to exist, the Contractor shall locate all such facilities including water, sewer, gas, telephone and electrical lines.

- 5.8. Upon violation by the Contractor of any provisions of this section, after written notice of such violation given to the Contractor by the Owner, the Contractor shall immediately correct such violation. Upon failure of the Contractor to do so, the Owner may correct such violation at the Contractor's expense.
- 5.9. The Contractor shall submit to the Owner monthly reports in duplicate of all accidents, giving such data as may be prescribed by the Owner.

6. SUPERVISION AND INSPECTION

- 6.1. The Contractor shall cause the construction work to receive constant supervision by a competent superintendent (hereinafter called the "Superintendent") who shall be present at all times during working hours where construction is being carried on. The Contractor shall also employ, in connection with the construction of the substation capable, experienced, and reliable foremen and such skilled workmen as may be required for the various classes of work to be performed. Directions and instructions given to the Superintendent by the Owner shall be binding upon the Contractor.
- 6.2. The Owner reserves the right to require the removal from the project of any employee of the Contractor if, in the judgment of the Owner, such removal shall be necessary in order to protect the interest of the Owner. The Owner shall have the right to require the Contractor to increase the number of his employees and to increase or change the amount or kind of tools and equipment if at any time the progress of the work shall be unsatisfactory to the Owner; the failure of the Owner to give any such directions shall not relieve the Contractor of his obligations to complete the work within the time and in the manner specified in this Proposal.
- 6.3. The manner of performance of the work, and all equipment used therein, shall be subject to the inspection, tests and approval of the Owner. The Contractor shall have an authorized agent accompany the Owner when final inspection is made and, if requested by the Owner, when any other inspection is made.
- 6.4. In the event that the Owner shall determine that the construction contains or may contain numerous defects, it shall be the duty of the Contractor, if requested by the Owner to have an inspection made by the Engineer for the purpose of determining the exact nature, extent, and location of such defects.

7. TEMPORARY CONSTRUCTION

All temporary construction required to accomplish the work covered in these Specifications shall be the sole responsibility of the Contractor. The Contractor shall furnish all labor and materials necessary for temporary construction including the installation and removal of structures, poles, insulators, hardware, guys, anchors, etc. All materials used for temporary construction shall be removed from the site as soon as practicable and the site restored to as good a state as before such construction. All temporary materials supplied by the Contractor will remain the property of the Contractor. All temporary construction shall be performed and shall adhere to the same safety and code requirements as the proposed work and shall be covered by all requirements of these Plans, Specifications, and Contract Documents.

No extra pay item will be issued for temporary construction, or for subsequent removal of same.

8. NORMAL WORK WEEK

- 8.1. The Contractor shall provide the Owner quoted prices on a per-hour basis, for various personnel and equipment, assuming a normal work week as being forty (40) hours.
- 8.2. The Contractor shall state in the Proposal his normal work week for the project.
- 8.3. Work on weekends or generally accepted holidays will only be allowed if specific outage arrangements are required or the Contractor falls behind in meeting the project's scheduled completion date.
- 8.4. The Contractor will not be paid for inclement weather days or for travel time to and from the job site, unless expressly requested by the Contractor as a written stipulation to his original Proposal.
- 8.5. The Contractor shall remain on the project until completion. The Owner will not approve requests for releasing the contractor for storm or other projects.

9. JOB-SITE OBLIGATIONS

9.1. Except as otherwise provided in the Contract, necessary sanitary conveniences for use by the Contractor's employees and Subcontractors at the Jobsite shall be furnished and maintained by the Contractor in such manner and at such

- locations as shall be approved by the Company Representative and their use shall be strictly enforced.
- 9.2. The Contractor shall, at all times, keep its work areas in a neat, clean, and safe condition. The Contractor shall be responsible for continuous clean up and removal of its trash, debris, waste materials and scrap and disposal of same off the Jobsite. Upon completion of any portion of the Work, the Contractor shall immediately remove all its equipment, construction plant, temporary structures and surplus materials not to be used at or near the same location during later stages of the Work. Upon completion of the Work and before final payment is made, the Contractor shall, at its expense, satisfactorily dispose of all plant, buildings, rubbish, unused materials, and other equipment and materials belonging to it or used in the performance of the Work, including return to the Owner's warehouse or designated lay down area(s), at the Owner's option of any salvageable materials for which the Owner has reimbursed the Contractor or that has been supplied by the Owner for incorporation into the Work but not used; and the Contractor shall leave the premises in a neat, clean and safe condition acceptable to the Company Representative. In the event of the Contractor's failure to comply with the foregoing, the same may be accomplished by the Owner at the Contractor's expense.
- 9.3. The Owner reserves the right to authorize its agents or designees to enter the jobsite as it may elect for the purpose of inspecting the work or constructing or installing such collateral work as it may desire, or testing, boring or surveying, or any other purpose.
- 9.4. The Contractor understands and agrees that duly authorized representatives of government agencies having appropriate jurisdiction may enter the Jobsite at any time and from time to time.
- 9.5. If any Work or part thereof shall be covered contrary to the requirements of the Contract or the request of the Owner or Engineer, it must, if required by the Company Representative, be uncovered for observation and inspection and covered again at the Contractor's sole expense.
- 9.6. If any other Work that the Company Representative has not specifically requested to observe and inspect prior to being covered has been covered, the Owner or Engineer may request to see such Work or part thereof and it shall be uncovered by the Contractor. If such Work or part thereof is found to be in accordance with the Contract, the cost of uncovering and covering again shall,

by appropriate Change Form, be charged to the Owner. If such Work or part thereof fails to meet the requirements of the Contract, the Contractor shall pay all costs of uncovering, correcting, and covering again and any additional costs resulting there from.

- 9.7. The Contractor shall conduct daily and weekly on-site safety meetings at the beginning of each work period. These meetings should not preclude the Contractor from conducting tailgate safety meetings before each new work period, after break, different work assignments, etc. as determined by OSHA and other applicable safety laws and regulations. In addition, the Contractor shall be required to attend onsite safety meetings with the Owner.
- 9.8. All personnel / visitors / individuals shall have a safety briefing by the Contractor prior to entering the energized substation area.
- 9.9. The Contractor shall facilitate a formal safety program for all individuals entering the site.
- 9.10. The Contractor shall provide the Owner a copy of the Contractor's Safety Manual, outlining policies, procedures, documentation and training. The Owner will provide the Contractor with a copy of the Owner's Safety Manual. The Contractor shall perform the work using the more stringent of the two policies.

10. WORK SEQUENCING

- 10.1. The Contractor shall perform relocation work in a continuous and sequential manner that allows for timely transfer of existing loads, service cutovers, and retirements as construction progresses from Detail Construction Drawing to Detail Construction Drawing. Continuous or extended overhead construction without completing associated cutovers, load transfers, and placing facilities in service will not be permitted.
- 10.2. The Contractor shall complete each segment of work—including all transfers, cutovers, removals, and associated restoration—prior to advancing to subsequent segments, unless otherwise approved by the Owner or its representative Engineer. Work sequencing shall be coordinated with the Engineer and the Utility Owner to maintain service continuity and minimize prolonged exposure of non-energized and/or temporary facilities.

10.3. The Contractor shall submit, upon request, a proposed work sequence or schedule showing planned limits of active work, load transfers, and cutover activities. Failure to maintain acceptable sequencing or to complete cutovers in a timely manner may result in suspension of work until corrective measures are approved by the Owner or its representative Engineer.

11. TRAFFIC CONTROL AND WORK HOUR RESTRICTIONS

11.1. The Contractor shall complete the required work of installing, maintaining and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on Old Tar Road during the following time restrictions:

11.1.1. <u>DAY AND TIME RESTRICTIONS</u>

- 11.1.1.1. Monday through Friday, 6:00 AM to 9:00 AM and 4:00 PM to 6:00 PM.
- 11.2. In addition, the Contractor shall not close or narrow a lane of traffic on ANY ROAD, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

11.2.1. <u>HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE</u> <u>RESTRICTION</u>

- 11.2.1.1. For unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.
- 11.2.1.2. For New Year's Day, between the hours of 6:00 AM December 31st and 6:00 PM January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 6:00 PM the following Tuesday.
- 11.2.1.3. For Easter, between the hours of 6:00 AM Thursday and 6:00 PM Monday.
- 11.2.1.4. For Memorial Day, between the hours of 6:00 AM Friday and 6:00 PM Tuesday.
- 11.2.1.5. For Independence Day, between the hours of 6:00 AM the day before Independence Day and 6:00 PM the day after Independence Day. If Independence Day is on a Friday, Saturday, Sunday or Monday, then between the

- hours of 6:00 AM the Thursday before Independence Day and 6:00 PM the Tuesday after Independence Day.
- 11.2.1.6. For Labor Day, between the hours of 6:00 AM Friday and 6:00 PM Tuesday.
- 11.2.1.7. For Thanksgiving Day, between the hours of 6:00 AM Tuesday and 6:00 PM Monday.
- 11.2.1.8. For Christmas, between the hours of 6:00 AM the Friday before the week of Christmas Day and 6:00 PM the following Tuesday after the week of Christmas Day.
- 11.3. No work shall be performed within the NCDOT right-of-way outside the approved timeframes or without prior authorization. Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.
- 11.4. The Contractor is responsible for obtaining and maintaining all necessary permits, traffic control plans, and approvals related to lane closures and work scheduling.

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CONTRACT AGREEMENT

THIS CONTRACT made this day of, 2025, by
, hereinafter called Bidder, and GREENVILLE UTILITIES
COMMISSION (GUC) OF THE CITY OF GREENVILLE, PITT COUNTY, NORTH
CAROLINA, a corporation, hereinafter called the Owner.
or it of the first the composition of the compositi
<u>WITNESSETH</u>
THAT WHEREAS, a Contract for
GREEVILLE UTILITIES COMMISSION
RELOCATION OF 12.47 KV AND 34.5 KV DISTRIBUTION
STRUCTURES ALONG OLD TAR ROAD
has recently been awarded to Bidder by the Owner at and for a total price of
AND 00/100 (\$) 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 332 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 an action or dispute arising between the parties.
- b) <u>Further Assurances</u> 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) <u>Binding Effect</u> 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) <u>Time of Performance</u> Time is of the essence with regard to the performance of this Contract.
- f) <u>Survivability</u> The terms of this Contract shall survive execution and delivery of any deeds or bills of sale called for hereunder.
- g) <u>Headings</u> 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 and 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.

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PROVIDE CURRENT LIABILITY INSURANCE CERTIFICATE(S)

Section I General Instructions, 24. Contractor's 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:
 - 2.1. Public Liability Insurance for bodily injury or death \$1,000,000 got one person, and \$2,000,000 for each accident.
 - 2.2. 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:
 - 3.1. Bodily injury or death \$1,000,000 for one person and \$2,000,000 for each accident.
 - 3.2. 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. Each certificate must not terminate before the contract completion date.

CERTIFICATE HOLDER:

Greenville Utilities Commission 401 South Greene Street Greenville, NC 27834

Contact: Mr. Cleve Haddock, Procurement Manager, Lifetime CLGPO

Phone: 252-551-1533

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

(Imprint Corporate Seal Below this line)		BIDDER:(SEAL			
		Ву	(SEAL)		
		Title			
ATTEST:					
By:		_			
Title:		(GUC)	IVILLE UTILITIES COMMISSION OF THE CITY OF GREENVILLE, OUNTY, NORTH CAROLINA		
		Ву	Anthony C. Cannon		
		Title	General Manager/CEO		
ATTEST:					
By:	Amy Wade	_			
Title:	Executive Secretary	_			
APPROV	ED AS TO FORM AND LEGALITY	:			
By:	Phillip R. Dixon	_			
Title	General Counsel				

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:		

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

RELOCATION OF 12.47 KV AND 34.5 KV DISTRIBUTION STRUCTURES ALONG OLD TAR ROAD

FORM OF PROPOSAL

(Provide two (2) copies)

Respectfully submitted thisday of	, 2025.
OWNER:	BIDDER
Greenville Utilities Commission 401 South Greene Street Greenville, North Carolina 27834 P.O. Box 1847 Greenville, North Carolina 27835 Mr. Cleve Haddock, Lifetime CLGPO Procurement Manager Office: 252-551-1533 Cell: 252-361-3655	NAME TITLE STREET ADDRESS CITY/STATE/ZIP PHONE: FAX: EMAIL:
MANUFACTURER OF	SIGNATURE
PROPOSED EQUIPMENT MANUFACTURER	
STREET ADDRESS CITY/STATE/ZIP	

TERMS AND CONDITIONS

- 1. The undersigned, hereafter called the Contractor, hereby declares that the only person or persons interested in this Proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this Proposal or in the Contract to be entered into; that this Proposal is made without connection with any other person, company or parties making a bid or Proposal; and that it is in all respects fair and in good faith without collusion or fraud.
- 2. The Contractor further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the locations where the work is to be done; that he has examined the Technical Specifications for the work and Contract Documents relative there to, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.
- 3. The Contractor proposes and agrees, if this Proposal is accepted, to contract with the Owner in the form of Contract specified, to furnish all necessary labor, equipment, and materials, except materials and equipment specified to be furnished by the Owner, required for the installation of the station, complete in accordance with the Plans, Specifications and Contract 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 Contract Documents, as filed on Change Order forms. No changes in work shall begin without prior written approval by the Owner or its representative Engineer. Change order pricing shall be based on the unit prices provided in this bid.
- 4. The Bid Schedule is subject to the following terms and conditions which, by reference, are made a part of this Proposal.
- 5. The prices of materials set forth herein do not include any sums which are or may be payable by the Contractor on account of North Carolina Sales Tax upon the sale, purchase, or use of the materials hereunder, the amount thereof shall be added to the purchase price and paid by the Owner after the Contractor has ascertained the actual sales tax to be included in the Contract price.
- 6. The prices quoted in the Proposal shall be firm unless otherwise clearly noted in the Proposal.
- 7. The price quoted includes delivery FOB substation site of any equipment and materials and complete installation at substation site. The prices of the equipment and installation set forth herein shall include the cost of delivery at the Contractor's risk to the site.
- 8. The Contractor shall provide the Owner quoted prices on a per-hour basis, for various personnel and equipment, assuming a normal work week as being forty (40) hours.
- 9. The Contractor shall state his normal work week for the project:

 _ Five (5), eight (8) hour days (Monday through Friday)
 Four (4), ten (10) hour days (Monday through Thursday)
 Other,

- 10. Work on weekends or generally accepted holidays will only be allowed if specific outage arrangements are required, or if the Contractor falls behind in meeting the project's scheduled completion date. If the Contractor deems this necessary, he must receive the Owner's written approval five (5) business days prior to beginning the revised work scheme.
- 11. The time of completion for this project is of the essence.
- 12. The Contractor shall submit a proposed project construction schedule with the Proposal for review and approval by the Owner and Engineer. The targeted date for completion is December 3, 2026. If this date is not possible, please present an alternate date.
- 13. The time for delivery and installation shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Contractor, including acts of God, fires, floods, strikes, and delay in transportation.
- 14. The Contractor will not be paid for inclement weather days or for travel time to and from the job site, unless expressly requested by the Contractor as a written stipulation to his original Proposal.
- 15. The Contractor-furnished materials shall conform to the "Technical Specifications" attached hereto and made a part hereof.
- 16. Title to the materials furnished by the Contractor shall pass to the Owner upon completion of the installation at the point above specified.
- 17. This Proposal is made pursuant to the provisions of the Notice and Instructions to Bidders, the Specifications, and the Contractor agrees to the terms and conditions thereof.
- 18. The Contractor 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 if this Proposal is accepted.
- 19. The Contractor warrants that the Contractor-furnished Materials will conform to the performance data and guarantees attached which, by this reference, are made a part of this Proposal. Any exceptions or deviations from the Plans and Specifications must be clearly stated in the Proposal to warrant consideration.

- 20. The Contractor assumes liability for the proper care, handling, storage, and security of all materials furnished to the Contractor by the Owner for the project.
- 21. The undersigned further agrees that in case of failure on his part to execute said Contract within ten (10) consecutive calendar days after written notice has been given of the Award of the Contract, bid security accompanying this bid, and the monies payable thereon, shall be paid into the funds of the Owner's account set aside for this project, as liquidated damages for such failure, otherwise, the check, cash, or Bid Bond accompanying the Proposal shall be returned to the undersigned.
- 22. The Contractor shall maintain during the project and shall provide the Owner/Engineer one (1) complete set of "as-constructed" drawings upon the completion of the project.
- 23. The Contractor warrants that it possesses Electric Utility Contractor's License for the State of North Carolina. A copy of the license shall be included in this *Form of Proposal*.
- 24. The Contractor shall submit, in the *Form of Proposal*, the proposed project management staff, i.e., project manager, site superintendent, general foreman, etc. The qualifications / work experience level of the Bidder's proposed work force shall be included as well. The Contractor shall provide evidence of a minimum of 60% of the proposed work force having five (5) years or more tenure with the Bidder's firm. If other personnel are assigned to the project, similar information will be required prior to construction assignment.
- 25. The Contractor shall provide a list of recent projects of similar voltage class and complexity, along with the Owner and contact information of the representative who was reported to directly.
- 26. If the proposed staff along with their qualifications is not provided, the bid may be subject to non-compliance, thus, making it unacceptable.
- 27. The Contractor shall provide a list of subcontractors (if any) in the proposal and their respective support services which will be used by the Contractor when undertaking this project. All subcontractors will be subject to review and approval by the Owner.
- 28. A mandatory pre-construction meeting will be scheduled at a later time based on the construction schedule.
- 29. Uniform Guidance: Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

ADDENDA / CLARIFICATIONS / BULLETINS

Section I General Instructions, 6. Bulletins and Addenda

PROPOSAL PAGES

DISTRIBUTION CONSTRUCTION ASSEMBLY UNITS

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POLE UNITS

A pole unit consists of one pole in place. It does not include pole-top construction assembly unit or other parts attached to the pole. The first two digits of the unit number column indicate the length of the pole; the following digits specify the RUS Class.

Pole Plan Under Which the Poles are to be Furnished: (Check one)

- Insured Warranted □ 2. Independently Inspected □
 Quality Assured □
 Either Insured Warranted, Independently Inspected, or quality Assured □
- 4. Entire Insured Warranted, Independently Inspected, or quanty Insured

POLE TOP CONSTUCTION ASSEMBLY UNITS

A pole top construction assembly unit generally consists of the insulator(s), crossarm(s), braces, and hardware, except tie wire, required to support the power conductors and overhead ground wire, as indicated on the applicable drawing. It does not include the pole, the downlead, and butt coil, which are separate units.

GUY CONSTRUCTION ASSEMBLY UNITS (DG UNITS)

A guy construction assembly unit consists of the hardware and wire. Guy guards are designated separately.

ANCHOR CONSTRUCTION ASSEMBLY UNITS

An anchor construction assembly unit consists of the anchor with rod or rods, complete, ready for attaching the guy wire.

DISTRIBUTION CONSTRUCTION ASSEMBLY UNITS

Part 1a - Pole Units - Directed Embedded			La	abor
Unit NO.	Embedded Depth (FT)	NO. of Units	Unit Labor \$	Extended Labor \$
35 Foot Class 5 Pole	5.5	13		
40 Foot Class 4 Pole	6	1		
45 Foot Class 4 Pole	6.5	4		
50 Foot Class 3 Pole	7	6		
55 Foot Class 3 Pole	7.5	18		
60 Foot Class 2 Pole	8	10		
65 Foot Class 2 Pole	8.5	27		
70 Foot Steel Pole	9	3		
Install Pole Tag		82		
Pole/Guy Bollards		24		

Part 1b - Conductor Units		Labor	
Unit NO.	NO. of Units (FT)	Unit Labor \$	Extended Labor \$
#6 Aluminum Triplex (Poly)	752		
#2 Aluminum Triplex (Clam)	92		
1/0 Aluminum Triplex (Murex)	108		
2/0 Aluminum Triplex (Rucina)	1022		
4/0 Aluminum Triplex (Zuzara)	683		
1/0 Aluminum Clad Steel Reinforced (Raven) (Per Phase)	20295		
336MCM Aluminum Clad Steel Reinforced (Merlin) (Per Phase)	35817	•	
795MCM Stranded Aluminum (Arbutus) (Per Phase)	18445	•	

Part 1c - Pole Framing Units		Labor	
Drawing NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Two Phase Single Deadend (Tap), Suspension (B5)	4		
Three Phase Tangent, MIF Construction Single Pin (C1)	14		
Three Phase, Tangent, MIF Vertical Single Pin (C1.V1)	18		
Three Phase, Tangent, MIF Z Construction Single Pin (C1.Z)	29		
Three Phase Small Angle, MIF Construction Double Pin (C2)	7		
Three Phase Large Angle, Double Deadend Suspension (C4)	18		
Three Phase Single Deadend, Crossarm Suspension (C5)	10		
Three Phase Single Deadend (Tap), Vertical Suspension (C5.V)	3		
Three Phase Tangent Double Deadend, Cross Suspension (C6)	5		
Three Phase Tangent, Double Deadend Suspension (C6.V)	5		

Part 1d - Guy Construction Units		Labor	
Drawing NO.	NO. of Units	Unit Labor \$	Extended Labor \$
DG-12_14	216		
SWG-12_14	7		
DG-SG	28		

Part 1e - Anchor Construction Units		Labor	
Drawing NO.	NO. of Units	Unit Labor \$	Extended Labor \$
DA	86		
TA-2	39		

DISTRIBUTION CONSTRUCTION ASSEMBLY UNITS CONTINUED

Part 1f - Transformer Units		Labor	
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Single Phase Transformer, 10 kVA CSP (120/240)	3		
Single Phase Transformer, 15 kVA CSP (120/240)	9		
Single Phase Transformer, 25 kVA CSP (120/240)	7		
Single Phase Transformer, 50 kVA CSP (120/240)	4		

Part 1g - Protection & Sectionalizing Units		Labor	
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Surge Arrestor - Single Phase	3		
Surge Arrestor - Two Phase	1		
Surge Arrestor - Three Phase	10		
Fused Cutout - Single Phase	1		
Fused Cutout - Three Phase	1		
900A Line Drop Switches - Three Phase	1		
900A Horizontal Gang Switch- Three Phase	1		
600A Vertical Gang Switch-Three Phase	5		
Vacuum Circuit Recloser w/ Bypass Cutout - Three Phase	1		

Part 1h - Riser Pole (OH to UG)		Lal	oor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Single Phase 200A w/ Fused Cutout	3		
Two Phase 200A w/ Fused Cutout	1		
Three Phase 200A w/ Fused Cutout	8		
Three Phase 600A w/ Line Drops	1		

Part 1i - Voltage Alteration Units		Lat	oor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Capacitor Bank (Three Phase)	1		

Part 1j - Secondary Service Units		Lak	oor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Service Assembly - Stationary Clevis (Pole Mounted)	36		
Connect Service On Pole	45		
Service Assembly - Secondary Riser Up Pole	19		
Light Fixture Installation	11		

Part 2a - Excavation Units		Labor	
Unit NO.	NO. of Units (FT)	Unit Labor \$	Extended Labor \$
Machine Trench (minimum 40" cover)	6		
Backhoe (minimum 24" cover)	290		
Backhoe (minimum 40" cover)	225		
Reseed Trench	11126		

Part 2b - Boring Units		Labor	
Unit NO.	NO. of Units (FT)	Unit Labor \$	Extended Labor \$
2" Directional Boring (1 conduit)	1808		
2" Directional Boring (2 conduits)	426		
4" Directional Boring (1 conduit)	688		

DISTRIBUTION CONSTRUCTION ASSEMBLY UNITS CONTINUED

Part 2c - Conduit Installation (In Trench) Units		ا	abor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
2" Conduit	340		
3" Conduit	50		
4" Conduit	225		
2" PVC 90* Elbow	47		
2" Galvanized 90* Elbow	5		
3" PVC 90* Elbow	13		
3" Galvanized 90* Elbow	2		
3" Galvanized 90* Elbow (36" RAD.)	4		
4" Galvanized 90* Elbow	21		

Part 2d - UG Primary In Conduit Installation Units		Lak	oor
Unit NO.	NO. of Units (FT)	Unit Labor \$	Extended Labor \$
1/0 AWG Aluminum(1 Phase)	5481		
750 MCM Aluminum (1 Phase)	600		

Part 2e - UG Secondary In Conduit Installation Units		Labor	
Unit NO.	NO. of Units (FT)	Unit Labor \$	Extended Labor \$
#6 Aluminum Triplex	487		
2/0 Aluminum Triplex	1570		
4/0 Aluminum Triplex	452		

Part 2f - Pandmounted Transformers & Equipment		Lal	bor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
Two Phase Sectionalizing Cabinet	1		
Three Phase Sectionalizing Cabinet	4		
200A Load Break Elbow	33		
10 kV Elbow Arrestor	1		
200A Terminator	31		
600A Load Break Elbow	12		
600A Terminator	8		

Part 2g - Secondary Pedestal/Service	Part 2g - Secondary Pedestal/Service		abor
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
9x14 Pedestal	2		
9x14 Pedestal Flat Lid	2		
18x24 Pedestal	13		
18x24 Pedestal Flat Lid	15		
4 Point Secondary Buss Kit	30		
Connect Service in Pedestal or Transformer	28		
Connect Service in Meter Base	12	<u> </u>	

Part 2h - Streetlights Poles		Lab	or
Unit NO.	NO. of Units	Unit Labor \$	Extended Labor \$
24' Black Aluminum Streetlight Pole	1		

PROPOSAL SUMMARY

In the space below, please provide a price for the following Construction Assembly Units per the attached specifications.

QUOTATIONS SHOULD BE RECEIVED BY 2:00 pm ON November 25, 2025.

Quotations can be mailed or delivered to Cleve Haddock, Lifetime CLGPO, Procurement Manager, 401 South Greene Street, Greenville, N.C. 27834. Greenville Utilities Commission reserves the right to reject any and all bids that are not in GUC's best interest.

DISTRIBUTION CONSTRUCTION ASSEMBLY UNITS

	Distribution Removal	\$
	Wood Pole Install	\$
	Tubular Steel Pole Install	\$
	Distribution Pole Top Assembly	<u>\$</u>
	Guy Assembly	<u>\$</u>
	Anchor Assembly	<u>\$</u>
	Conductor Assembly	\$
	OH/UG Service Units	\$
TOTAL CONSTRUCTION	ASSEMBLY UNITS	\$

Note: Will be awarded as a total bid.

<u>Complete and Check All Math</u>: It is the responsibility of the Bidder to extend unit prices and supply a total for all item(s)

It is certified that this bid is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this bid is made in good faith and without collusion or connection with any GUC employee(s).

We quote you as per instruction receipt of invoice, a discount of		within days from date of .
Firm Name:		Phone: ()
Address:		
City	State	Zip Code
Fax ()	E-mail	
Authorized Official	Typed Name	Title
	Signature	Date

2 Copies of your bid should be received no later than November 25, 2025 at 2:00 pm (EST).

NO BIDS CONSIDERED UNLESS SUBMITTED ON THIS FORM(S)

PROPOSED CONSTRUCTION SCHEDULE

General Instructions, 19. Completion Terms and Conditions – Item 12

CERTIFICATE(S) OF INSURANCE

General Instructions, 24. Contractor's Insurance

CONTRACTOR'S LICENSE

General Instructions, 25. Contractor's License Terms and Conditions – Item 23

FORM OF EXCEPTIONS

General Instructions, 9. Form of Exceptions, General Instructions, 11. Evaluation and Award of Bids

BIDDER:	
OWNER:	GREENVILLE UTILITIES COMMISSION, NORTH CAROLINA
PROJECT DESCRIPTION:	RELOCATION OF 12.72 kV AND 34.5 kV DISTRIBUTION STRUCTURES ALONG OLD TAR ROAD
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

EQUAL EMPLOYMENT OPPORTUNITY AFFIDAVIT General Conditions, 24. Equal Employment Opportunity

The Contractor shall include the provisions of the Equal Employment Opportunity, as found in General Conditions section, in every Subcontract unless exempted by rules, regulations, or orders of the Owner so that such provisions will be binding upon each Subcontractor.

Bidder:		
By:		
<u>Б</u> у:		
Date:		

Special Instructions to Bidders

City of Greenville/Greenville Utilities Commission Minority and/or Women Business Enterprise (M/WBE) Program

GUC Construction Guidelines and Affidavits \$100,000 and above

These instructions shall be included with each bid solicitation.

City of Greenville/Greenville Utilities Commission Minority and/or Women Business Enterprise Program

\$100,000 and Construction Guidelines for M/WBE Participants

Policy Statement

It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts

Bidders responding to this solicitation shall comply with the M/WBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	GUC	
	MBE	WBE
Construction This Goal includes Construction Manager at Risk	7%	4%

Bidders shall submit M/WBE information with their bids on the forms provided. This information will be subject to verification by GUC prior to contract award. As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or M/WBE members of joint ventures intended to satisfy GUC M/WBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only. Firms qualifying as "WBE" for GUC's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for GUC's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. A complete database of NC HUB certified firms may be found at http://www.doa.nc.gov/hun/. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillencmwbe.org. However, the HUB status of these firms must be verified by the HUB database. GUC shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all M/WBE vendors who wish to do business as a minority, or a female must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of M/WBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the M/WBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The M/WBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the GUC to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive <u>prior authorization</u>

from the GUC to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each M/WBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

be demonstrated.

The Bidders Shall Provide with the bid the following documentation:
☐ Identification of Minority/Women Business Participation (if participation is zero, please mark zero – Blank forms will be considered nonresponsive)
☐ Affidavit A (if subcontracting)
OR
☐ Identification of Minority/Women Business Participation (if participation is zero, please mark zero – Blank forms will be considered nonresponsive)
☐ Affidavit B (if self-performing; must attest that bidder does not customarily subcontract work on this type of project – includes supplies and materials)
Within 72 hours or 3 business days after notification of being the <u>apparent low bidder</u> who is subcontracting anything must provide the following information:
☐ Affidavit C (if aspirational goals are met or are exceeded)
OR
☐ Affidavit D (if aspirational goals are <u>not</u> met)
After award of contract and prior to issuance of notice to proceed:
☐ Letter(s) of Intent or Executed Contracts
**With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to M/WBE subcontractors.

***If a change is needed in M/WBE Participation, submit a Request to Change M/WBE Participation Form. Good Faith Efforts to substitute with another M/WBE contractor must

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the GUC for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the GUC that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the GUC whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the GUC will evaluate all efforts made by the Contractor and will determine compliance regarding quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I,(N	ame of Bidder)	,
do hereby certify that on this project, we will us enterprises as construction subcontractors, vend services	se the following minority/wo	
Firm Name, Address and Phone #	Work Type	M/WBE Category
*M/WBE categories: Black, African American American Indian (I), Female (F), Socially and I		
If you will not be utilizing M/WBE contracto	rs, please certify by enteri	ng "0"
The total value of MBE business contracting	will be (\$)	
The total value of WBE business contracting	will he (\$)	

Greenville Utilities Commission AFFIDAVIT A – Listing of Good Faith Efforts

County of
(Name of Bidder) Affidavit of
I have made a good faith effort to comply under the following areas checked:
Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)
\Box 1 – (10 pts) Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government-maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
\Box 2 – (10 pts) Made the construction plans, specifications and requirements available for review for review by prospective minority businesses or providing these documents to them at least 10 days before the bids are due.
\square 3 – (15 pts) Broken down or combined elements of work into economically feasible units to facilitate minority participation.
\Box 4 – (10 pts) Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
\Box 5 – (10 pts) Attended Prebid meetings scheduled by the public owner.
\Box 6 – (20 pts) Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
\Box 7 – (15 pts) Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
□ 8 – (25 pts) Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
\Box 9 – (20 pts) Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

\Box 10 – (20 pts) Provided quick pay agreements and policies to enable minority contractors and uppliers to meet cash-flow demands.
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d). Failure to abide by this statutory provision will constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.
Date: Name of Authorized Officer:
Signature:
Title:
State of, County of
SEAL Subscribed and sworn to before me this day of 20
Notary Public
My Commission expires

Greenville Utilities Commission - AFF Workforce	IDAVIT B - Inten	t to Perform Contract with Own
County of		
Affidavit of		
(1)	Name of Bidder)	
In making this certification, the Bidder state elements of this type of project, and norm will perform all elements of the work on the work of the wor	ally performs and ha	as the capability to perform and
The Bidder agrees to provide any addition owner in support of the above statement.	nal information or do	ocumentation requested by the
The undersigned hereby certifies that he obind the Bidder to the commitments herei		eertification and is authorized to
Date: Name of Authorize	ed Officer:	
	Signature:	
SEAL	Title:	
State of	, County of	
Subscribed and sworn to before me this _	day of	20
Notary Public	_	
My commission expires	_	

Greenville Utilities Commission – A by M/WBE Firms	FFIDAVIT C –	Portion of the Work to	be Performed
County of			
(Note this form is to be submitted or bidder.) If the portion of the work to be execut and the COG/GUC M/WBE Plan sec. contract price, then the bidder must co the apparent lowest responsible, respo	ed by M/WBE by III is equal to or omplete this affid	usinesses as defined in G greater than 11% of the b avit. This affidavit shall	S143-128.2(g) bidder's total be provided by
Affidavit of(Name of	of Bidder)	I do hereby cer	tify that on the
Project ID#		t of Bid <u>\$</u>	
I will expend a minimum of% business enterprises and a minimum o women business enterprises. Minority subcontractors, vendors, suppliers, or subcontracted to the following firms li	//women businesproviders of prof	ses will be employed a co	onstruction
Name and Phone Number	*M/WBE Category	Work Description	Dollar Value
*M/WBE categories: Black, African A			

American Indian (I), Female (F), Socially and Economically Disadvantaged (S), Disabled (D)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:	Name of Authorized Officer:			
	Signature:			
	Title:			
	State of, County of			
SEAL	Subscribed and sworn to before me this	day of	20	
	Notary Public			
	My commission expires			

Greenville Utilities Commission – AFFIDAVIT D – Good Faith Efforts County of (Note this form is to be submitted only by the apparent lowest responsible, responsive bidder) If the goal of 11% participation by minority/women business is not achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts: Affidavit of _____ I do hereby certify that on the (Name of Bidder) (Project Name) Project ID# _____ Amount of Bid \$ I will expend a minimum of ________% of the total dollar amount of the contract with minority business enterprises and a minimum of _% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed a construction subcontractors, vendors, suppliers, or providers of professional services. Such work will be subcontracted to the following firms listed below. *M/WBE Dollar Name and Phone Number Work Description

Category

Value

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

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible, responsive sub-bidder, copies of quotes received from all firms submitting quotes for that subcontract.

^{*}M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**), American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**S**), Disabled (**D**)

- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:	Name of Authorized Officer:			
	Signature:			
	Title:			
SEAL	State of, County of			
	Subscribed and sworn to before me this	day of	20	
	Notary Public			
	My commission expires			

LETTER OF INTENT M/WBE Subcontractor Performance

Please submit this form <u>or</u> executed subcontracts with M/WBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT:				
	(Project Name)			
TO:				
	of Prime Bidder/Arc	hitect)		
The undersigned intends to perform w	ork in connection with	h the above project	as a:	
Minority Business Enterprise		Women Business Enterprise		
The M/WBE status of the undersigned Businesses (required) Yes	•	C Office of Historic	cally Underutilized	
The Undersigned is prepared to perfor services in connection with the above		-	de materials or	
Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date	
	(Date)			
(Address)	(Address) (Name & Phone No. of M/WBE Firm)			
(Name & Title of Authorized Representative of M/WRE)	` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `		-	

REQUEST TO CHANGE M/WBE PARTICIPATION

Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project:	
Bidder or Prime Contractor:	
Name & Title of Authorized Repr	resentative:
Address:	Phone #:
	Email Address:
Total Contract Amount (includin	g approved change orders or amendments): \$
Name of Subcontractor:	
Good or service provided:	
Proposed Action:	
Replace subcontractorPerform work with own force	ees
For the above actions, you must proreason):	ovide one of the following reasons (Please check applicable
The listed MBE/WBE, after to execute a written contract.	having had a reasonable opportunity to do so, fails or refuses
The listed MBE/WBE is bar	
The listed MBW/WBE fails materials.	or refuses to perform his/her subcontract or furnish the listed
± • • • • • • • • • • • • • • • • • • •	listed subcontractor is unsatisfactory according to industry with the plans and specifications; or the subcontractor is the progress of the work.

If <u>replacing</u> subcontractor:	_
Name of replacement subcontractor:	
The M/WBE status of the contractor is certified by the NC Businesses (required) Yes No	Office of Historically Underutilized
Dollar amount of original contract \$	_
Dollar amount of amended contract \$	-
Other Proposed Action:	
Increase total dollar amount of work Decrease total dollar amount of work	Add additional subcontractor Other
Please describe reason for requested action:	
If adding* additional subcontractor The M/WBE status of the contractor is certified by the NC Businesses (required) Yes No Please attach Letter of Intent or executed contract document Dollar amount of original contract \$ Dollar amount of amended contract \$	nt
	Interoffice Use Only:
	Approval Y N
	Date
	Signature

Proof of Payment CertificationM/WBE Contractors, Suppliers, Service Providers

Project Name:			Pay Appli	cation No
Prime Contractor:			Purchase C	Order No
Current Contract Amoun	t (including c	hange orders): \$		
Requested Payment Amo	ount for this P	eriod: \$		
Is this the final payment?	Yes	No		
Firm Name	*M/WBE Category	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining
*M/WBE categories: Bla American Indian (I), Fen				
Date:		Certifie	ed By:	
			Nar	ne
			Titl	e
			Sig	nature

PROPOSED PROJECT MANAGEMENT STAFF

Terms and Conditions – Item 24

Title/Function	Name	Years with	Total Years
		Firm	Experience
Project Manager			
Site Superintendent			
General Foreman - Foundations			

CONTRACTOR HAS \square DOES NOT HAVE \square SIXTY PERCENT (60%) OF PROPOSED WORK FORCE WITH FIVE (5) YEARS CONTINUOUS SERVICE WITH BIDDER'S FIRM

REFERENCES

Terms and Conditions – Item 25

CONTACT INFORMATION FOR RECENT SIMILAR PROJECTS

Owner Name	Project Description	Contact Name and Phone Number

LIST OF SUBCONTRACTORS

Terms and Conditions – Item 27

SUBCONTRACTOR	PROPOSED WORK TO BE PERFORMED

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.	s part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I m aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of e 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	
	bI employ less than twenty-five (25) employees in the State of North Carolina.	
3.	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	
	bEmploy less than twenty-five (25) employees in the State of North Carolina.	
Sp	ecify 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 CERT REQUIRED BY N.C.G.S. 143C-6A	
	dor or bidder listed above is not listed on the Final te Treasurer pursuant to N.C.G.S. 143-6A-4.
The undersigned hereby certifies the above to make the foregoing staten	hat he or she is authorized by the vendor or bidder listed nent.
Signature	Date
Printed Name	Title

BID BOND

KNOW ALL MEN BY THESE PRESENT	T, THAT V	VE		
as Principal, and				
as Surety, who is duly licensed to act as Sur the <u>Greenville Utilities Commission</u> , <u>Green</u>	<u>ville, NC,</u>	as Obligee, in t	he penal sum of	
lawful money of the United States of Amer made, we bind ourselves, our heirs, adminis firmly by these present.	rica, for the	e payment of wh	nich, well and truly to	be
SIGNED, Sealed and dated this		day of	, 2025.	
WHEREAS, the said Princip	oal is herev	vith submitting	a Proposal for	
RELOCATION OF 12 kV AND 34.5 kV	V DISTRI FAR ROA		UCTURES ALONG	OLD
and the Principal desires to file this Bid Botthe bidding documents contained herein;	nd in Lieu	of making the	eash deposit as require	ed by
NOW, THEREFORE, THE CONDITION of principal shall be awarded the Purchase Order Purchase Order within ten (10) days after the shall be null and void; but if the principal fathe bidding documents contained herein, the Obligee the amount set forth in the first par such payment, the Surety shall pay the Obligend as set forth in the first paragraph here in-Fact is attached hereto.	der for whe award cails to so a see Surety seagraph he	ich the bid is su of same to the procept such purchall, upon dema reof, and upon fount equal to de	bmitted and shall acc incipal, then this obli hase order as required and, forthwith pay to the ailure to forthwith man buble the amount of the	ept the gation d by he ake his Bid
		P	rincipal	
	Ву		(S	EAL)
		C	orporate Surety	
	Ву		(S	EAL)

PERFORMANCE BOND/PAYMENT BOND

Date of Execution:	
Name of Principal:	
(Contractor)	
Name of Surety:	
Name of Contracting	
Body:	
Amount of Bond:	
Project:	

KNOW ALL THESE MEN BY THESE PRESENT, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these present.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these present duly signed by its undersigned representative, pursuant to authority of its governing body.

Witness: CONTRACTOR: (Proprietorship or Partnership) (Trade or Corporate Name) ATTEST: By: _____ Title: Title: (Corporate Secretary or Assistant Secretary Only) (CORPORATE SEAL) Witness: SURETY COMPANY: Countersigned: By: _____ Title: (Attorney-in-Fact) N.C. Licensed Resident Agent (Name and Address – Surety Agent) (SURETY SEAL) Surety Company Name and N.C. Regional or Branch Office Address

Executed in five (5) counterparts.

SPACE FOR ATTACHING POWER OF ATTORNEY (Performance Bond)

SECTION II

TERMS AND CONDITIONS FOR THE PURCHASE OF APPARATUS, SUPPLIES, MATERIALS, LABOR AND EQUIPMENT

These Terms and Conditions, made	le and entered into on this the day of
, by and between GREENVILLE	E UTILITIES COMMISSION OF THE CITY OF
GREENVILLE, PITT COUNTY, NORTH C	CAROLINA, with one of its principal offices and
places of business at 401 S. Greene Stree	et, Post Office Box 1847, Greenville, Pitt
County, North Carolina 27835-1847, here	einafter referred to as "GUC" and
	, a organized and existing under
and by virtue of the laws of the State of	, with one of its principal
offices and places of business at	, hereinafter
referred to as "PROVIDER";	

1.0 TAXES

No taxes shall be included in any bid prices. GUC is exempt from Federal Excise Tax. GUC is not exempt from North Carolina state sales and use tax or, if applicable, Pitt County sales and use tax. Such taxes shall be shown as a separate item on the invoice.

2.0 INVOICES

It is understood and agreed that orders will be shipped at the established contract prices and quantities in effect on dates orders are placed. Invoicing at variance with this provision may subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate line item. All invoices must bear the GUC purchase order number. Mail all invoices to Greenville Utilities Commission, Finance Department, P. O. Box 1847, Greenville, NC 27835-1847.

3.0 PAYMENT TERMS

Payments for equipment, materials, or supplies will be made after the receipt and acceptance of the equipment, materials, supplies or services and after submission of a proper invoice. GUC's normal payment policy is thirty (30) days. GUC will not be responsible for any goods delivered without a purchase order having been issued. Payment will be made in U. S. currency only.

4.0 QUANTITIES

Quantities specified are only estimates of GUC's requirements. GUC reserves the right to purchase more or less than the stated quantities at prices indicated in the submitted Proposal Form based on our actual needs.

5.0 AFFIRMATIVE ACTION

The Provider will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without discrimination by reason of race, color, religion, sex, national origin, or physical handicap.

6.0 CONDITION AND PACKAGING

Unless otherwise indicated in the bid, it is understood and agreed that any item offered or shipped shall be new and in first class condition, that all containers shall be new and suitable for storage or shipment, and that prices include standard commercial packaging.

7.0 <u>SAMPLES</u>

Samples of items, if required, must be furnished free of expense to GUC, and if not destroyed, will, upon request, be returned at the Provider's expense. Request for the return of samples must be made at the bid opening, otherwise, the samples will become GUC's property. Each individual sample must be labeled with Provider's name.

8.0 SPECIFICATIONS

Any deviation from specifications must be clearly pointed out, otherwise, it will be considered that items offered are in strict compliance with specifications, and the Provider will be held responsible. Deviations must be explained in detail. The Provider shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.

9.0 INFORMATION AND DESCRIPTIVE LITERATURE

Providers are to furnish all information requested. Further, as may be specified elsewhere, each Provider must submit with its proposal: cuts, sketches, descriptive literature, and/or complete specifications covering the products offered. Reference to literature submitted with a previous bid does not satisfy this provision. Bids which do not comply with these requirements will be subject to rejection.

10.0 AWARD OF CONTRACT

As directed by statute, qualified bids will be evaluated and acceptance made of the lowest responsible, responsive bid most advantageous to GUC as determined upon consideration of such factors as prices offered, the quality of the article(s) offered, the general reputation and

performance capabilities of the Provider, substantial conformity with the specifications and other conditions set forth in the bid, the suitability of the article(s) for the intended use, the related services needed, the date(s) of delivery and performance, and such other factors deemed by GUC to be pertinent or peculiar to the purchase in question.

Acceptance of the order includes acceptance of all terms, conditions, prices, delivery instructions, and specifications as shown on this set of Terms and Conditions and in this order or attached to and made a part of this order.

The conditions of this order cannot be modified except by written amendment in the form of "Amended Purchase Order," which has been approved by GUC's Procurement Manager.

In the event of a Provider's failure to deliver or perform as specified, GUC reserves the right to cancel the order or any part thereof, without prejudice to GUC's other rights. The Provider agrees that GUC may return part of or all of any shipment at Provider's expense. GUC may charge the Provider with all reasonable expenses resulting from such failure to deliver or perform.

11.0 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.

12.0 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 Provider to notify the GUC Procurement Manager, 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.

13.0 <u>INSURANCE</u>

- 13.1 Coverage During the term of the contract, the Provider at its sole cost and expense shall provide commercial insurance of such type and with the following coverage and limits:
 - 13.1.1 Workers' Compensation The Provider shall provide and maintain Workers' Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of \$1,000,000 each accident, covering all Provider's employees who are engaged in any work under the contract. If any work is sublet, the Provider shall require the subcontractor to provide the same coverage for any of its employees engaged in any work under the contract.
 - **13.1.2 General Liability** Commercial Liability Coverage written on an "occurrence" basis in the minimum amount of \$1,000,000 per occurrence.
 - **13.1.3 Automobile** Automobile Liability Insurance, to include coverage for all owned, hired, and non-owned vehicles used in connection with the contract with a minimum combined single limit of \$1,000,000 per accident.
 - **13.1.4** Cyber –The Vendor shall maintain Cyber Liability Insurance with limits of \$3,000,000 per occurrence, providing protection against liability for: (1) privacy breaches (including liability arising from the loss or disclosure of confidential information no matter how it occurs); (2) system breach; (3)

denial or loss of service; (4) introduction, implantation, or spread of malicious software code; and (5) unauthorized access to or use of computer systems. Cyber Liability Insurance shall not include any exclusion or restriction for unencrypted portable devices or other media. Vendor shall provide evidence of continuation or renewal for a period of two (2) years following termination of the Agreement.

13.2 Requirements - Providing and maintaining adequate insurance coverage is a material obligation of the Provider. 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 to do business in North Carolina by the Commissioner of Insurance. The Provider shall at all times comply with the terms of such insurance policies and all requirements of the insurer under any of 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 Provider shall not be interpreted as limiting the Provider's liability and obligations under the contract. It is agreed that the coverage as stated 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's Procurement Manager.

14.0 PATENTS AND COPYRIGHTS

The Provider 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.

15.0 PATENT AND COPYRIGHT INDEMNITY

The Provider 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 Provider shall be notified promptly in writing by GUC of any such claim; (2) that Provider 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 Provider 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 Provider or from the use of combination of products provided by the Provider with products provided by GUC or by others; and (5) should such product(s) become, or in the

Provider's opinion likely to become, the subject of such claim of infringement, then GUC shall permit Provider, at Provider'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.

16.0 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 Provider'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 Provider may be grounds for rejection of the Provider's proposal. The Provider 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.

17.0 <u>CONFIDENTIAL INFORMATION</u>

Except as provided by statute and rule of law, GUC will keep trade secrets which the Provider does not wish disclosed confidential. Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL" by the Provider. Cost information shall not be deemed confidential. The determination of whether a matter is confidential will be determined by North Carolina law.

18.0 <u>ASSIGNMENT</u>

No assignment of the Provider's obligations or the Provider'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 Procurement Manager, solely as a convenience to the Provider, GUC may:

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

19.0 ACCESS TO PERSON AND RECORDS

GUC shall have reasonable access to persons and records of Provider as a result of all contracts entered into by GUC.

20.0 INSPECTION AT BIDDER'S SITE

GUC reserves the right to inspect, at a reasonable time, the item, plant, or other facilities of a prospective Provider prior to contract award and during the contract term as necessary for GUC's determination that such item, plant, or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract. Provider may limit GUC's access to restricted areas.

21.0 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.

22.0 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.

23.0 ADMINISTRATIVE CODE

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

24.0 EXECUTION

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

25.0 <u>CLARIFICATIONS/INTERPRETATIONS</u>

Any and all questions regarding these Terms and Conditions must be addressed to the GUC Procurement Manager. 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 Provider and the GUC Procurement Manager.

26.0 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.

27.0 TERMINATION OF AGREEMENT

GUC or Provider may terminate this Agreement for just cause at any time. Provider 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) Provider's persistent failure to perform in accordance with the Terms and Conditions, (2) Provider's disregard of laws and regulations related to this transaction, and/or (3) Provider's substantial violation of the provisions of the Terms and Conditions.

28.0 DELIVERY

Shipments will be made only upon releases from a purchase order issued by GUC in accordance with GUC's current needs.

Time is of the essence with respect to all deliveries under this Agreement.

Delivery of all equipment, materials, or supplies shall be made Free on Board (FOB) GUC Warehouse, 701 Utility Way, Greenville, North Carolina 27834, unless otherwise specified. The agreed price for such equipment, materials, or supplies shall include all costs of delivery and ownership, and risks of loss shall not be transferred from Provider to GUC until express written acceptance of delivery and inspection by GUC. Delivery hours are between 8:00 AM and 4:30 PM Monday-Friday only. GUC's purchase order number is to be shown on the packing slip or any related documents. GUC reserves the right to refuse or return any delivery with no purchase order number or which is damaged. GUC will not be charged a restocking fee for any delivery which is refused or returned.

29.0 <u>INDEMNITY PROVISION</u>

Provider agrees to indemnify and save GREENVILLE UTILITIES COMMISSION 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 losses, claims, actions, costs, expenses including reasonable attorney fees, judgments, subrogations, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to property of whatsoever nature of any person arising out of or incident to the performance of the terms of this Contract by Provider, including, but not limited to, Provider's employees, agents, subcontractors, and others designated by Provider to perform work or services in, about, or attendant to, the work and services under the terms of this Contract. Provider shall not be held responsible for any losses, expenses, claims, subrogations, actions, costs, judgments, or other damages, directly, solely, 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 the Provider 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 Provider.

30.0 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.

31.0 WARRANTY(IES)

The Provider hereby includes all warranties, whether expressed or implied, including, but not limited to, the Implied Warranty of Merchantability and the Implied Warranty of Fitness for a Particular Purpose.

32.0 INTEGRATED CONTRACT

These Terms and Conditions, Instructions to Bidders, Specifications, and the selected Provider'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.

33.0 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.

34.0 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.

35.0 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.

36.0 UNIFORM GUIDANCE

Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

37.0 <u>SAFETY STATEMENTS</u>

Safety Culture Commitment Statement:

At Greenville Utilities, we are committed to a culture of safety that prioritizes the wellbeing of our employees, contractors, and the communities we serve.

We believe that everyone deserves to work in a safe environment, and we are dedicated to fostering a culture where **safety is a core value**, **not just a priority**.

Here's what that means to us:

• Employee and Contractor Safety: We are committed to providing a safe work environment for all employees and contractors. We will invest in safety training, resources, and equipment to prevent accidents and injuries.

- **Open Communication:** We encourage open and honest communication about safety concerns. We believe everyone has a right and responsibility to speak up about unsafe work practices and potential hazards.
- **Continuous Improvement:** We are committed to continuous improvement in safety performance. We will learn from incidents and near misses, and we will actively seek ways to improve our safety processes and procedures.
- Accountability: We hold ourselves and our contractors accountable for safe work practices. This includes providing clear safety expectations, enforcing safety rules, and recognizing safe behavior.
- Collaboration: We believe in working collaboratively with employees, contractors, and regulatory agencies to achieve the highest level of safety.

Our commitment to safety extends beyond our employees. We work closely with our contractors to ensure they share our safety values. We expect them to implement robust safety programs, train their workers thoroughly, and adhere to all safety regulations. We are confident that by working together, we can create a culture of safety where everyone goes home safe and healthy every day.

This commitment statement is a public declaration of our unwavering dedication to safety. We will continue to strive for zero incidents while promoting a positive safety culture that prioritizes the well-being of everyone involved in our utility operations.

Safety Management System Commitment Statement:

At Greenville Utilities, we are unwavering in our commitment to delivering safe and reliable utility service through a robust Safety Management System (SMS). This system forms the foundation of our safety culture, ensuring the well-being of our employees, contractors, and the communities we serve.

Our SMS commitment emphasizes:

- **Zero Incidents:** We believe all incidents are preventable. We strive for zero incidents by proactively managing risks and continuously improving our safety practices.
- **Empowered Workforce:** We foster a culture where safety is everyone's responsibility. This includes providing comprehensive safety training for both employees and contractors, empowering them to identify and report hazards.

- **Data-Driven Decisions:** We utilize data from inspections, incident investigations, and performance metrics to make informed decisions for risk mitigation and continuous improvement of our SMS.
- **Leadership Engagement:** Our leadership team actively demonstrates a commitment to safety by participating in safety reviews, audits, and promoting safety as a core value.
- Contractor Collaboration: We extend our safety commitment to our contractors. We require contractors working on our system to adhere to SMS principles, participate in safety briefings, and maintain strong safety programs within their own organizations.
- **Transparent Communication:** We believe in open communication about safety. We encourage employees and contractors to report concerns without fear of reprisal. We also maintain transparent communication with stakeholders about SMS performance.

This SMS commitment is a continuous journey, not a destination. We are dedicated to regularly reviewing and updating our system to reflect best practices and emerging technologies. Through continuous improvement and a commitment to a positive safety culture, we aim to remain an industry leader in safe and reliable utility service.

38.0 <u>INFORMATION TECHNOLOGY</u>

All Contracts are subject to Greenville Utilities Commission Information Technology Contract Provisions. These may be viewed at www.guc.com/doing-business-us.

39.0 NOTICES

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

Cleve Haddock, Lifetime CLGPO Procurement Manager Greenville Utilities Commission P.O. Box 1847 Greenville, NC 27835-1847

Vendor Specified on Page 1 of Section III when awarded.

SECTION III

GREENVILLE UTILITIES COMMISSION

TECHNICAL SPECIFICATIONS—INSTALLATION SPECIFICATIONS

NOVEMBER 25, 2025

1. SCOPE OF WORK

This specification defines the requirements for the installation, removal, transfer, and handling of electric utility infrastructure along Old Tar Road, including all labor, equipment, and materials necessary to complete the project.

1.1. Work Included

- 1.1.1. Construction of a new 12.72 kV and 34.5 kV distribution line adjacent to the existing line to accommodate NCDOT road widening.
- 1.1.2. Installation and removal of 120 distribution structures, 56,000 feet of primary overhead conductor, 6,000 feet of primary underground conductor, and installation of 24 bollards.
- 1.1.3. Transfer or replacement of all poles, equipment, primary and secondary conductors, and related hardware as depicted on the Detail Construction Drawings.

NOTE: Greenville Utilities Commission (GUC) will provide all materials necessary for the project. Contractor proposals shall include all labor, equipment, and incidental items required to complete the work.

1.2. Estimated Conductor Quantities

Conductor Type	Approx. Length (Linear Feet Per Phase)	Conductor Size
Primary Overhead	18,450	795 AAC
	35,850	336 ACSR
	20,300	1/0 ACSR
Primary Underground	600	750 AL
	5,500	1/0 AWG Aluminum

1.3. Work Sequence Requirement and Location:

- 1.3.1. Start Point: Double circuit corridor between Worthington Road and Old Tar Road intersection and Vernon White Road and Old Tar Road Intersection.
- 1.3.2. Complete double-circuit relocations between Vernon White Road and Worthington Road (see Detail Construction Drawings 4-8).
- 1.3.3. Begin single-circuit relocations between Vernon White Road and E. Fire Tower Road only after all relocations along the double-circuit corridor between Vernon White Road and Worthington Road are complete.

1.4. Parcel with Outstanding Easements

1.4.1. Parcels with outstanding easements will not be available for construction until verbal or written authorization is issued by the Owner or its representative Engineer. These parcels are identified in red on the Detail Construction Drawings #10, and #11: parcel identification numbers are 44 and 101.

1.4.2. Contractor Responsibilities

- 1.4.2.1. Verify all materials provided by GUC before installation.
- 1.4.2.2. Verify nails in the field before setting poles. Poles shall be placed on the nail as shown in the plans. Deviations without prior engineering approval shall be corrected at the Contractor's expense.
- 1.4.2.3. Provide 3 weeks' notice for switching. Prolonged switching shall not be permitted. Temporary mechanical jumpers shall not be used for long term construction. Contractor will be responsible for assisting with switching procedures, this includes but is not limited to removing/installing jumpers, installing/removing floaters, operating switches, using load break mechanicals, and installing mechanicals. Delays in switching shall not be considered valid reasons to request a change order.
- 1.4.2.4. Coordinate with GUC, GUC Representatives, and DOT as required.

- 1.4.2.5. Ensure all installations, removals, and transfers of poles, pedestals, cabinets, conductors, and hardware replacements, are complete.
- 1.4.2.6. Follow the sequence of double and single circuit relocations.
- 1.4.2.7. Follow special provision ensuring loads are transferred and cutovers are performed as work progresses.
- 1.4.2.8. Minimize facility exposure of temporary construction unless approved by engineering.
- 1.4.2.9. Maintain compliance with all applicable safety, regulatory, and industry standards.
- 1.4.2.10. Maintain compliance with all NCDOT-established working hours, lane closure restrictions, and traffic control requirements.
- 1.4.2.11. Include all labor, equipment, and incidental items in the proposal.

2. GENERAL

- 2.1. These specifications provide for the construction of overhead and underground distribution power facilities as specified by the owner. The owner is defined as the organization contracting for the services.
- 2.2. It is the responsibility of the owner to ensure that all construction work shall be accomplished in a thorough and workmanship manner in accordance with the staking sheets, plans and specifications, and the construction drawings.
- 2.3. If construction work is performed by the Owner's force labor account crews instead of a contractor, any reference to "Contractor" in the narrative portions or drawings of this specification shall also apply to the force labor account crews.
- 2.4. The provisions of 7 CFR 1724.50, Compliance with National Electrical Safety Code (NESC) applies to all borrower electric system facilities regardless of the source of financing.
 - 2.4.1. The owner shall ensure that its electric system, including all electric distribution, transmission, and generating facilities, is designed, constructed, operated, and maintained in accordance with all applicable provisions of the most current and accepted criteria of the NESC and all applicable and current electrical and safety requirements of any State or local government entity in which they serve.

- 2.4.2. Any electrical standard requirement established by GUC are in addition to, and not in substitution for or a modification of, the most current and accepted criteria of the NESC and any applicable electrical or safety requirement of any State or local governmental entity.
- 2.5. All work shall be done in a thorough and workmanlike manner to produce a complete and functional system with minimal interruption to customers served by existing facilities.

3. CODES AND STANDARDS

- 3.1. Codes, standards, or other documents referred to in this specification shall be considered as part of this specification. The following codes and standards are referenced:
- 3.2. American Institute of Steel Construction (AISC), <u>Specification for the Design</u>, Fabrication and Erection of Structural Steel for Buildings, latest edition.
- 3.3. American Society of Civil Engineers (ASCE) Standard, <u>Design of Steel</u>

 <u>Transmission Pole Structures</u>, Manual 48, latest edition.
- 3.4. American Society for Testing and Materials (ASTM), various standards, latest version.
- 3.5. American Concrete Institute (ACI), <u>Building Code Requirements for Reinforced</u> <u>Concrete</u>, ACI 318, latest edition.
- 3.6. American Welding Society (AWS), <u>Structural Welding Code</u>, AWS D1.1, latest edition.
- 3.7. American National Standards Institute (ANSI), *National Electrical Safety Code*, ANSI C2, latest edition.
- 3.8. Society for Protective Coatings (SSPC, formerly Steel Structure Painting Council), Surface Preparation Specification, SSPC SP6/NACE NO.3, latest edition.

4. REMOVALS

- 4.1. Removals shall consist of removing each and every item designated on the drawings, the disassembling of structures into material items, and the transportation of the items from the site of the work to the storage area designated by the Commission. Conductor removal shall include the coiling or reeling of the conductor removed in a workmanlike manner.
- 4.2. Poles with telecommunication attachments shall be topped at the highest attachment. Poles without telecommunication attachments shall be removed.

- 4.3. Conductor removal shall include the coiling or reeling of the conductor removed in a workmanlike manner.
- 4.4. Anchor assemblies shall be removed by removing the anchor rod only. If the anchor rod cannot be unscrewed, the rod must be cut or bent down so as to be a minimum of eighteen inches (18") below the ground line. Screw-type anchors shall be completely removed.
- 4.5. The removal shall include any necessary handling, re-sagging, and retying of conductors in those cases where an existing assembly unit will be removed and replaced by a new assembly unit and where any existing conductor is to be retained. Removal will also include any holding or handling of main line or tap conductors at tap lines, angles, and deadends where such is involved and the reinstalling of such conductor, including re-sagging and reconnection. It shall also include reinstalling any conductors temporarily detached.
- 4.6. The Contractor shall reinstall, at his own expense, any other items removed by him for his own convenience.
- 4.7. Wood poles shall be cut into sections no longer than 45 feet in length and transported to the wood pole disposal area designated by the Commission.
- 4.8. All materials removed as part of the work and not specified to be reused will remain the property of the Commission.

5. TRANSFERRING

- 5.1. Transferring shall consist of disconnecting existing material and reinstalling this material in a different location on the same structure or a new structure, provided the new structure is adjacent to the existing structure.
- 5.2. The transfer shall include any necessary handling, re-sagging, and retying of all conductors in those cases where an existing assembly unit will be removed and replaced by a new assembly unit and where any existing conductor is to be retained. Transfer will also include any holding or handling of all conductors at tap lines, angles, and deadends where such is involved and the reinstalling of such conductor, including re-sagging and reconnection. It shall also include reinstalling any conductors temporarily detached.
- 5.3. Contractor will be responsible for all service transfers.

6. POLES-WOOD AND/OR TUBULAR STEEL

6.1. <u>Inspection</u>

- 6.1.1. All main-line distribution poles will be wood.
- 6.1.2. The Contractor shall not install a pole that, in his opinion, or the opinion of the Commission or Engineer, has been damaged or is otherwise unsafe. The Contractor shall promptly report any damaged or questionable pole or other component to the Commission and Engineer and confirm the report in writing.

6.2. Handling and Storage

- 6.2.1. The Contractor will be responsible for any damage to the poles and arms resulting from his handling, transporting, or storing procedures.
- 6.2.2. Poles and structural members' arms shall not be stored directly on the ground. Stored poles and arms shall be elevated from the ground using wood or other suitable non-abrasive blocking. Poles are to be stored with identification marks clearly visible.

6.3. Lifting and Setting

6.3.1. All poles shall be lifted in accordance with such precaution required to eliminate the possibility of bending or overstressing any section. Nylon slings shall be used to avoid damage to pole finish. During lifting, all flexible components shall be restrained to prevent any damage to insulators or pole finish.

6.3.2. The minimum setting depths shall be as follows:

Pole Length	Setting
(Feet)	Depth (Feet)
30	5.5
35	6.0
40	6.0
45	6.5
50	7.0
55	7.5
60	8.0
65	8.5
70	9.0
75	9.5
80	10.0
85	10.5
90	11.0
95	11.5

Additional embedment may be required for some construction units

- 6.3.3. On sloping ground, the depth of the hole shall always be measured from the low side of the hole.
- 6.3.4. Holes shall be approximately eight inches (8") larger than the butt diameter of the pole unless noted otherwise and shall be at least as large at the bottom as at the top.
- All poles shall be set plumb and in alignment except at line angle points. At line angles where horizontal post insulators are stacked on one side of the pole or suspension insulator construction is used, poles shall be offset on the bisector of the angle so that conductors will hang directly over the point of intersection in line with the tangent in both directions. All poles shall be plumb after conductors are strung. Where poles are set along the edge of cuts or embankments, or where the soil is liable to be washed out, special precautions shall be taken to ensure durable foundations and the setting depth shall be measured from the lower side of the hole.

6.4. Excavation and Backfill

6.4.1. <u>Unsuitable Material</u>: The Contractor shall excavate for the foundation to the dimensions and outline shown on the Drawings. Excavated material which conforms to the Specifications for backfill material may be used for

- this purpose. Materials which are not suitable for backfill and excess material shall be disposed of as directed by the Commission or Engineer.
- 6.4.2. <u>Excavation Classification</u>: All excavation will be classified as "common excavation." All excavation including soft shale, gravel, or other material which can be removed by hand or machine is defined as common excavation.
- 6.4.3. Excavation Preparation: Excavation in earth shall be to clean level surfaces of undisturbed material of adequate bearing value. Overexcavation shall be backfilled with well compacted six-inch (6") layers of aggregate base course (ABC) gravel. If the over-excavation is unnecessary, the cost of the backfill shall be borne by the Contractor. The quality of the soil and the adequacy of its bearing value shall be decided by the Engineer before backfill material is placed in any excavation. Where water is encountered, the excavation shall be kept dry by pumping during the installation of the structure and during the backfilling process. If unsuitable material is encountered at the proposed bearing surface, the Engineer may require further excavation to reach sound bearing. Backfill labor and material for this type of required over-excavation will be supplied at the Contractor's expense and should be included in the Unit Price for "M-2 (Stone Backfill)" in the Proposal Section. The Contractor will be paid on a per cubic yard unit basis.
- 6.4.4. <u>Gravel Base</u>: The stone or gravel base cited in Section 6.4.3 shall consist of a mixture of graded aggregate, coarse and fine, together with soil binder. The coarse aggregate shall consist of sound, tough, durable particles or fragments of gravel or stone. The material shall be placed in six-inch (6") layers and thoroughly compacted. A gravel base shall be formed before pole is placed in the excavated hole.
- 6.4.5. Excavation Maintenance: The excavation shall be maintained in a safe, clean and sound condition up to the time of placement of pole. The excavation shall be suitably protected when not attended. Whenever necessary, the Contractor shall re-excavate materials which have accumulated in the previously prepared excavation. Any muck or other unsatisfactory bearing material resulting from frost action or entrance of water into excavation previously prepared to the required depth for sound bearing shall be removed and replaced with well compacted ABC gravel backfill at the Contractor's expense.

- 6.4.6. <u>Sheeting and Shoring</u>: The Contractor shall do all bracing, sheeting, and shoring necessary to support and protect all excavations as required for safety and to conform to laws and regulations of all governmental bodies having jurisdiction. When sheeting is used, it shall be removed during or upon completion of backfilling.
- 6.4.7. Backfill: All backfill around the pole base shall be compacted in six-inch (6") layers by means of mechanical tampers. Excavated material is suitable for backfill, the Contractor shall at his expense spread and aerate the material around the structure after the excavation has been completely backfilled with the specified material. The surplus earth shall be placed around the pole in a conical shape and packed tightly in order that water will drain away from the pole. The degree of compaction to be attained for all backfill shall be the equivalent density of adjacent undisturbed earth. Large stones, muck, frozen material, roots, or other undesirable material shall not be used for backfilling. This material, furnished by the Contractor, shall be locally available and when placed and compacted in six-inch (6") layers will bind and compact around the foundation. Sources of this material shall be approved by the Engineer.

6.5. Holes in Pole

6.5.1. The Contractor will be responsible for field drilling distribution, fiber attachments, or any other holes required for construction (see drawings for details). Cost for drilling these holes shall be part of the pole top assembly unit. In no instances will additional charges be paid for drilling holes.

7. ROCK ENCOUNTERED DURING EXCAVATIONS

- 7.1. The Contractor shall be responsible for the removal and disposition of solid rock when encountered in holes for wood poles and tubular steel poles. Solid rock shall be defined as solid, naturally occurring mineral formations that cannot be effectively removed by conventional trenchers, backhoes, or pressure augers on line-trucks. Loose rock or limestone in intermittent layers that result in "difficult digging" shall not be defined as solid rock excavations. "Solid rock" shall require the use of air hammers, blasting or other specialized equipment. (Note: Blasting must be approved by the Commission in accordance with local ordinances.)
- 7.2. An adder (M-1 (Rockhole)) will be quoted by the Bidder in the Proposal Section to establish a labor cost for rock excavations, including disposition to the Commission's landfill, on a per- cubic-yard basis. Quantities will be agreed upon

jointly by the Contractor and the Commission (or Engineer) as the excavations occur. Over excavation to remove rock will not be counted in the quantity of rock excavations. The volume of rock excavation adder will be computed based on the normal pole hole diameter and depth, as if no rock were encountered. Rock adders will not apply to man-made surface treatments, such as asphalt, concrete or gravel.

8. DAVIT ARMS (not applicable to this project)

8.1. Davit arms are being used on some structures for this project. The arms and all attachment hardware are being supplied by the steel pole manufacturer. It will be the Contractor's responsibility to install the davit arms and ensure proper orientation of the arms.

9. GUYS AND ANCHORS

- 9.1. Guys shall be attachment type utilizing preformed guy grips or Strandvises. Guys shall be installed in locations specified by the Engineer. Points of attachment to poles shall be as shown on Construction Drawings. Guys shall be installed before conductors or overhead ground wires are strung.
- 9.2. All anchors and rods shall be in line with the strain. All anchors are to be single or multiple helix screw type or expanding rock type and shall be located as staked by the Engineer. Anchor rods shall be so installed that approximately six inches (6") of the rod shall remain out of the ground or extend more than twelve inches (12") out of the ground in cultivated fields. The setting of each anchor in regard to depth, torque, and position shall be inspected by the Commission's Construction representative and his approval given in writing. The Contractor shall fill out anchor installation reports, furnished by the Engineer, as each anchor is installed. No anchor installations shall be invoiced without copies of the installation reports properly filled out and attached.
- 9.3. All anchors shall be installed using a Hydraulic Torque Indicator control tool. Expanding rock type anchors shall be installed and torqued per manufacturer's recommendations.
- 9.4. Anchor locations shall be checked and verified by the Contractor prior to installation to assure that guys do not conflict with phase conductors. This is especially critical when transmission guying passes through distribution phase positions. Where fiberglass guy strain insulators are installed in guys, a minimum of ten inches (10") must be maintained to any under-build phase conductors.
- 9.5. Where multiple fiberglass guy strain insulators are to be installed, in one (1) guy strand, they shall be connected using a chain link of the appropriate size.

10. HARDWARE

- 10.1. Hardware shall be installed as indicated on the Drawings. All bolts shall be installed with nuts and locknuts. Bolts shall be long enough to accommodate the necessary nuts, washers, etc. without projecting more than one and one-half inches (1-1/2") or less than one-half inch (1/2") at the free end. They shall not project more than one-fourth inch (1/4") into an eye-nut installed.
- 10.2. Care should be exercised during all phases of construction to protect all bolt threads. Nuts should operate on bolt threads without forcing.

11. INSULATORS

- 11.1. Care shall be exercised in handling and erecting insulators.
- 11.2. All insulators shall be handled with utmost care during storage, transportation, assembly, and installation. Care shall be taken to avoid bending stresses in insulator strings during handling. Insulators shall not be dropped. Insulators subjected to these or any other abuses or damage shall be permanently marked, rejected from the job and charged to the Contractor.
- 11.3. All insulators shall be protected from the accumulation of all foreign materials insofar as is possible. Mud, grease, and other foreign materials shall be cleaned from insulators using clean rags. Wire brushes may <u>not</u> be used for the cleaning of any insulator parts. Upon installation, all insulators shall be clean on all surfaces. Workmen shall not climb on insulators at any time.

12. GROUNDING ASSEMBLY

12.1. Wood Poles

- 12.1.1. Driven ground rods (DM-9) shall be installed on all wood distribution poles as indicated on the Staking Sheets.
- 12.1.2. Refer to the following drawing for the grounding of wood distribution poles: DM-9
- 12.2. Where transmission and distribution assemblies are joint use structures, a common ground shall be shared. For wood poles, the common ground will be a ground wire. For steel poles, the common ground will be the pole itself.
- 12.3. Guys and overhead ground wires shall be attached to the common ground.
- 12.4. The distribution neutral shall be attached to the common ground.

- 12.5. Ground rods shall be driven to their full length into undisturbed earth according to the unit assembly drawings. The top of the ground rod shall be located a minimum of one foot (1'-0") below grade or as indicated otherwise on the Assembly Drawings.
- 12.6. Ground rods shall be 1-5/8" x 8'-0" and 1-5/8" x 12'-0" Copper. Extensions (DM-9) shall be added if necessary, to obtain a verifiable ground resistance of twenty-five (25) ohms or less.
- 12.7. Ground wire for distribution poles shall be No.4 AWG soft drawn tinned copper wire.

13. CONDUCTORS

13.1. Distribution Conductors

- 13.1.1. Care shall be exercised to avoid kinking, twisting, or abrading the conductor in any manner. Conductors shall not be trampled on, run over by vehicles, or dragged over sharp rocks. The wire on each reel shall be inspected for cuts, kinks, or other injuries. Injured portions or crooked or imperfect splices in the conductor shall be cut out and the wire respliced.
- 13.1.2. Conductors shall be pulled over suitable rollers or stringing blocks properly mounted on the pole or crossarm to prevent binding while stringing.
- 13.1.3. Installation of conductors and accessories shall be done in accordance with manufacturer's recommendations.
- 13.1.4. With post- and pin-type insulators, the conductors shall be tied in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles greater than ten degrees (10°). Post- and pin-type insulators shall be tight on the pins and on tangent construction the top groove must be in line with the conductor after tying in
- 13.1.5. There shall not be more than one splice per conductor in any span and no splice shall be located within ten feet (10'-0") of the conductor support. Splices will not be permitted in road or street crossing spans.
- 13.1.6. Utmost care shall be exercised in installing parallel groove clamps. The contact surface of the conductor shall be clean and bright. A steel brush shall be the principal cleaning medium; contact compound shall be used for all connections to aluminum conductors. Those same precautions for cleaning shall also apply to the conductor before splicing.

- 13.1.7. Conductors shall be sagged in accordance with sag and tension charts or tables furnished by the Engineer. Under no circumstances will a decrease in the specified sag be allowed. Sagging by sighting between targets or dynamometer is recommended.
- 13.1.8. The conductor temperature at the time and place of stringing shall be determined by a certified, thermometer inserted in a short section of conductor. The temperature at which the conductor is sagged and the spans in which sags are measured shall be recorded and the information given to the Engineer.

14. RIGHT OF WAY GENERAL

- 14.1. Access to right-of-way areas shall be from existing public or private roads or along existing Commission rights-of-way. Where private roads or trails are used, the Contractor shall obtain permission in writing from the property owner for their use with copies to be furnished to the Commission's Engineer.
- 14.2. All right-of-way clearing shall be completed for a section of the line before pole setting may begin. No poles shall be set with right-of-way not completely cleared.
- 14.3. All right-of-way clearing will be by the Commission.
- 14.4. At the completion of construction and clean-up, the Contractor shall regrade all disturbed right-of-way areas to their preconstruction contours where practicable. All cuts or fills shall maintain a maximum slope of 3:1 in order to insure as little run off as possible. Any soil erosion and sedimentation devices required to stabilize and/or reduce further erosion shall be installed. All devices installed during construction and no longer required shall be removed. All disturbed or denuded areas shall be covered with topsoil, if required, fertilized, limed, seeded, strawed, and tacked as necessary. Fertilizer, lime, and seed rates and mixes shall be as specified by the local soil conservation service for the time of year applied. All cost for right-of-way clean-up and restoration shall be included in the overall price of the project.

14.5. Maintenance of Existing Rights-of-Way

Existing rights-of-way, both public and private, must be maintained during construction in such a manner so as not to create a hazard. Deep ruts shall be backfilled and graded out. Denuded grass and vegetation areas shall be replanted with a suitable seed mixture. At the end of the construction, the right-of-way should be left in as good or better condition than it was before construction began. All cost of maintaining existing right-of-way and/or reseeding shall be borne by the Contractor.

14.6. Temporary Service or Access Roads

- 14.6.1. If, during the course of construction, it should become necessary for the Contractor to construct, modify, widen, grade, or perform any other earth work in order to provide access to or work areas around any facilities covered in this Contract, he shall do so at his own cost.
- 14.6.2. The Contractor shall be responsible for all permits required for such construction. He shall also be responsible for the installation and maintenance of any soil erosion and sediment control devices required by local, county, or state agencies.
- 14.6.3. All cost associated with the construction, maintenance, removal, and rehabilitation of any area associated with the rights-of-way, access roads, service roads, etc., shall be included in the Contractor's overall price. A separate cost item will not be billed for this work.

14.7. Poles & Foundations in Wetlands

- 14.7.1. Any excavation for poles and/or foundations in wetland areas shall utilize extra precaution to avoid disturbing the root mat around the excavated area. Tree stumps and root mats must be left intact in forested wetlands.
- 14.7.2. Any excess excavated soil in wetland areas must be removed from the wetland area and deposited (spread evenly) on higher ground.
- 14.7.3. No concrete may be poured directly in wetland areas. The use of steel vibratory casings/forms must be used to prevent contact of concrete with surface waters. The cost of the casing/form must be included in the foundation unit.
- 14.7.4. No mechanized clearing (bulldozers) in jurisdictional wetlands.
- 14.7.5. Minimize soil disturbance in jurisdictional wetlands (use mats where possible).
- 14.7.6. Maintain preconstruction contours in jurisdictional wetlands.

15. STORAGE OF MATERIAL AND EQUIPMENT

15.1. All material and equipment to be used in construction shall be stored so as to be protected from deteriorating effects of the elements. If outdoor storage cannot be avoided, the material and equipment must be protected from the elements as appropriate, and with due regard to public safety.

15.2. All materials will be furnished by owner. Materials shall be requested two weeks in advance of needing said materials. Failure of the contractor to verify they've received the needed material to complete their daily work plan shall not be considered a valid reason to request a change order.

16. HANDLING OF CABLE

16.1. The cable shall be handled carefully at all times to avoid damage, and shall not be dragged across the ground, fences or sharp projections. This includes setting up utility signs to mark cable laying in a vehicle traffic area to prevent cable damage. Care shall be exercised to avoid excessive bending of the cable. The ends of the cable shall be sealed at all times against moisture with suitable end caps. Where it is necessary to cut the cable, the ends will be terminated or sealed immediately after the cutting operation.

17. PLOWING

- 17.1. When cables, flexible conduit, and cable-in-conduit are to be installed by plowing, it is the responsibility of the owner to ensure that the plowing equipment be subject to the approval of the Owner and the public authorities having jurisdiction over highway and road rights-of-way. The plow shall be provided with a means to assure positive hold- down of the plow blade to provide proper depth at all times. All cable will be installed in conduit.
- 17.2. The design of the plowshare shall ensure that the cable passing through the plow will not be bent in a radius less than 12 times the outside diameter of the cable. The equipment shall be capable of extending the plow a minimum of 6 inches below the specified depth under all terrain conditions of plow utilization.
- 17.3. The owner shall ensure that equipment and construction methods used during construction cause minimum displacement of the soil. The slot made in the soil by the cable plows shall be closed immediately by driving a vehicle track or wheel over the slot or by other suitable means.
- 17.4. Starting and terminating points of the plowing operation shall be excavated prior to cable installation to reduce possible cable damage and to assuresufficient burial depth.
- 17.5. During the plowing operation, care is to be exercised to feed the cable or wire into the ground through the plow loosely and at minimum tension. Besides using proper equipment and construction methods, supervision by the owner or owner's

- representative shall be furnished at all times at the site of plowing operations to assure compliance with these specifications.
- 17.6. If, during the plowing operation, the plow should strike a buried object or rock that would stop the equipment and necessitate removal of the plow from the ground, the plow must be removed from the ground carefully and, if practical, without backing the plow. If it should be necessary to back the plow to remove it from the ground, the cable must be uncovered a sufficient distance back for inspection by the Owner to determine whether the cable or wire has been damaged.
- 17.7. The cable shall be inspected carefully as it is payed out from the reel to be certain that it is free from visible defects. Every instance of damaged cable observed at any time, whether prior to installation, during installation, or when discovered by test or observation subsequent to installation in plant, shall be immediately called to the attention of the Owner. Repair or correction of such damage shall be done promptly and in accordance with the written instruction of the Owner. The location of any such repair shall be indicated on the staking sheet.

18. SPECIAL REQUIREMENTS FOR COORDINATION BETWEEN OWNER AND CONTRACTOR WHERE CABLE/CONDUIT IS TO BE INSTALLED BY PLOWING

- 18.1. Staking sheets shall be reviewed jointly in the field by the contractor and Owner prior to the start of construction. At that time, the Contractor shall propose any desirable changes—or clarifications. These changes, if approved by the Owner, shall be made and recorded on the staking sheets. No changes on the staking sheets shall be made by the Contractor without the prior written approval of the Owner. A representative of the Owner shall remain in the immediate vicinity of the plowing operations at all times and will consider and possibly approve any acceptable changes proposed by the Contractor. A representative of the Owner shall also inspect any damage to cable and approve acceptable methods of repair or correction of such damage in accordance with the provisions of these specifications.
- 18.2. In the event that rock is encountered during the plowing operation so that the buried cable cannot be installed to the required minimum depths in soil, the Contractor shall determine for the Owner the nature and extent of the rock encountered. Based on this information, the Owner will determine whether the cable is to be rerouted, trenched in rock, protected by conduit or concrete or a change made to aerial construction. This decision shall be made promptly, and appropriate changes in units shall be made on the staking sheets. Such changes shall be in writing, dated, and initialed by the Owner.

- 18.3. Due to the necessity of making on-the-spot corrections and changes on staking sheets, it may not be possible for the Owner to issue revised staking sheets to the Contractor in all cases. When changes are made, dated, and initialed by the Owner on a set of the Contractor's staking sheets, it shall be the Contractor's responsibility to transfer these changes to all other sets of staking sheets being used by the Contractor for construction purposes.
- 18.4. The Contractor shall provide a competent representative to work with the Owner on the inventory and inspection of buried cable units. The inventory of buried cable will be made as soon after the plowing operation as practical to avoid later disagreements on the quantity of cable installed when changes are required in the project.

19. TRENCHING

- 19.1. It is the responsibility of the owner to ensure that all trenching depths specified are listed as minimum as measured from the final grade to the top surface of the cable or conduit.
- 19.2. The routing shall be as shown on the staking sheets and plans and specifications unless conditions encountered are such that changes are necessary to accomplish the work. In such event, the Owner shall be notified promptly.
- 19.3. If rock or other difficult digging (i.e. trench caves in) is involved, the Contractor shall determine the nature and extent of the difficulty, and the Owner will determine whether rerouting, rock trenching, plowing, rock sawing or other changes are necessary.
- 19.4. Loose soil or crumbly rock shall not be considered as "difficult digging." The trench widths specified are minimums and should be increased as necessary to obtain the required depths in loose soils.
- 19.5. Where trenches are intended for more than one cable, particular care shall be taken to provide for extra depth and width to allow for soil falling into the trench during the laying of the first cables.
- 19.6. Care shall be exercised to minimize the likelihood of waterflow since this may cause trench damage and reduction in trench depth. If this occurs, the trench must be cleared to the specified depth before installing the cable.

- 19.7. All trenches including secondary and service trenches shall follow straight lines between staked points to the greatest extent possible to help in cable locating. The trenches shall be dug so that the bottom has a smooth grade. Large rocks, stones and gravel in excess of l inch shall be removed from the bottom of the trench. Where this cannot be done, a 2 inch bed of sand or clean soil shall be placed in the bottom of the trench.
- 19.8. Construction shall be arranged so that trenches will be left open for the shortest practical time to avoid creating a hazard to the public and to minimize the likelihood of collapse of the trench due to other construction activity, rain, accumulation of water in the trench, etc.

20. INSTALLING CABLE IN TRENCH

- 20.1. It is the responsibility of the owner to ensure that the cable shall be placed in the trench as soon after the trenching operation as feasible. Wherever possible, cable shall be payed out from the reel mounted on a moving vehicle or trailer. The reel shall be supported so that it can turn easily without undue strain on the cable. The cable shall be carefully placed in the trench by hand. All cable placements shall be done under constant supervision to be certain that no damage to the cable occurs.
- 20.2. The cable shall be inspected carefully as it is removed from the reel in laying operations to be certain that it is free from visible defects. The Owner shall decide upon corrective action when defects are discovered.
- 20.3. Where more than one cable are to be placed in a trench, the spacings required by the specifications must be observed. Care shall be taken that any soil falling into the trench during the laying of the first cable does not reduce the clearances of the last cable below that specified. Should this occur, the excess soil shall be removed carefully by hand or with equipment so as not to damage the installed cables.
- 20.4. Sufficient slack, and in no case less than 24 inches, shall be left at all risers, transformer pads, pedestals and terminal points so that movements of cable after backfilling will not cause damaging strain on the cable or terminals. The cable trench shall be mechanically compacted 36 inches minimum from all riser poles, pads, pedestals and terminal points.
- 20.5. The ends of all secondary cable terminated below ground shall be long enough to reach at least 12 inches above the top of the underground enclosure.

21. INSTALLING CABLE BY DIRECTIONAL BORE

21.1. It is the responsibility of the owner to investigate the boring route. If the bore is in public/private right- of-way, a review of the permit is required to determine what type of construction may be required for the installation. During the boring operation, multiple bend/turns should be avoided as it increases the pulling tension on the cable. The cable and or conduits must be handled and or trained with proper guides at the entry and exit points to prevent damage. Procedures for cable handling in trenching and plowing also apply to installation by directional boring.

22. MINIMUM BENDING RADIUS OF CABLE

22.1. The minimum bending radius of primary cable is 12 times the overall diameter of the cable. The minimum bending radius of secondary and service cable is six times the overall diameter of the cable. In all cases the minimum radius specified is measured to the surface of the cable on the inside of the bend. No cable bends shall be made within 6 inches of a cable terminal base.

23. CONDUIT

- 23.1. All cable will be installed in conduit.
- 23.2. Cable Protection shall have all exposed ends of the conduit plugged during construction to prevent the entrance of foreign matter and moisture into the conduit. Burrs or sharp projections which might injure the cable shall be removed. Conduits shall be sized to meet the fill limits based on the number and size of cables to be installed. Lubricants used in the aid of cable pulling shall be compatible with both the conduit and cable.
- 23.3. Direct Buried Riser shield or conduit shall extend at least 18 inches below grade at all riser poles. If full round conduit is used as a riser shield, an end bell shall be installed on the lower end to prevent damage to the cable. Any aluminum portion of the riser shall not be placed below grade.
- 23.4. Three Phase Riser Guide conduit provides good protection when all three phases are in one conduit. The advantage of each phase in a separate conduit is having improved reliability and lower cable pulling tensions. However, the disadvantages has the separated phase and neutral currents causing induced current in magnetic metal conduits leading to increases in line losses which develops heat that can damage the cable insulation.

23.5. It is the responsibility of the contractor to perform cable pulling calculations prior to pulling through a conduit system so that maximum cable tensions are not exceeded. When pulling conductors into a conduit system, the contractor shall lubricate cable as needed to reduce pulling tensions.

24. TAGGING OF CABLES AT TERMINATION POINTS

24.1. As the cables are laid, it is the responsibility of the contractor to ensure that they are identified and tagged. The identification shall be of a permanent type, such as that done on plastic or corrosion resistant metal tags. The tag shall be securely attached to the cable. Paper or cloth tags are not acceptable. Each phase shall be marked with appropriate color tape and plastic tag.

25. JOINTS/SPLICES (Not Applicable to this Project)

- 25.1. Cable joints/splices shall be of the pre-molded rubber, heat-shrink, or cold-shrink type, of the correct voltage rating and shall be installed in accordance with the joint/splice manufacturer's instructions. Joints/Splices that depend solely on tape for a moisture barrier shall not be used.
- 25.2. Not more than one joint/splice may be permitted for each 2000 feet of cable installed unless authorized by the Owner. No bends may be permitted within 12 inches of the ends of a joint/splice. The cable or circuit numbers and the exact location of all joints/splices shall be noted on the staking sheets (as built).

26. PRIMARY CABLE TERMINATION AND STRESS CONES

- 26.1. Prefabricated stress cones or terminations shall be installed in accordance with the manufacturer's instructions at all primary cable terminals. They shall be suitable for the size and type of cable that they are used with and for the environment in which they will operate.
- 26.2. Any indication of misfit, such as a loose or exceptionally tight fit, shall be called to the Owner's attention. The outer semi-conductive surface of the termination shall be bonded to the system neutral. A heat-shrink or cold-shrink sleeve shall be installed to seal between the body of the termination and the cable jacket.

27. SPECIAL PRECAUTION FOR CABLE JOINTS/SPLICES AND TERMINATIONS

- 27.1. A portable covering or shelter shall be available for use when joints/splices or terminations are being prepared and when prefabricated terminations are being switched. The shelter shall be used as necessary to keep rain, snow and windblown dust off the insulating surfaces of these devices. Since cleanliness is essential in the preparation and installation of primary cable fittings, care shall be exercised to prevent the transfer of conducting particles from the hands to insulating surfaces.
- 27.2. Mating surfaces shall be wiped with a solvent to remove any possible accumulation of dirt, moisture or other conducting materials. A silicone grease or similar lubricant should be applied afterwards in accordance with the manufacturer's recommendations. Whenever prefabricated cable devices are opened, the unenergized mating surfaces shall be lubricated with silicone grease before the fittings are reconnected.

28. SECONDARY AND SERVICE CONNECTIONS

- 28.1. A suitable inhibiting compound shall be used with all secondary and service connections.
- 28.2. All secondary cable connections located below grade or in secondary pedestals shall be made with pre-insulated secondary connector blocks. Diving bells with open terminals, insulating boots or moisture barriers that depend solely on tape are not acceptable.
- 28.3. All transformer secondary phase terminal connections shall be completely insulated. If the secondary phase terminals are threaded studs, the connection shall be made with a pre-insulated secondary transformer connection block. If the transformer secondary phase terminals are insulated cable leads, connection shall be made with a pre-insulated secondary connector block or with a secondary prefabricated joint/splice when the transformer leads continue directly to the service.
- 28.4. If a transformer is so large that it must have secondary spades, the spades shall be taped or otherwise insulated. Boots used for insulation shall be taped or secured so that they cannot be readily slipped off.
- 28.5. Secondary connections to terminals of pole-mounted transformers shall be made so that moisture cannot get inside the cable insulation. This may be accomplished by

- covering the terminals and bare conductor ends with an appropriate moisture sealant or providing a drip loop.
- 28.6. The secondary connections and insulation shall have accommodations for all future and existing services as shown on the plans and specifications.

29. PEDESTALS

29.1. Where required, pedestal stakes shall be driven vertically into the bottom of the trench before cables are placed and shall be located as shown on the staking sheets. Pedestal posts and supporting stakes shall be in place before the cable is installed. All pedestals should be approximately at the same height above finished grade.

30. INSPECTION AND INVENTORY OF BURIED UNITS

30.1. Before any backfilling operations are begun, it is the responsibility of the owner to ensure that the Contractor and Owner shall jointly inspect all trenches, cable placement, risers, pedestal stakes, and other construction that will not be accessible after backfilling, and an inventory of units shall be taken. If corrections are required, a second inspection shall be made after completion of the changes.

31. BACKFILLING

- 31.1. The first 6 inches of trench backfill shall be free from rock, gravel or other material which might damage the cable jacket. In lieu of cleaning the trench, the Contractor may, at the Contractor's option, place a 2-inch bed of clean sand or soil under the cable and 4 inches of clean soil above the cable. Cleaned soil backfill when used shall contain no solid material larger than 1 inch. This soil layer shall be carefully compacted so that the cable will not be damaged.
- 31.2. Backfilling shall be completed in such a manner that voids will be minimized. Excess soil shall be piled on top and shall be well tamped.
- 31.3. Pieces of scrap cable or other material remaining after installation shall not be buried in the trench as a means of disposal.
- 31.4. Conduit provides protection for the cable to be installed. However, the backfilling method for cable in conduit shall be the same as direct buried cable. Additional protection can be obtained by pouring a concrete cap over a partial filled backfill above the direct buried cable or conduit.

31.5. Further protection for the conduits is done by concrete encapsulation using spacers to ensure enough concrete surrounds the conduits.

32. EQUIPMENT PADS

- 32.1. The site for the pad shall be on undisturbed earth adjacent to but not over the trench.
- 32.2. The site shall be cleared of all debris and excavated to the specified depth. Gravel or sand may be added to the site and thoroughly compacted.
- 32.3. The developer/property owner shall provide the finished grade so steps can be taken to ensure foundations are installed level at the specified elevation.
- 32.4. Existing equipment pads shall be replaced in the same location as current equipment.

33. TRANSFORMERS

- 33.1. Existing transformers shall be carefully lifted to replace the existing pad. Existing transformers will not be replaced unless a conditional assessment of the transformer warrants replacement.
- 33.2. Transformers shall be handled carefully to avoid damage to the finish and shall be positioned in accordance with the staking sheets and the plans and specifications. Only qualified and experienced personnel shall be allowed to make connections and cable terminations.

34. BELOW GRADE ENCLOSURES

- 34.1. Excavations for sleeve-type transformer pads and other below-grade enclosures shall be made so as to disturb the surrounding earth as little as practical.
- 34.2. Enclosures shall be installed with side walls plumb. When enclosures are of fiber, plastic, or other semi-flexible material, backfilling should be done with covers in place and with careful tamping so as to avoid distortion of the enclosure.
- 34.3. When installation is complete, the cover of the enclosure shall not be lower than and not more than 2 inches higher than the grade specified by the Owner.

34.4. Soil in the immediate vicinity shall be tamped and sloped away from the enclosure. At the Owner's option, the excess soil shall be removed from the site or spread evenly over the surface of the ground to the satisfaction of the Owner.

35. SACRIFICIAL ANODES

35.1. Sacrificial anodes specified shall be installed with backfill package intact and connecting leads positioned for proper connection after the equipment is in place. Anodes shall not be moved, positioned, lifted, nor lowered into place by pulling on the connecting leads.

36. GROUNDING

- 36.1. All neutral conductors, ground electrodes, sacrificial anodes and grounded parts of equipment shall be interconnected. All interconnections for grounding shall be made and consistent with installation standard used by the owner. A copper-clad or galvanized steel ground rod with minimum length of 8 feet shall be installed at all equipment locations and at all accessible cable joints/splices and taps.
- 36.2. All pad-mounted equipment enclosures, including transformers, shall be grounded in such a manner that two separate grounding paths exist between the enclosure and the grounding rod(s).

37. INSTALLED CABLE AND ACCEPTANCE TESTS

- 37.1. Continuity: After installation of the cable, authorized personnel shall perform a simple continuity test on the system. This can easily be accomplished by grounding the conductor at the source and checking for continuity from the end of each tap with an ohmmeter or with a battery and ammeter.
- 37.2. HiPot Test: In addition to continuity tests, contractors shall perform HiPot test on all cable.
- 37.3. WARNING: A hazardous voltage may exist on the cable; therefore, before handling the cable, the conductor shall be grounded to permit any charge to drain to earth.

38. PLACEMENT OF SURGE ARRESTERS

- 38.1. The arrester connection on a riser pole shall have the grounding conductor going from system neutral to the pole ground to surge arrester ground than to cable neutral/ground.
- 38.2. The combination of both the line lead length and ground lead length shall be less than 3 feet. The higher margin of protection on the underground cable system is reached when the riser type class arresters are used at each overhead riser pole cable termination.
- 38.3. Also, by the placement of a distribution class arresters at open points on the cable system to help limit the transient voltage reflection peaks.
- 38.4. NOTE: a higher surge arrester MCOV rating should be selected for both open and mid-point arresters on the underground cables system as compared to the MCOV rating of the overhead riser pole arrester.

SECTION IV

GREENVILLE UTILITIES COMMISSION

TECHNICAL SPECIFICATIONS-MATERIALS SPECIFICATIONS

NOVEMBER 25, 2025

1. SCOPE

All hardware, conductors, and insulators needed to complete each structure will be replaced. Greenville Utilities Commission will furnish all distribution materials required for the construction unless otherwise noted in this specification. The proposal submitted by the contractor shall include all labor, equipment, and all other necessary items to complete this project.

2. GENERAL

- 2.1. All materials shall be new, except items specified for reuse, and will be furnished by the Commission and the Contractor as outlined in this specification.
- 2.2. All materials issued to the Contractor must be acknowledged by a material receipt.
- 2.3. Materials removed and salvaged must be returned to the Commission's warehouse and a receipt will be issued to the Contractor for materials returned.
- 2.4. The Contractor will be charged for all materials removed which are neither reused nor returned to the Commission's warehouse. Current stock item prices will be used to determine the removed material charge.
- 2.5. A brief description of the materials is furnished hereinafter for the Contractor's information.
- 2.6. Reference to ASTM, NEMA, AWS, SSPC, or ACI Standard implies reference to the latest revision or to its replacement if it has been discontinued.

3. POLES-WOOD - Furnished by Owner

- 3.1. All poles shall meet the requirements of ANSI Standard "Specifications and Dimensions for Wood Poles 05.1," the latest revision thereof.
- 3.2. Poles shall be framed as indicated on the Drawings. All holes shall be field drilled and treated with a two percent (2%) solution of Copper Napthenate or other EPA approved preservative before framing.

3.3. New poles shall be Southern Yellow Pine or Douglas Fir and shall meet the requirements set forth in ANSI Specification and Dimensions for Wood Poles 05.1. Treatment shall be AWPA Standard C4 for the Preservative Treatment of Poles by Waterborne Process. The preservative shall be Chromated Copper Arsenate, CCA, conforming to AWPA Specification P5, or the latest revisions thereof.

4. POLES-TUBULAR STEEL - *Furnished by Owner*

- 4.1. All poles will meet the requirements of the Steel Structures Specifications pertaining to this project.
- 4.2. The contractor will be responsible for field drilling any other holes required for construction. Cost for drilling these holes shall be part of the pole top assembly unit. In no instance will additional charges be paid for drilling holes. The Contractor shall touch up the finish of all field drilled holes using high zinc content paint (Galvon) supplied by the pole manufacturer.
- 4.3. Poles may be delivered in two (2) or three (3) pieces. The Contractor is responsible for all field assembly required for these poles. Additionally, the Contractor is responsible for providing any equipment (i.e., jacks) required to join pieces.
- 4.4. Any unused holes are to be plugged and sealed using galvanized steel plugs or caulk and plastic plugs.

5. HARDWARE - Furnished by Owner

- 5.1. Hardware shall be hot dip galvanized.
- 5.2. Bolts and nuts shall conform to ANSI Standards as follows:
 - 5.2.1. C135.1 for machine, carriage, and double-arming bolts
 - 5.2.2. C135.4 for eye bolts
 - 5.2.3. Cl35.3 for lag screws
- 5.3. Steel parts shall conform to ASTM Specifications A36.
- 5.4. Malleable iron shall conform to ASTM Specifications A47.
- 5.5. Galvanizing shall conform to ASTM Specifications A153.

6. GUY WIRE - Furnished by Owner

6.1. Guy wire shall be 3/8" High Strength Steel rated 10,800 pounds ultimate strength and supplied by the Owner.

7. **OVERHEAD GROUND WIRE** - Furnished by Owner

7.1. A 7 No. 9 Alumoweld overhead ground wire shall be installed.

8. ANCHORS - Furnished by Owner

- 8.1. Distribution anchors shall be a no wrench 96" long with a single 10" helix. Anchors have a tripleye and are rated 10,000 lbs. in Class 6 soil.
- 8.2. The anchors shall be installed per the manufacturer's recommendations.
- 8.3. The ultimate holding capacity of these anchors is dependent upon the soil properties. Holding capacity for Class 6 soil is 10,000 lbs.
- 8.4. The holding capacity of the anchors is dependent upon the torque values achieved while setting the anchors. Additionally, it will be necessary for the eye of the anchor to be installed a specific distance out of the ground in accordance with the construction drawings.
- 8.5. In order for the Contractor to meet the specification criteria for both torque and depth, it may be necessary to use multiple shaft length extensions in increments of three and one- half feet (3'-6"), and six feet (6'-0").

9. INSULATORS - Furnished by Owner

9.1. Suspension

9.1.1. Insulators shall be polymer and shall conform to ANSI, IEEE, ASTM, and AEIC Standards for insulators. All suspension insulators shall be gray.

Insulator Type	Flashover (kV)	Leakage (in.)	Suggested Manufacturer	Catalog Number
	Dry Wet			

Polymer Suspension	155	135	31	Ohio Brass	4010250215
Suspension					

9.1.2. Suspension insulators shall be attached via shoulder eye through bolts, or guy plates.

9.2. Horizontal Post

9.2.1. Porcelain 15 kV Pin insulators shall be Porcelain products or equivalent.

Insulator Type	Flashover (kV) Dry Wes 55 30		Leakage (in.)	Suggested Manufacturer	Catalog Number
	Dry	Wet			
Porcelain 15 kV Pin	55	30	7	Porcelain Products	263-S

9.2.2. Mechanical strength 2500 lbs, design cantilever load.

10. FIBERGLASS STRAIN INSULATOR - Furnished by Owner

10.1. Fiberglass strain insulator for use in guys shall have an ultimate strength of 16,000 pounds; shall have an insulating distance of thirty-six inches (36") and shall be equipped with clevis ends and the number of rollers required.

11. **CONNECTORS AND SPLICES -** Furnished by Owner

11.1. All connectors and splices for 1272 AAC, 795 AAC, 556 ACSR, 336 ACSR, 1/0 ACSR, and 7 No. 9 Alumoweld OHGW conductors shall be the compression type. Full tension compression splices shall develop strength equal to not less than ninety-five percent (95%) of the ASTM rated strength of the conductor. See Material List and Cross Reference pages provided by Greenville Utilities Commission for preferred manufacturer and catalog numbers.

12. ARMOR RODS - *Furnished by Owner*

12.1. Where armor rods are installed on phase conductors or OHGW, they shall be of a type specifically designed for the conductor being protected and shall be manufactured with aluminum alloy, aluminized acceptable. Armor rods shall be installed with the midpoint within two inches (2") of the center of the suspension clamp. The maximum distance between the ends of any two (2) individual rods within a bundle shall not exceed one-half inch (1/2").

13. **CONDUCTOR CLAMPS** - Furnished by Owner

- 13.1. Trunnion Clamps and Suspension Clamps
 - 13.1.1. Suspension clamps and connecting pieces, material items on tangent and light/medium angle type pole top assemblies for 1272 AAC, 795 AAC, 556 ACSR, 336 ACSR, 1/0 ACSR, and 7 No. 9 Alumoweld OHGW conductors shall be sized to fit conductor with Armor Rod as manufactured by Preformed or approved equal. See Material List and Cross Reference pages provided by Greenville Utilities Commission for preferred manufacturer and catalog numbers.

13.2. Cushion Grip Supports

13.2.1. Cushion grip supports on tangent and light/medium angle type pole top assemblies shall be sized to fit 1272 AAC, 795 AAC, 556 ACSR, 336 ACSR, 1/0 ACSR, and 7 No. 9 Alumoweld OHGW conductors. See Material List and Cross Reference pages provided by Greenville Utilities Commission for preferred manufacturer and catalog numbers.

14. DEADENDS - Furnished by Owner

14.1. Deadends for 1272 AAC, 795 AAC, 556 ACSR, 336 ACSR, 1/0 ACSR, and 7 No. 9 Alumoweld OHGW conductors may be bolted, quadrant type or full compression. See Material List and Cross Reference pages provided by Greenville Utilities Commission for preferred manufacturer and catalog numbers.

15. GROUNDING - Furnished by Owner

15.1. All poles shall have driven grounds as indicated on the Drawings. Guys and overhead ground wire shall be attached to the common ground.

- 15.2. Ground rods shall be 5/8" x 8' and 5/8" x 12' copper. Extensions shall be added if necessary, to obtain a verifiable ground resistance of 25 ohms or less. Ground rods shall be installed at the direction of the Engineer. Threaded ground rod couplings shall be used to secure each ground rod section as it is installed.
- 15.3. Ground wire for poles shall be No. 4 AWG soft drawn tinned copper wire unless otherwise specified.

16. STATIC GROUND BRACKETS

16.1. The ground wire cable supports shall be Hughes Brothers 2855 series or approved equal for tangent and light angle structures.

17. **CONDUCTOR** - Furnished by Owner

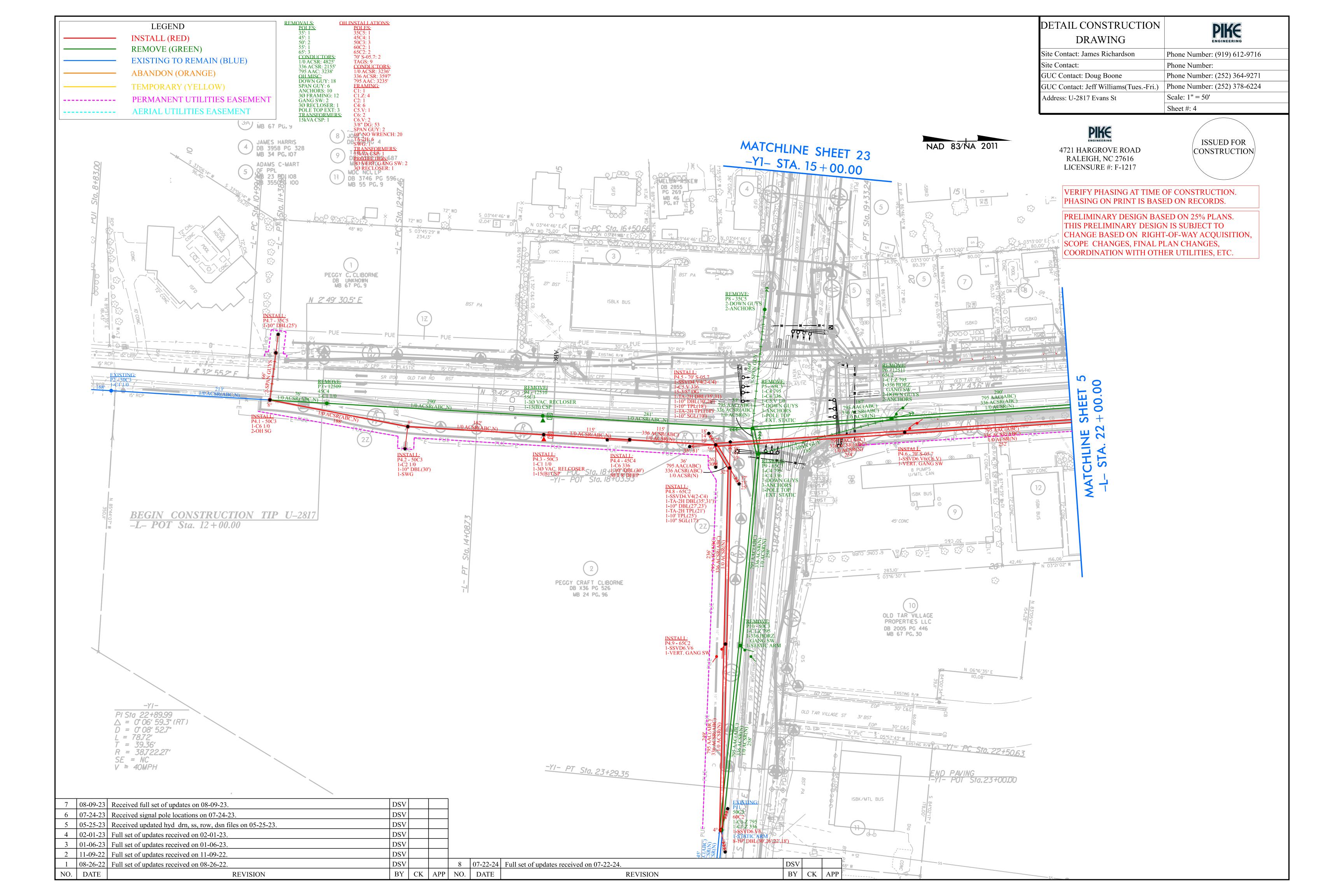
- 17.1. Overhead conductor for the distribution line is 336 kcmil ACSR. The neutral conductor is 1/0 ACSR.
- 17.2. Overhead Service conductors consist of 2/0, 1/0, #2, and #6 triplex.

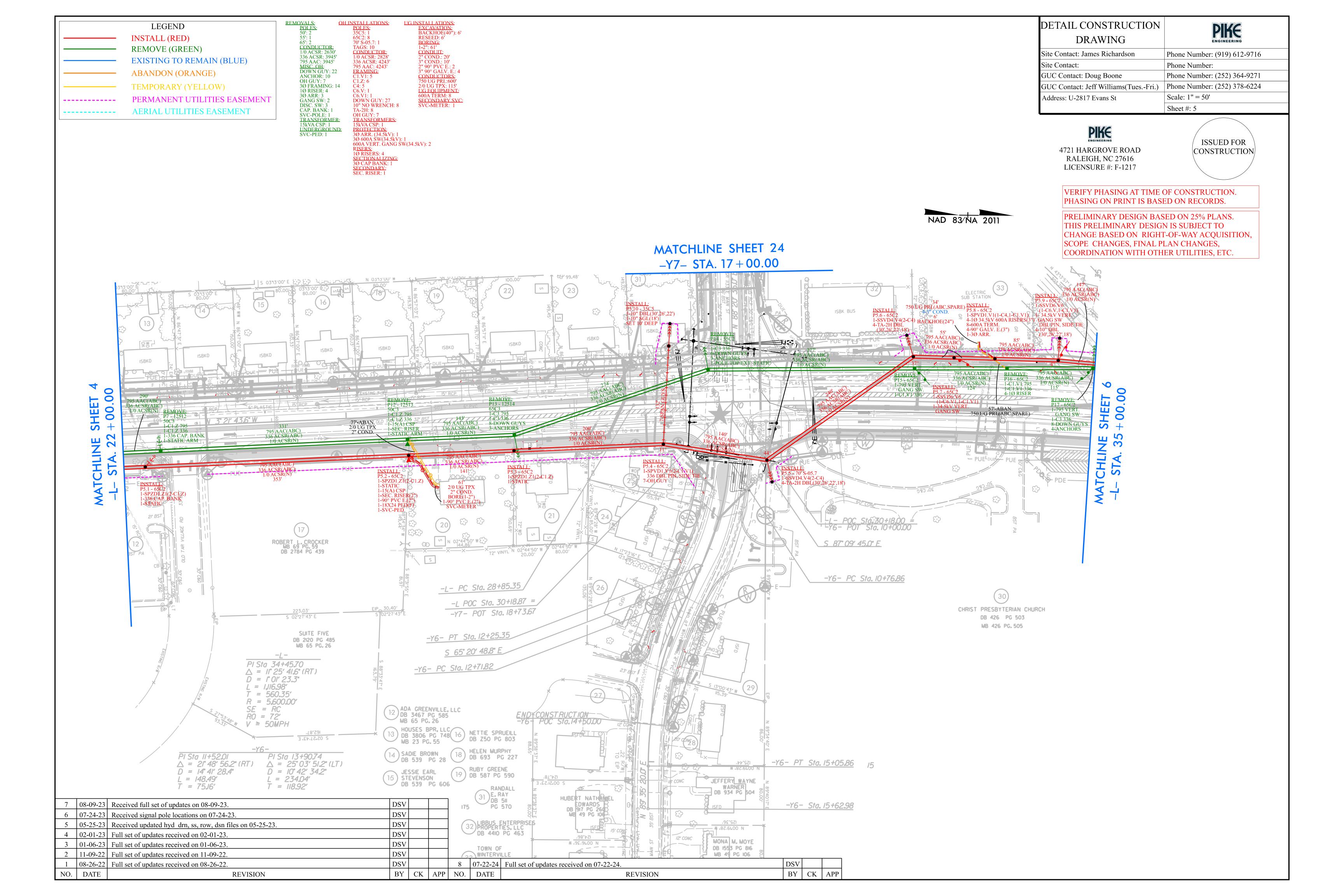
18. OWNER-FURNISHED MATERIAL STANDARDS - Furnished by Owner

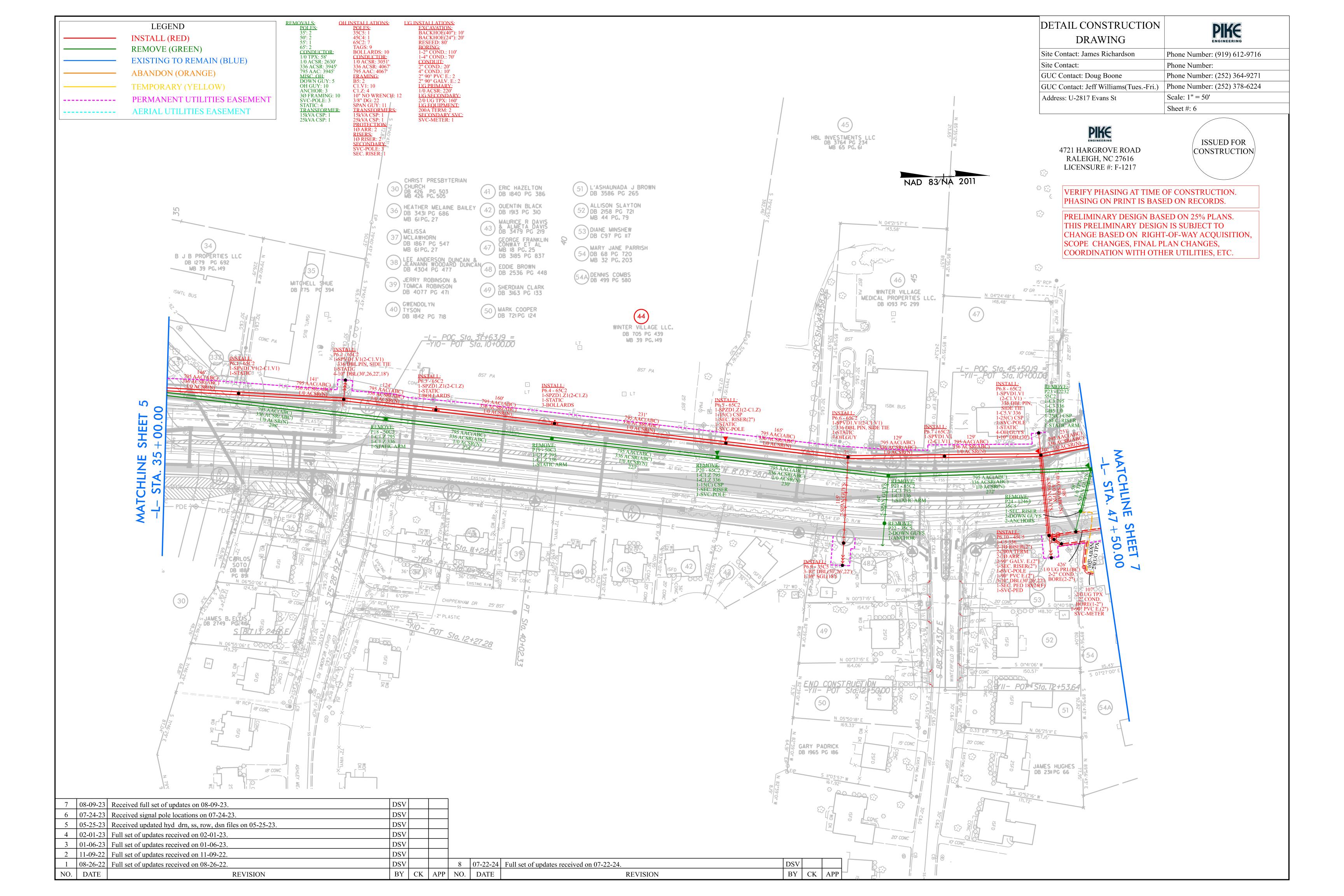
18.1. The successful bidder will be provided a list of Owner-furnished material pages as a "Standard" for reference. The Commission may substitute other manufacturer's products of equal or better quality.

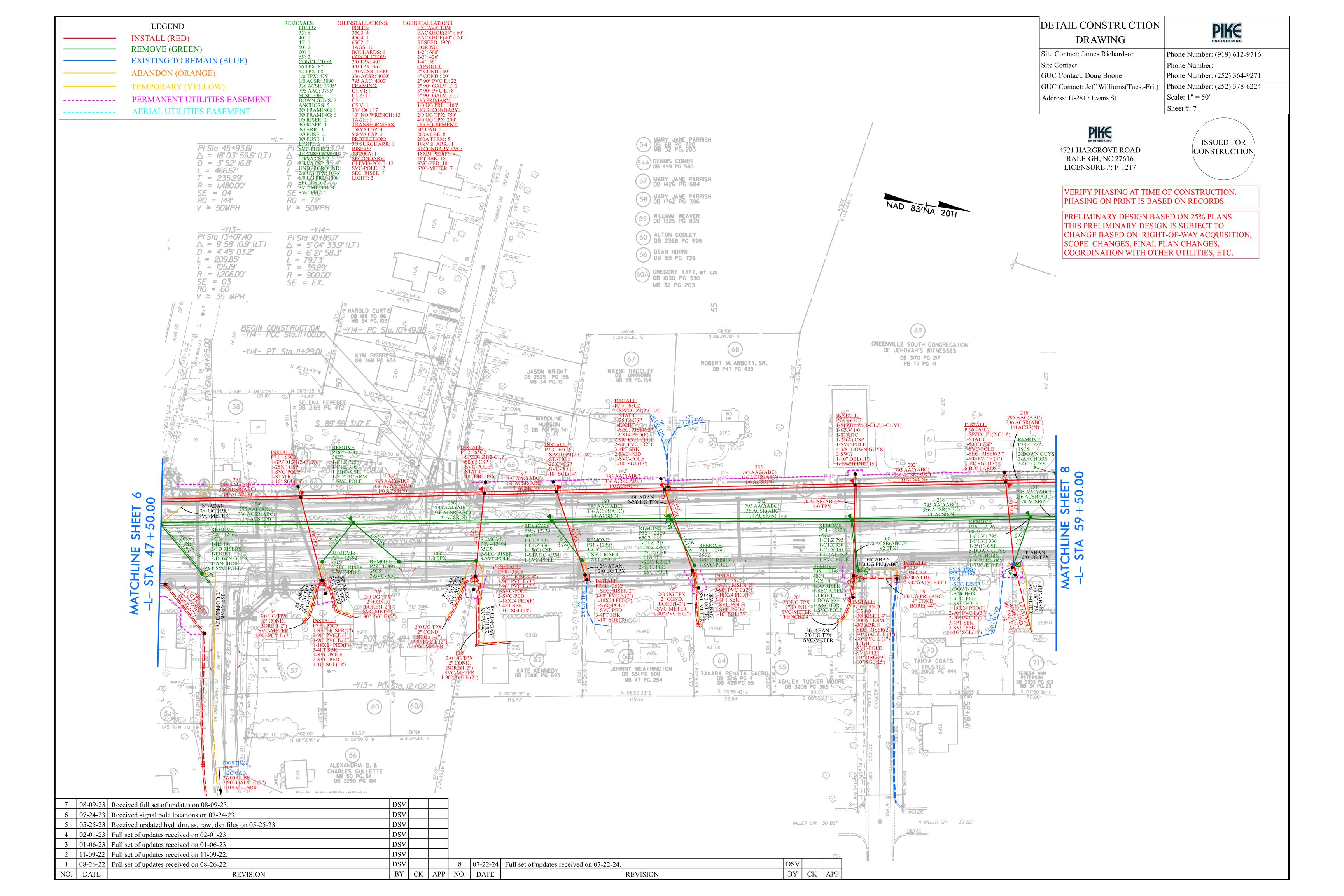
Appendix A: Construction Drawings

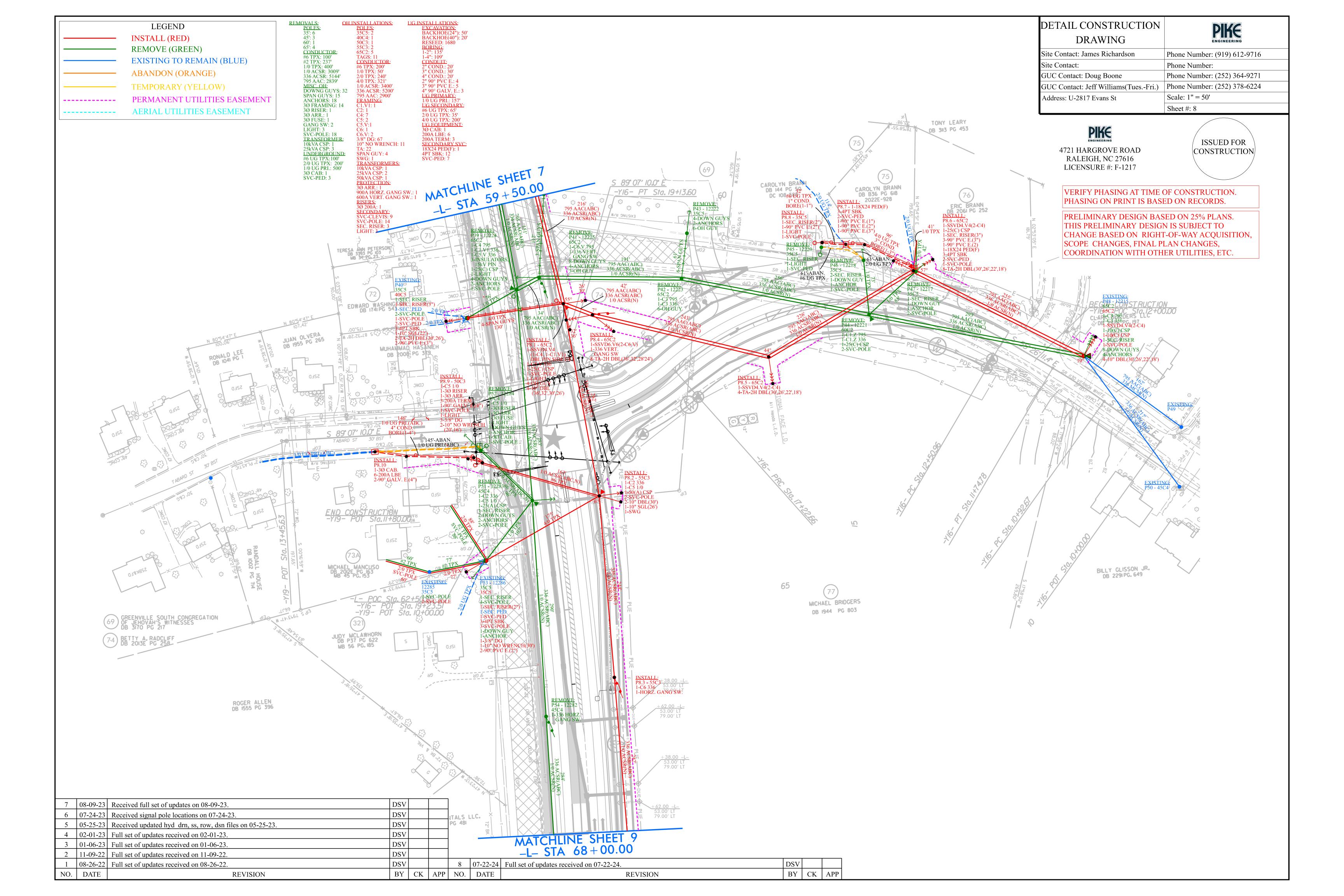
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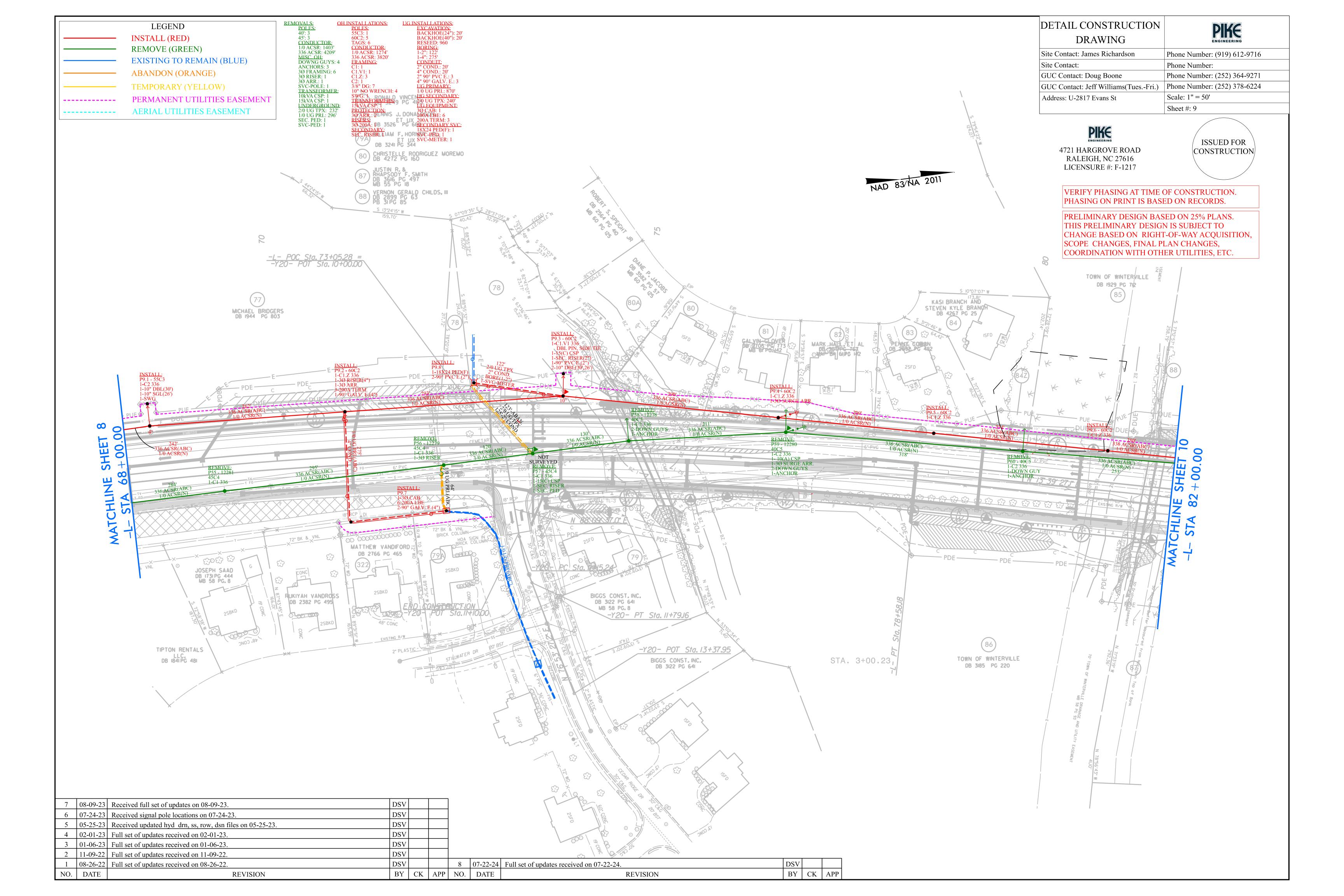


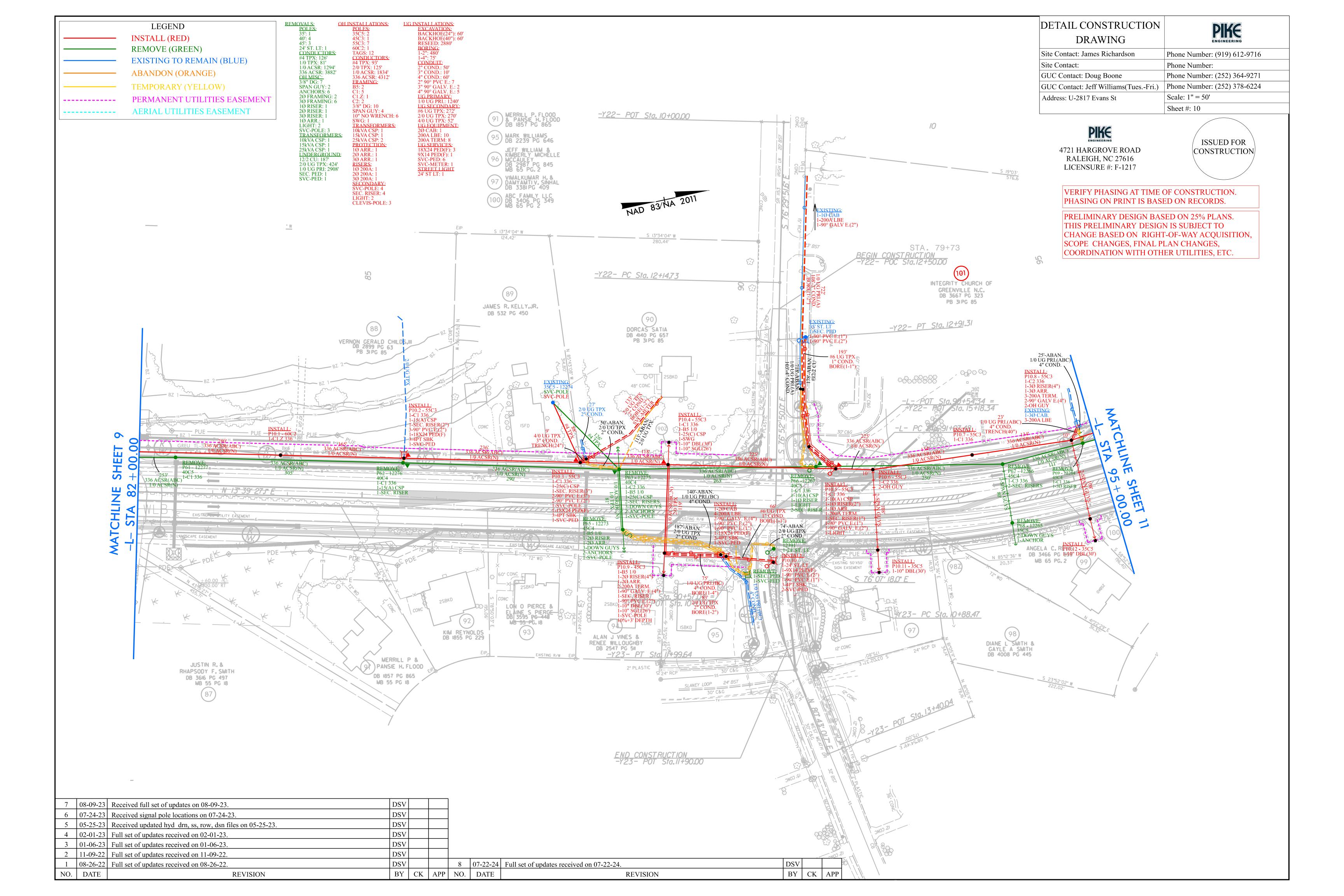


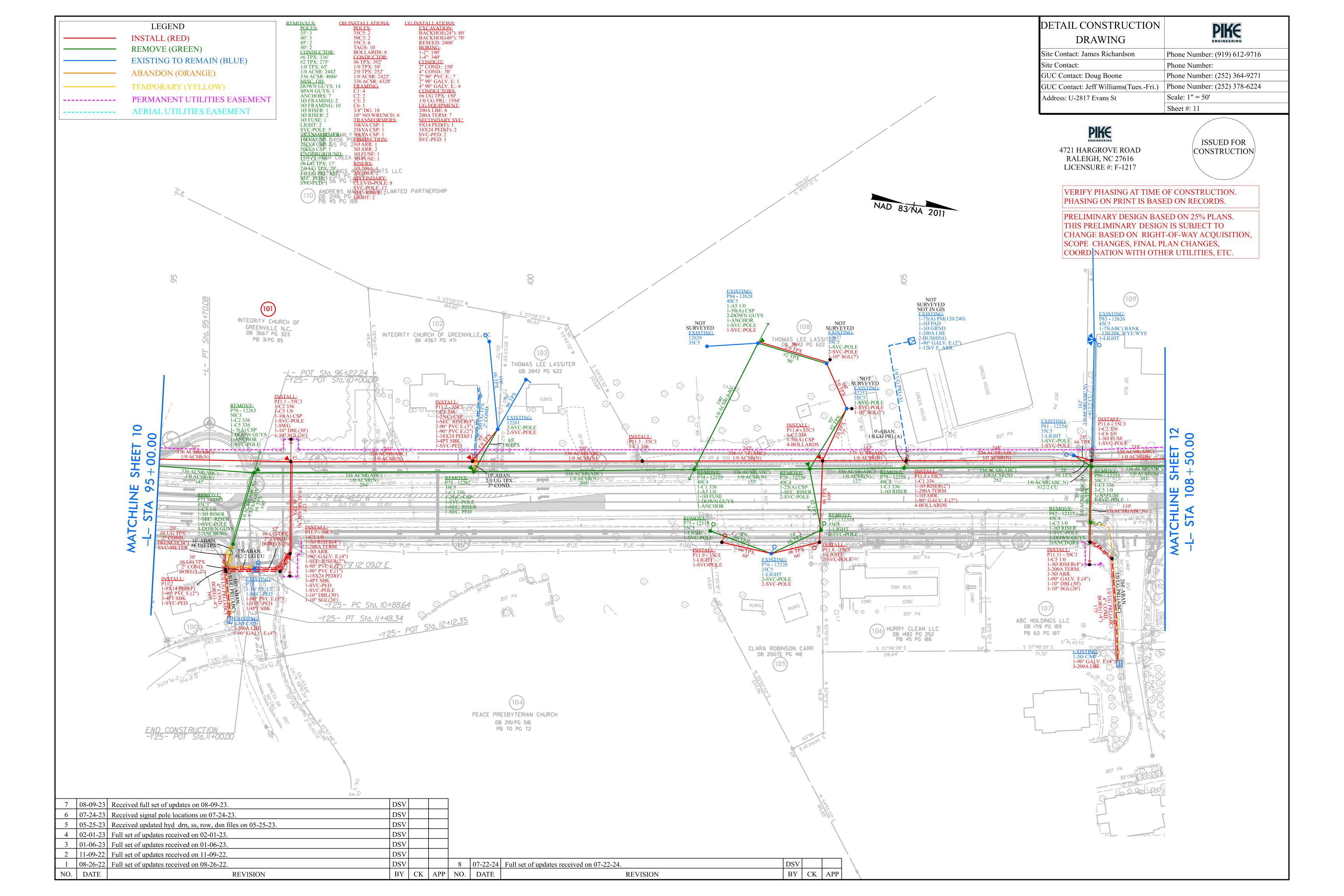


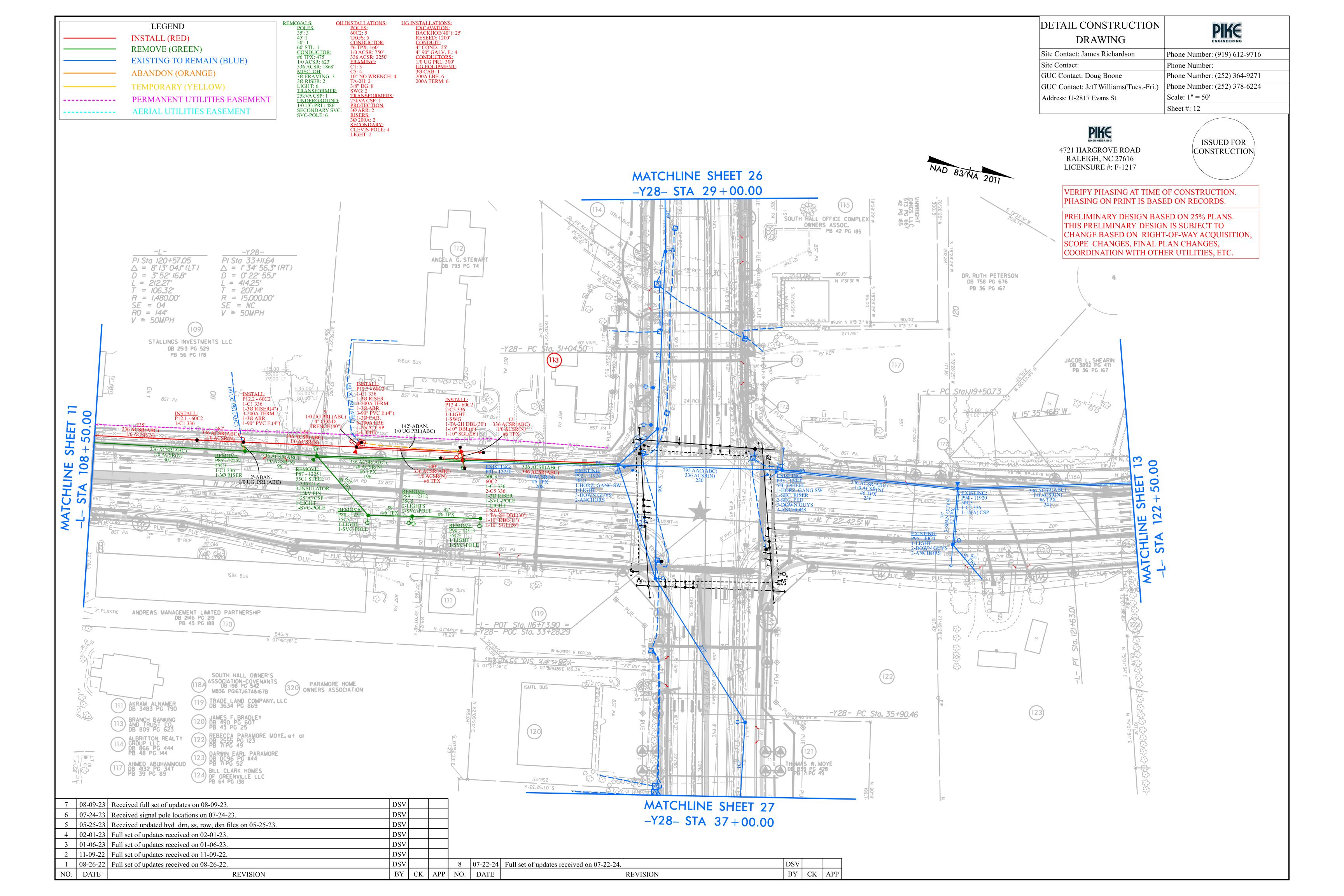






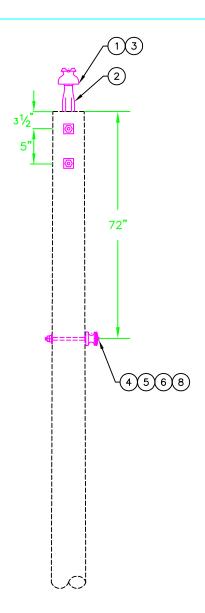


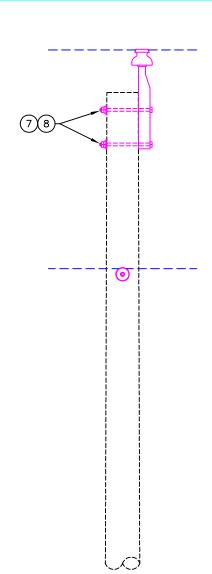




Appendix B: Standard Pole Framing

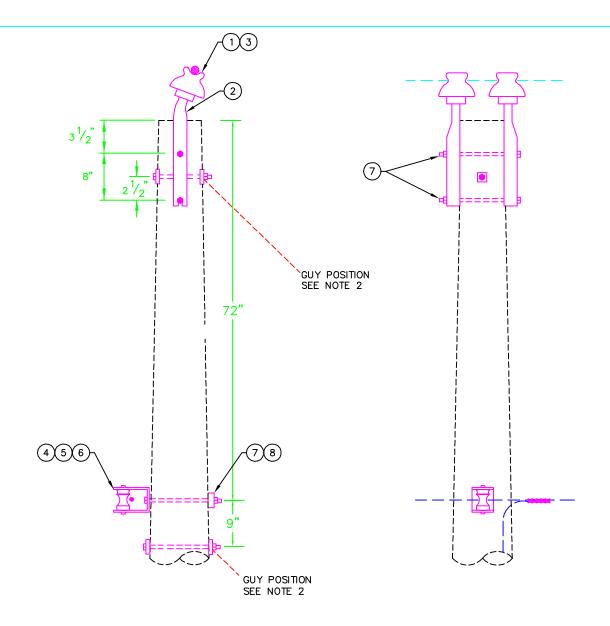
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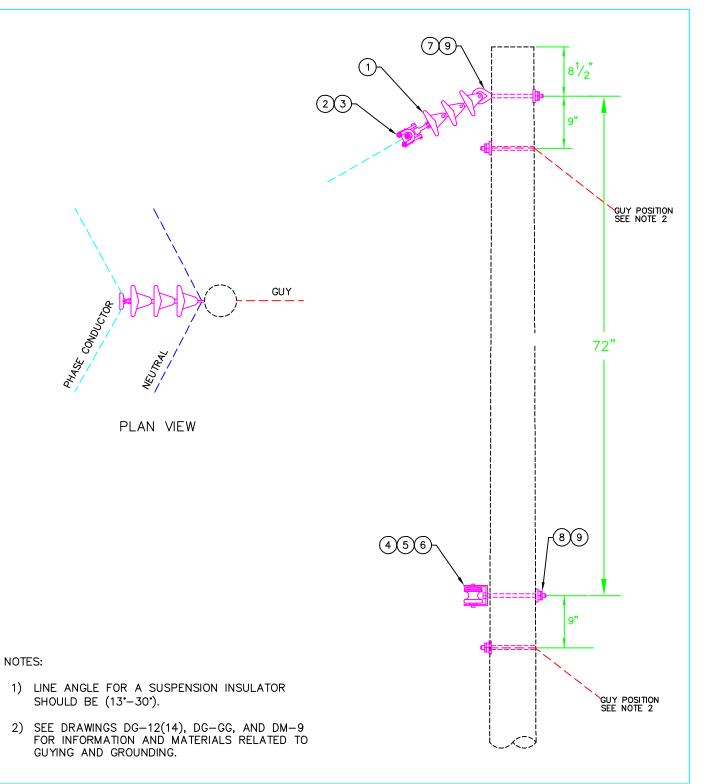
 SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GROUNDING.

DWO		LIST OF MATERIALS					TIES COMMIS	
DWG REF	QTY	2.0.1 0.1 111.120			GRE	EENVILLE, NO	ORTH CAROLINA	4
KEF	Ť	DESCRIPTION	STOCK #					
1	1	INSULATORS, 15 kV PIN TYPE	203710		_	. 014) / DDIL4	ADV CINCLE	DUAGE
2	1	PIN, 18" POLE TOP	203430		/		ARY, SINGLE SINGLE PIN/	
3	1	PREFORMS, 1/0 WRAP TIE	203590	Greenville		TANGENT,	SINGLE PIN/	PUST
4	1	INSULATORS, SPOOL "J-151"	208280	Utilities	3			
5	1	BOLTS, 5/8" x 12" SPOOL	202000	DWN.	JLS	DATE:	08/21/19	5,000
6	1	PREFORMS, 1/0 SPOOL TIE	203650	CKD.	KW	APPD.		DWG. NO.
7	2	BOLTS, 5/8" x 12"	202070	SCALE:	NONE			
8	3	WASHERS, 2 1/4" SQUARE	204440	DATE	REVISION	DATE	REVISION	A1

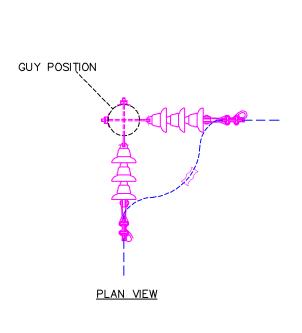


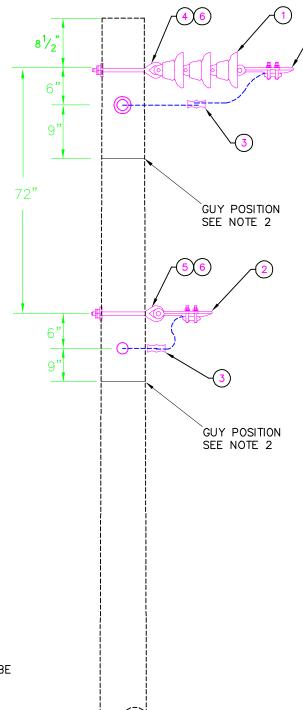
- 1) LINE ANGLE FOR A DOUBLE PIN INSULATOR SHOULD BE (1°-12°).
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

DWG REF	QTY	LIST OF MATERIALS			G		UTILITIES CO LE, NORTH CA	
REF		DESCRIPTION	STOCK #					
1	2	INSULATORS, 15 kV PIN TYPE	203710					
2	2	PIN, ANGLE POLE TOP	206000	k 🚫	7	.2KV PRIMA	ARY, SINGLE	PHASE
3	1	PREFORMS, 1/0 DOUBLE SUPPORT	203580	Greenville	SMA	LL ANGLE,	DOUBLE PIN	OR POST
4	1	INSULATORS, SPOOL "J-151"	208280	Utilities				
5	1	CLEVIS, 1342	208290	DWN.	JLS	DATE: 8/	15/2019	D.W.O. 11.0
6	1	PREFORMS, 1/0 SPOOL TIE	203650	CKD.	KW	APPD.		DWG. NO.
7	3	BOLTS, 5/8" x 12"	202070	SCALE:	NTS			A2
8	1	WASHERS, 3 X 3 CURVED	204450	DATE	REVISION	DATE	REVISION	AZ



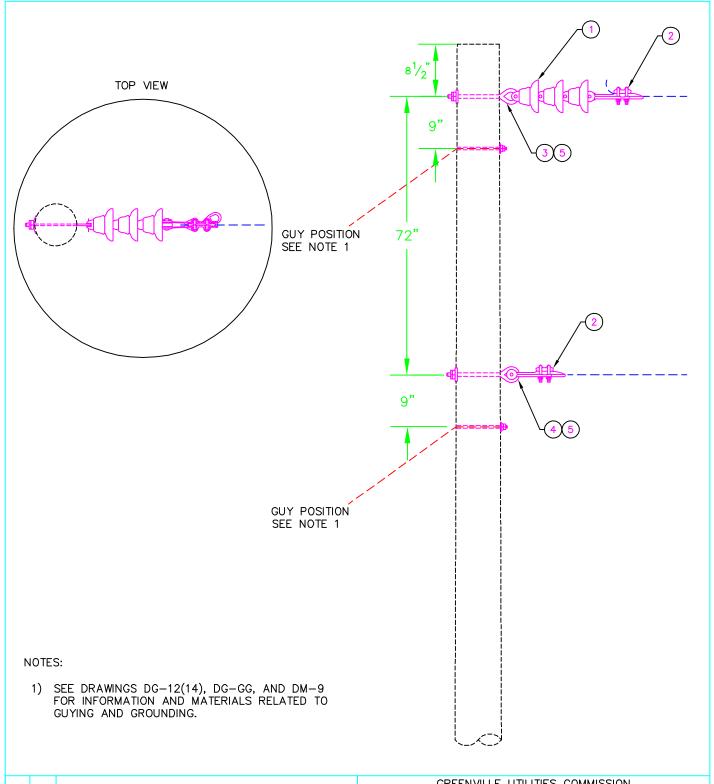
DWG	OTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
REF	-	DESCRIPTION	STOCK #					
1	1	INSULATORS, POLYMER DEAD END BELLS	206920	1				
2	1	CLAMPS, 1/0 SUSPENSION	202420				IMARY, SINGLE PI , SUSPENSION IN	
3	1	RODS, 1/0 ARMOR	201960	Greenville			,	
4	1	INSULATORS, SPOOL "J-151"	208280	<i>Utilities</i>		_		
5	1	CLEVIS, 1342	208290	DWN.	JLS	DATE: 0	8/21/2019	DW0 N0
6	1	PREFORMS, 1/0 SPOOL TIE	203650	CKD.	KW	APPD.		DWG. NO.
7	1	BOLTS, 5/8" x 10" EYE	202280	SCALE:	NONE			А3
8	1	BOLTS, 5/8" x 12"	202070	DATE	REVISION	DATE	REVISION	AS
9	2	WASHERS, 3 X 3 CURVED	204450		·			



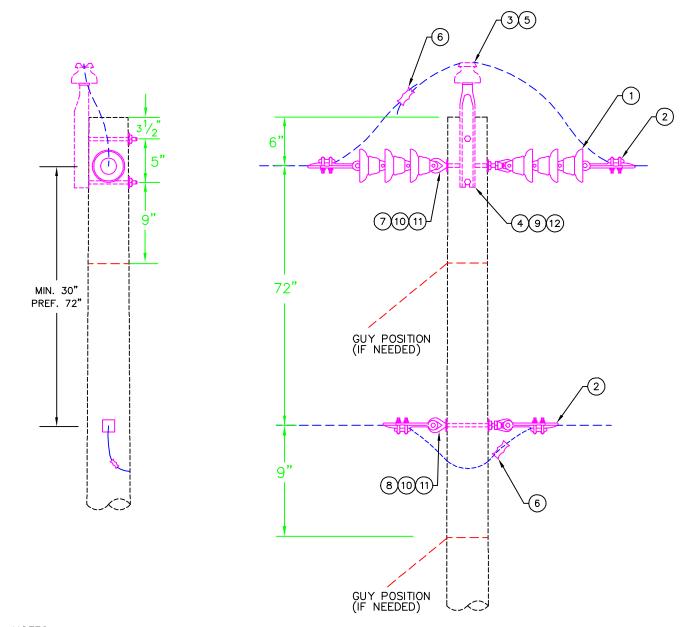


- 1) LINE ANGLE FOR A DOUBLE DEADEND SHOULD BE GREATER THAN 30°.
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

DWG REF	QTY	LIST OF MATERIALS					ES COMMISSI TH CAROLINA	ON
REF	٦	DESCRIPTION	STOCK #					
1	2	INSULATORS, POLYMER DEAD END BELLS	206920	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		7 0101 001		
2	4	SHOE, #6 - 1/0 DEAD END	207570				ARY, SINGLE	
3	2	SQUEEZONS, #4	203010	Greenvil	LARGE	ANGLE, DO	ABLE DEADEL	ND SUSPENSION
4	2	BOLTS, 5/8" x 10" EYE	202280	Utilitie				
5	2	BOLTS, 5/8" x 12" EYE	202290	DWN.	JLS	DATE: 08	3/22/2019	DW0 N0
6	4	WASHERS, 3 X 3 CURVED	204450	CKD.	KW	APPD.		DWG. NO.
				SCALE:	NONE			
				DATE	REVISION	DATE	REVISION	A4

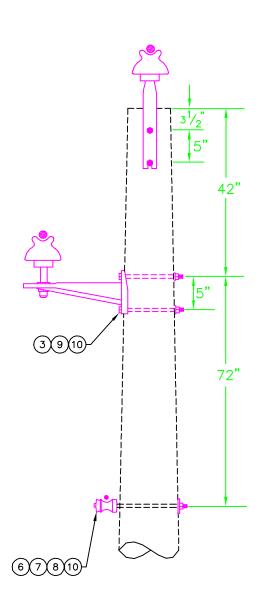


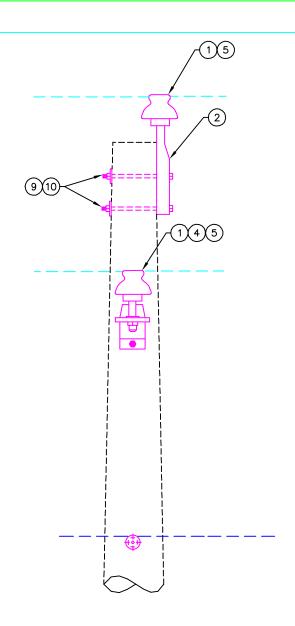
DWG REF	QTY	LIST OF MATERIALS					S COMMISSI TH CAROLINA	NC
REF	٦	DESCRIPTION	STOCK #					
1	1	INSULATORS, POLYMER DEAD END BELLS	206920	K Z		7 0101 000		
2	2	SHOE, #6 - 1/0 DEAD END	207570	L XX			IARY, SINGLE	
3	1	BOLTS, 5/8" x 10" EYE	202280	Greenville	SINC	JLE DEADE	ND (TAP), S	USPENSION
4	1	BOLTS, 5/8" x 12" EYE	202290	Utilities				
5	2	WASHERS, 3 X 3 CURVED	204450	DWN.	JLS	DATE: 08	3/21/2019	DWO NO
				CKD.	KW	APPD.		DWG. NO.
				SCALE:	NONE			
				DATE	REVISION	DATE	REVISION	A5
			·					



1) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

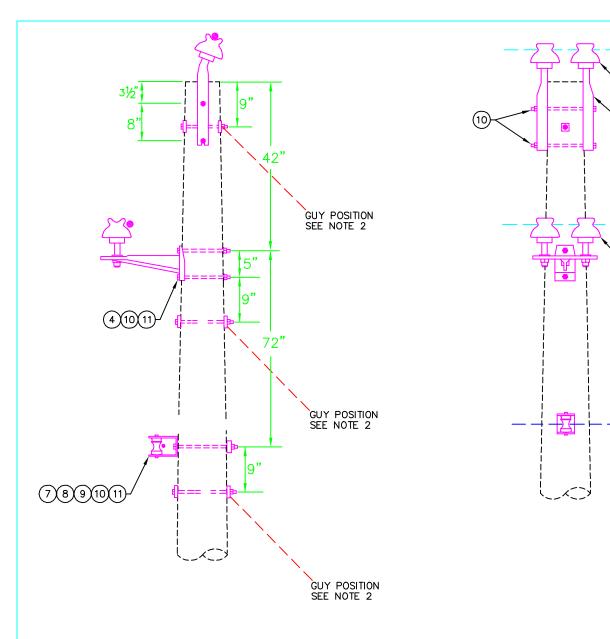
DWG REF	QTY	LIST OF MATERIALS						
REF	Q	DESCRIPTION	STOCK #		GREENVIL	LE UTILITII	ES COMMISSI	ON
1	2	INSULATORS, POLYMER DEAD END BELLS	206920		GREEN	NVILLE, NOR	TH CAROLINA	
2	4	SHOE, #6 - 1/O DEAD END	207570					
3	1	INSULATORS, 15 kV PIN TYPE	203710	1 × ×	_			
4	1	PIN, 18" POLE TOP	203430				ARY, SINGLE	
5	1	PREFORMS, 1/0 WRAP TIE	203590	Greenville	IANGE	NI, DOUBL	E DEADEND	SUSPENSION
6	2	SQUEEZONS, #4	203010	Utilities	•			
7	1	BOLTS, 5/8" x 10" EYE	202280	DWN.	JLS	DATE: 0	8/22/2019	DWG. NO.
8	1	BOLTS, 5/8" x 12" EYE	202290	CKD.	KW	APPD.		D 110. 110.
9	2	BOLTS, 5/8" x 12"	202070	SCALE:	NONE			۸۵
10	2	NUTS, 5/8" EYE	204420	DATE	REVISION	DATE	REVISION	A6
11	2	WASHERS, 3 X 3 CURVED	204450		•			
12	2	2 1/4" SQUARE WASHER	204440		_			





1) SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.

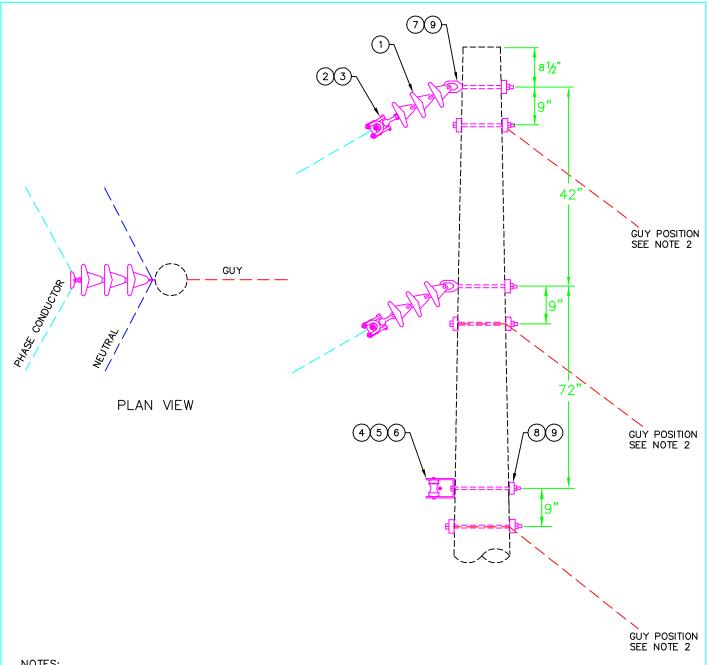
DWG REF	QTY	LIST OF MATERIALS					ES COMMISSI TH CAROLINA	NC
KEF		DESCRIPTION	STOCK #	X				
1	2	INSULATORS, 15 kV PIN TYPE	203710		10.4	N DUIACE		
2	1	PIN, 18" POLE TOP	203430				RIMARY, TWO INSTUCTION	
3	1	BRACKETS, MIF	203420	Greenville	TANGL	ivi, will CC	MSTOCTION	SINGLE FIN
4	1	PIN, SHANK	203440	Utilities				
5	2	PREFORMS, 1/0 WRAP TIE	203590	DWN.	JLS	DATE: 08	3/23/2019	5,446 .146
6	1	INSULATORS, SPOOL "J-151"	208280	CKD.	EGS	APPD.		DWG. NO.
7	1	BOLTS, 5/8" x 12" SPOOL	202000	SCALE:	NTS			
8	1	PREFORMS, 1/0 SPOOL TIE	203650	DATE	REVISION	DATE	REVISION	B1
9	4	BOLTS, 5/8" x 12"	202070		•			
10	5	WASHERS, 2 1/4" SQUARE	204440					



156

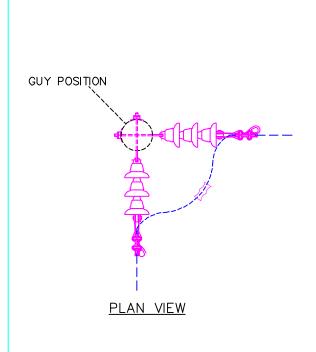
- 1) LINE ANGLE FOR A DOUBLE PIN INSULATOR SHOULD BE (1*-12*).
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

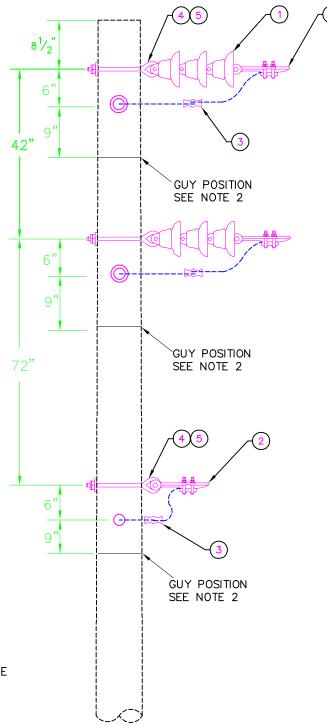
DWG REF	OTY	LIST OF MATERIALS			GREENVIL	LE UTILITIE	ES COMMISSIO	ON
REF	QII	DESCRIPTION	STOCK #				TH CAROLINA	
1	4	INSULATORS, 15 kV PIN TYPE	203710	X				
2	2	PIN, ANGLE POLE TOP	206000	K C	10	47 /7 01/1/		VO DUACE
3	1	PREFORMS, 1/0 DOUBLE SUPPORT	203580				PRIMARY, TV	ON DOUBLE PIN
4	1	BRACKETS, MIF	203420	Greenville		NGLE, MIF	CONSTRUCTI	ON DOUBLE PIN
5	2	PIN, SHANK	203440	Utilities	7			
6	1	PREFORMS, 1/0 DOUBLE SIDE TIE	203540	DWN.	JLS	DATE: 08	3/23/2019	D.W.O. 11.0
7	1	INSULATORS, SPOOL "J-151"	208280	CKD.	KW	APPD.		DWG. NO.
8	1	CLEVIS, 1342	208290	SCALE:	NTS			B2
9	1	PREFORMS, 1/0 SPOOL TIE	203650	DATE	REVISION	DATE	REVISION	DZ
10	5	BOLTS, 5/8" x 12"	202070					
11	3	WASHERS, 3 X 3 CURVED	204450					



- 1) LINE ANGLE FOR A SUSPENSION INSULATOR SHOULD BE (13°-30°).
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

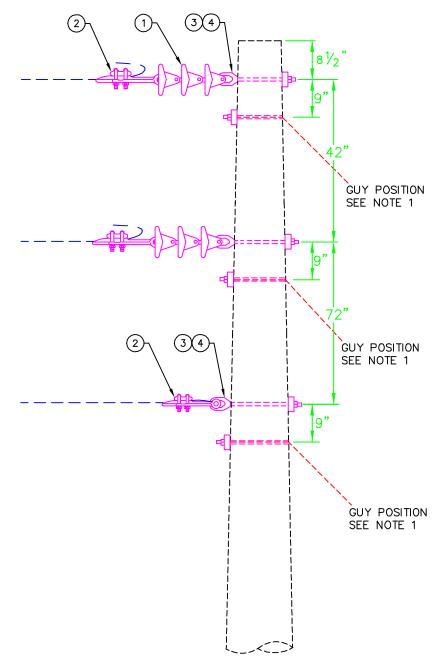
DWG REF	OTY	LIST OF MATERIALS				ES COMMISSION CAROLINA	NC		
REF	٠.,	DESCRIPTION	STOCK #						
1	2	INSULATORS, POLYMER DEAD END BELLS	206920		12.47/7.2KV PRIMARY, TWO PHASE				
2	2	CLAMPS, 1/0 SUSPENSION	202420	, 3 ,	12.4	-///.2KV -	KIMAKI, IWU) PHASE	
3	2	RODS, 1/0 ARMOR	201960	Greenville					
4	1	INSULATORS, SPOOL "J-151"	208280	Utilities					
5	1	CLEVIS, 1342	208290	DWN.	JLS	DATE: 08	3/23/2019	5,446	
6	1	PREFORMS, 1/0 SPOOL TIE	203650	CKD.	KW	APPD.		DWG. NO.	
7	2	BOLTS, 5/8" x 12" EYE	202290	SCALE:	NTS			D.7	
8	1	BOLTS, 5/8" x 12"	202070	DATE	REVISION	DATE	REVISION	В3	
9	3	WASHERS, 3 X 3 CURVED	204450						





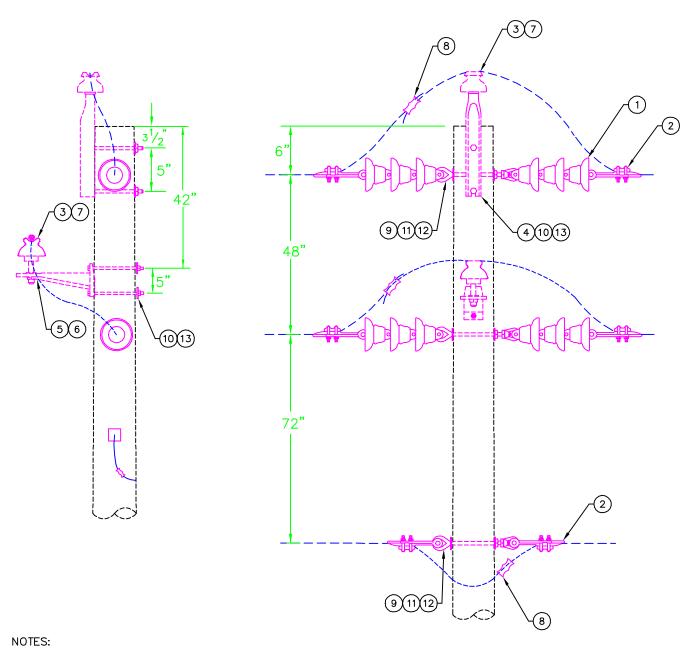
- 1) LINE ANGLE FOR A DOUBLE DEADEND SHOULD BE GREATER THAN 30°.
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

DWG REF	QTY	LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA				
REF	٠.,	DESCRIPTION	STOCK #					
1	4	INSULATORS, POLYMER DEAD END BELLS	206920		4.0	47 /7 01/1/	DDU445V T	WO DULA OF
2	6	SHOE, #6 - 1/0 DEAD END	207570	L XX			PRIMARY, T	
3	3	SQUEEZONS, #4	203010	Greenville	LARGE A	ANGLE, DOU	DRIF DEADEL	ND SUSPENSION
4	6	BOLTS, 5/8" x 12" EYE	202290	Utilities	•			
5	6	WASHERS, 3 X 3 CURVED	204450	DWN.	JLS	DATE: 08	3/23/2019	D.W.O. 11.0
				CKD. KW		APPD.		DWG. NO.
				SCALE:	NONE			
				DATE	REVISION	DATE	REVISION	B4
					·			



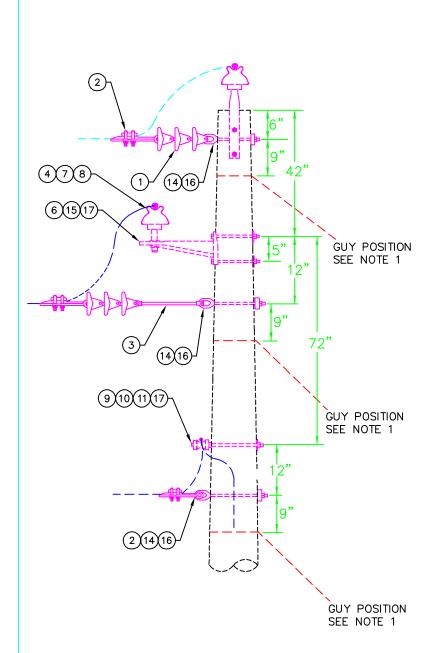
1) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

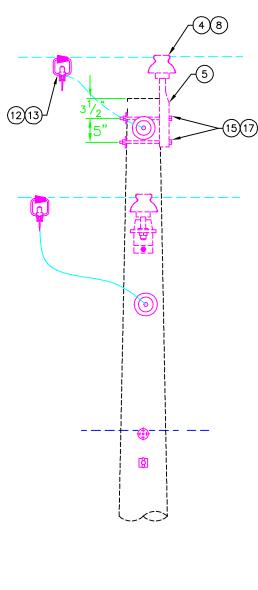
DWG REF	QTY	LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA								
		DESCRIPTION	STOCK #									
1	2	INSULATORS, POLYMER DEAD END BELLS	206920		4.0	47/7.2KV PRIMARY, TWO PHASE						
2	3	SHOE, #6 - 1/0 DEAD END	207570	k 🖏								
3	3	BOLTS, 5/8" x 12" EYE	202290	Greenvill	SING	JLE DEADE	ND (TAP), S	USPENSION				
4	3	WASHERS, 3 X 3 CURVED	204450	Utilities								
				DWN. JLS		DATE: 08/26/2019		DW0 110				
				CKD. KW		APPD.		DWG. NO.				
				SCALE:	NONE							
				DATE	REVISION	DATE	REVISION	B5				



SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

DWG REF	OTY	LIST OF MATERIALS								
REF		DESCRIPTION	STOCK #							
1	4	INSULATORS, POLYMER DEAD END BELLS	206920							
2	6	SHOE, #6 - 1/0 DEAD END	207570		GREENVIL	LE UTILITIE	S COMMISSI	ON		
3	2	INSULATORS, 15 kV PIN TYPE	203710		GREEN	IVILLE, NORT	H CAROLINA			
4	1	PIN, 18" POLE TOP	203430							
5	1	BRACKETS, MIF	203420	1			T			
6	1	PIN, SHANK	203440					ARY, TWO PHASE		
7	2	PREFORMS, 1/0 WRAP TIE	203590	Greenville	IANGE	GENT, DOUBLE DEADEND SUSPENSION				
8	3	SQUEEZONS, #4	203010	Utilities	*					
9	3	BOLTS, 5/8" x 12" EYE	202290	DWN.	JLS	DATE: 08	/26/2019	DWG. NO.		
10	4	BOLTS, 5/8" x 12"	202070	CKD.	KW	APPD.		D110. 110.		
11	3	NUTS, 5/8" EYE	204420	SCALE:	SCALE: NONE			De		
12	3	WASHERS, 3 X 3 CURVED	204450	DATE	REVISION	DATE	REVISION	В6		
13	4	2 1/4" SQUARE WASHER	204440		•					





DWG REF	QTY	LIST OF MATERIALS						
REF	اليد	DESCRIPTION	STOCK #					
1	2	INSULATORS, POLYMER DEAD END BELLS	206920					
2	3	SHOE, #6 - 1/0 DEAD END	207570					
3	1	EXTENSION, 14" LINKS	210340					
4	1	INSULATORS, 15 kV PIN TYPE	203710					
5	1	PIN, 18" POLE TOP	203430					
6	1	BRACKETS, MIF	203420					
7	1	PIN, SHANK	203440					
8	2	PREFORMS, 1/0 WRAP TIE	203590					
9	1	INSULATORS, SPOOL "J-151"	208280					
10	1	BOLTS, 5/8" x 12" SPOOL	202000					
11	1	PREFORMS, 1/0 SPOOL TIE	203650					
12	2	CLAMPS, 1/0 SINGLE STIRRUP	202390					
13	2	TAPS, HOT LINE CLAMPS	202350					
14	3	BOLTS, 5/8" x 12" EYE	202290					

15 4 BOLTS, 5/8" x 12"

16 3 WASHERS, 3 X 3 CURVED

17 5 2 1/4" SQUARE WASHER

- 1) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 2) BOND TAP NEUTRAL TO MAIN LINE NEUTRAL AND POLE GROUND. SEE DN-GG FOR DETAILS.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



DWN. CKD. SCALE:

DATE

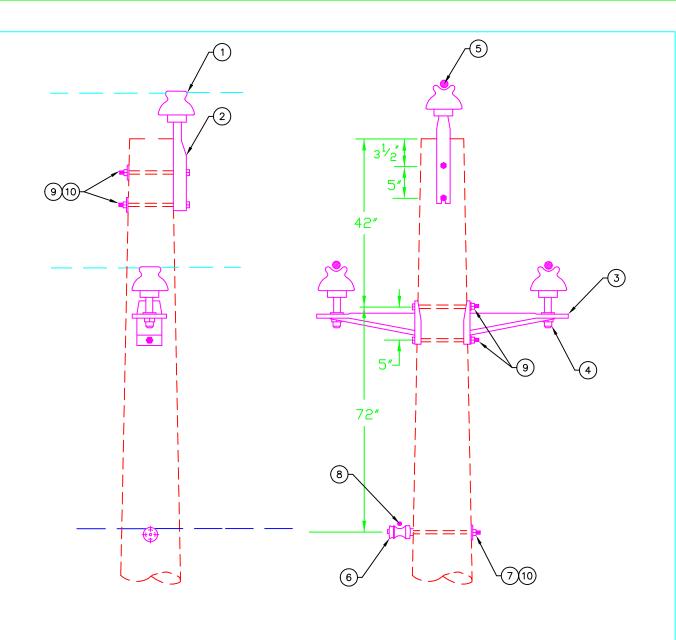
202070

204450

204440

12.47/7.2KV PRIMARY, TWO PHASE TANGENT WITH TWO PHASE DEAD END TAP

JLS	DATE: 08,	/26/2019	5146 116
KW	APPD.		DWG. NO.
NONE			
REVISION	DATE	REVISION	В7



- 1) SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

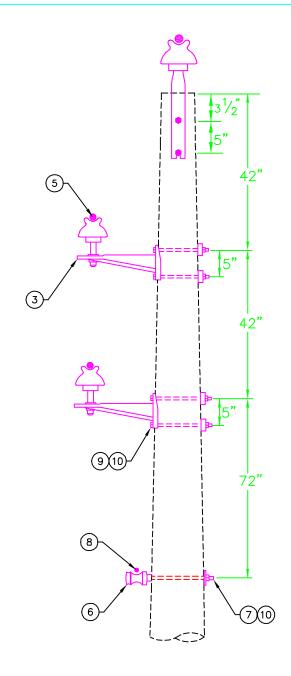
DWG				LIST OF MATERIALS					
REF	1/0	336	795	DESCRIPTION	STOCK#				
1	3	3	_	INSULATORS, 15 kV PIN TYPE	203710				
1	_	_	3	INSULATOR, 25 kV POST TYPE	207720				
2	1	1	_	PIN, 18" POLE TOP	203430				
2	_	_	1	BRACKET, 35 kV POLE TOP	207890				
3	2	2	2	BRACKETS, MIF	203420				
4	2	2	_	PIN, SHANK	203440				
4	_	_	3	BOLTS, 3/4" x 3/4" STUD	210361				
5	3	-	_	PREFORMS, 1/0 WRAP TIE	203590				
5	_	3	_	PREFORMS, 336 WRAP LOCK TIE	203600				
5	_	_	3	PREFORMS, 795 WRAP LOCK TIE	203660				
6	1	1	1	INSULATORS, SPOOL "J-151"	208280				
7	1	1	1	BOLTS, 5/8" x 12" SPOOL	202000				
8	1	1	-	PREFORMS, 1/0 SPOOL TIE	203650				
8	-	-	1	PREFORMS, 336 SPOOL TIE	207580				
9	4	4	4	BOLTS, 5/8" x 12"	202070				
10	3	3	3	WASHERS, 2 1/4" SQUARE	204440				

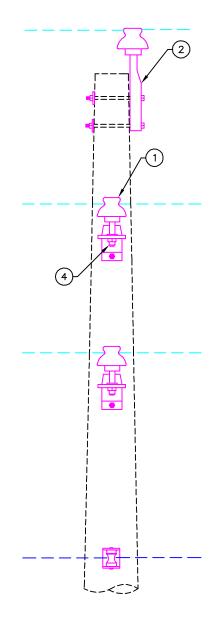


GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

12.47/7.2KV PRIMARY, THREE PHASE TANGENT, MIF CONSTRUCTION SINGLE PIN

Greenville Utilities		TANGENT, WIII CONSTRUCTION			
DWN.	JLS	DATE:	08/27/2019	5,000	
CKD.	KW	APPD.		DWG. NO.	
SCALE:	NTS				
DATE	REVISION	DATE	REVISION	C1	
				1	





- SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



202070

204440

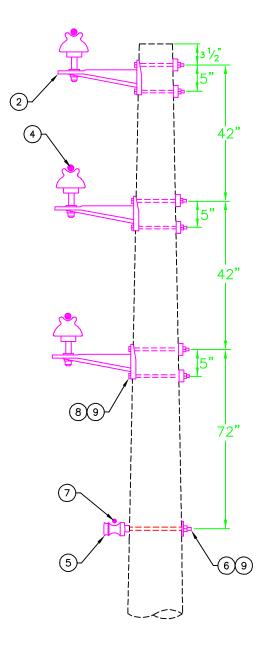
12.47/7.2KV PRIMARY, THREE PHASE TANGENT, MIF VERTICAL SINGLE PIN, POLE TOP

441117147				
DWN.	JLS	DATE:	08/28/2019	5,40
CKD.	KW	APPD.		DWG. NO.
SCALE:	NTS			
DATE	REVISION	DATE	REVISION	C1.V
				.

DWG			,	LIST OF MATERIALS		
REF			795	DESCRIPTION	STOCK#	
1	3	3		INSULATORS, 15 kV PIN TYPE	203710	
1	_	_	3	INSULATOR, 25 kV POST TYPE	207720	
2	1	1	-	PIN, 18" POLE TOP	203430	
2	3 2 2 2		1 BRACKET, 35 kV POLE TOP			
3			2	BRACKETS, MIF	203420	
4			-	PIN, SHANK	203440	
4	_	_	3	BOLTS, 3/4" x 3/4" STUD	210361	
5	3	_	-	PREFORMS, 1/0 WRAP TIE	203590	
5	_	3	_	PREFORMS, 336 WRAP LOCK TIE	203600	
5	-	-	3	PREFORMS, 795 WRAP LOCK TIE	203660	
6	1	1	1	INSULATORS, SPOOL "J-151"	208280	
7	1	1	1	BOLTS, 5/8" x 12" SPOOL	202000	
8	1	1	_	PREFORMS, 1/0 SPOOL TIE	203650	
8	1		1	PREFORMS, 336 SPOOL TIE	207580	

9 6 6 6 BOLTS, 5/8" x 12'

10 7 7 7 WASHERS, 2 1/4" SQUARE



LIST OF MATERIALS

DESCRIPTION

1 3 3 - INSULATORS, 15 kV PIN TYPE
1 - - 3 INSULATOR, 25 kV POST TYPE
2 3 3 3 BRACKETS, MIF

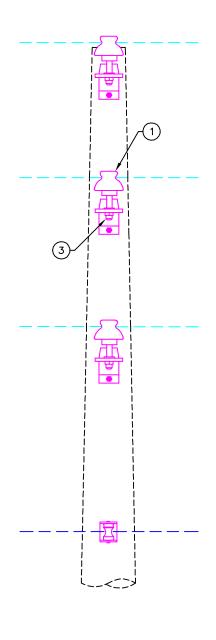
3 - - 3 BOLTS, 3/4" x 3/4" STUD 4 3 - - PREFORMS, 1/0 WRAP TIE

QTY

3 3 3 - PIN, SHANK

REF 1/0336 795

DWG



NOTES:

- SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



12.47/7.2KV PRIMARY, THREE PHASE TANGENT, MIF VERTICAL SINGLE PIN

4	-	3	_	PREFORMS, 336 WRAP LOCK TIE	203600	Greenville	IAN	TANGENT, WIF VERTICAL SINGL		
4	-	_	3	PREFORMS, 795 WRAP LOCK TIE	203660	Utilities				
5	1	1	1	INSULATORS, SPOOL "J-151"	208280	DWN.	JLS	DATE: 08	3/28/2019	DW0 N0
6	1	1	1	BOLTS, 5/8" x 12" SPOOL	202000	CKD.	KW	APPD.		DWG. NO.
7	1	1	-	PREFORMS, 1/0 SPOOL TIE	203650	SCALE:	NTS			
7	_	_		PREFORMS, 336 SPOOL TIE	207580	DATE	REVISION	DATE	REVISION	C1.V1
8		6		BOLTS, 5/8" x 12"	202070					
9	7	7	7	WASHERS, 2 1/4" SQUARE	204440					
						•				

STOCK#

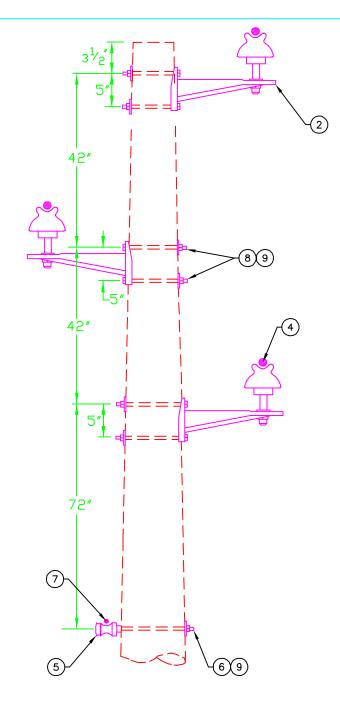
203710

207720 203420

203440

210361

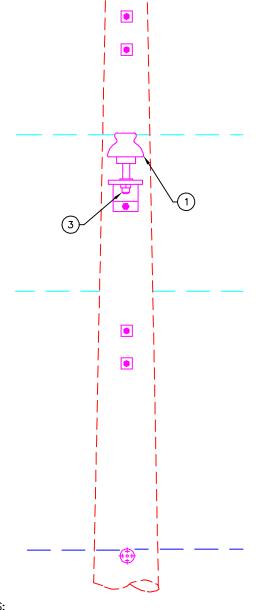
203590



LIST OF MATERIALS

DESCRIPTION

DWG QTY REF 1/0336795 QTY



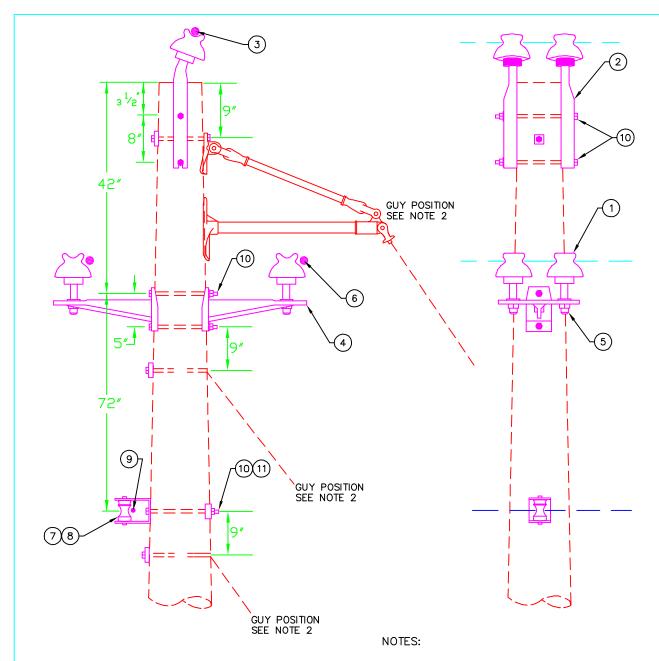
NOTES:

- 1) SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.



	1/0	336	795	DESCRIPTION	STOCK#	DETAILS.							
1	3	3	-	INSULATORS, 15 kV PIN TYPE	203710								
1	_	-	3	INSULATOR, 25 kV POST TYPE	207720	GREENVILLE UTILITIES COMMISSION							
2	3	3	3	BRACKETS, MIF	203420		GREEN	IVILLE, NOF	TH CAROLINA				
3	3	3		PIN, SHANK	203440								
3	_	-	3	BOLTS, 3/4" x 3/4" STUD	210361	A A	10.4	7 /7 01/1/ 5		TE DUACE			
4	3	_	_	PREFORMS, 1/0 WRAP TIE	203590		12.47 TANCEN	12.47/7.2KV PRIMARY, THREE PHASE TANGENT, MIF Z CONSTRUCTION SINGLE F					
4	_	3	-	PREFORMS, 336 WRAP LOCK TIE	203600	Greenville	IANGEN	1 SINGLE FIN					
4	-	_	3	PREFORMS, 795 WRAP LOCK TIE	203660	Utilities							
5	1	1	1	INSULATORS, SPOOL "J-151"	208280	DWN.	JLS	DATE: C	8/28/2019	5,110			
6	1	1	1	BOLTS, 5/8" x 12" SPOOL	202000	CKD.	KW	APPD.		DWG. NO.			
7	1	1	-	PREFORMS, 1/0 SPOOL TIE	203650	SCALE:	NTS		_				
7	-	-	1	PREFORMS, 336 SPOOL TIE	207580	DATE	REVISION	DATE	REVISION	C1.Z			
8	6	6	6	BOLTS, 5/8" x 12"	202070					01.2			
9	7	7	7	WASHERS, 2 1/4" SQUARE	204440								
									•				

STOCK#



DWG				LIST OF MATERIALS		
REF	[_] 1/0336795			DESCRIPTION	STOCK#	
1	6	6	_	INSULATORS, 15 kV PIN TYPE	203710	
1	_	-	6	INSULATOR, 25 kV POST TYPE	207720	
2	2	2	-	PIN, 18" POLE TOP	203430	
2	_	_	2	BRACKET, 35 kV POLE TOP	207890	
3	1	_	-	PREFORMS, 1/0 DOUBLE SUPPORT	203580	
3	_ 1 _		-	PREFORMS, 336 DOUBLE SUPPORT TIE	203570	
3	_	_	1	PREFORMS, 795 DOUBLE SUPPORT TIE	203670	
4	2	2	2	BRACKETS, MIF	203420	
5	4	4	-	PIN, SHANK	203440	
5	_	_	6	BOLTS, 3/4" x 3/4" STUD	210361	
6	2	_	-	PREFORMS, 1/0 DOUBLE SIDE TIE	203540	
6	_	2	_	PREFORMS, 336 DOUBLE SIDE TIE	203550	
6	_	_	2	PREFORMS, 795 DOUBLE SIDE TIE	207800	
7	1	1	1	INSULATORS, SPOOL "J-151"	208280	
8	1	1	1	CLEVIS, 1342	208290	
9	1	1	-	PREFORMS, 1/0 SPOOL TIE	203650	
9	_	_	1	PREFORMS, 336 SPOOL TIE	207580	
10	5	5	5	BOLTS, 5/8" x 12"	202070	
11						

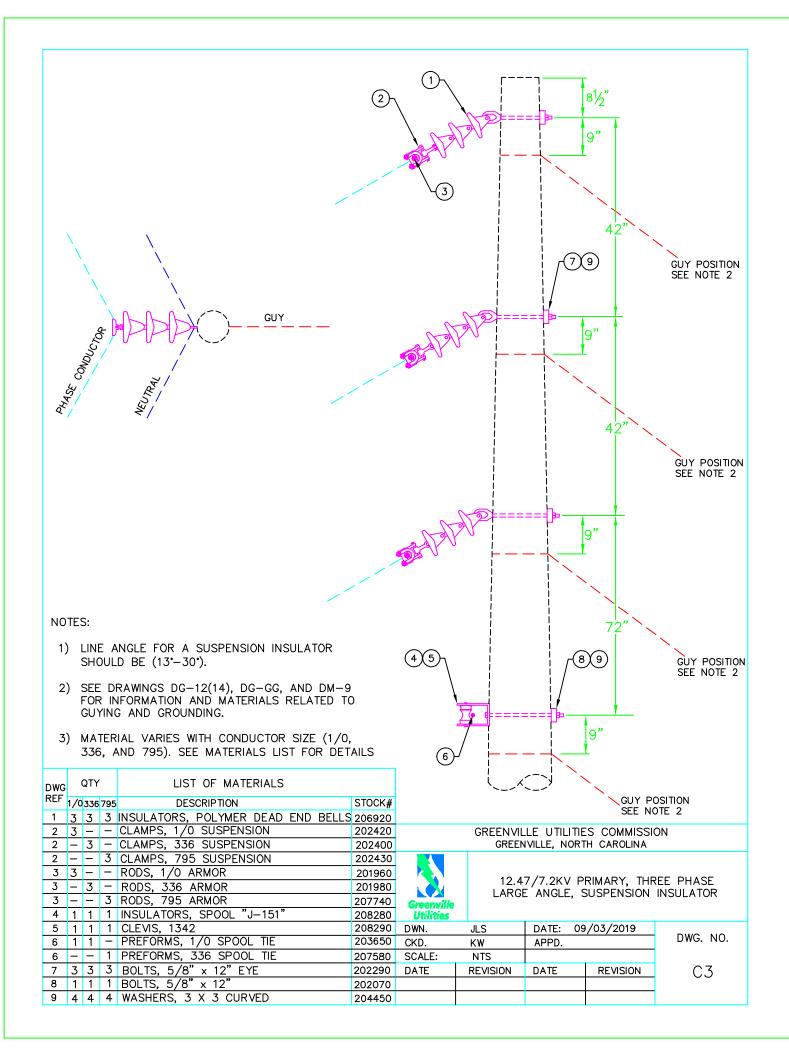
- 1) LINE ANGLE FOR A DOUBLE PIN INSULATOR SHOULD BE (1'-12').
- 2) SEE DRAWINGS SWG-12(14), DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 3) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS

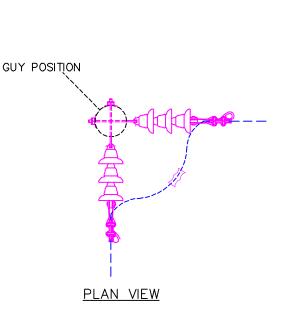
GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

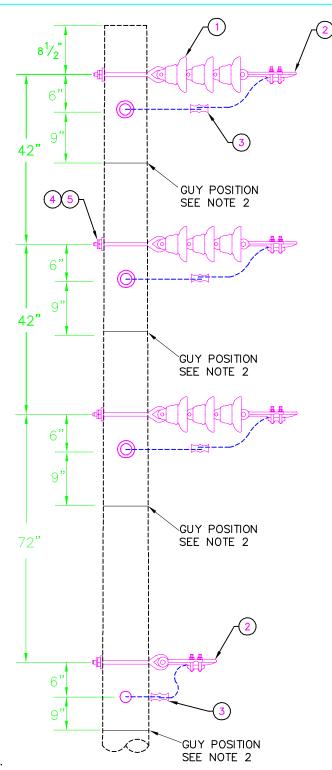


12.47/7.2KV PRIMARY, THREE PHASE SMALL ANGLE, MIF CONSTRUCTION DOUBLE PIN

DWN.	JLS	DATE:	08/28/2019	5140 110
CKD.	KW	APPD.		DWG. NO.
SCALE:	NTS			
DATE	REVISION	DATE	REVISION	CS
				0_

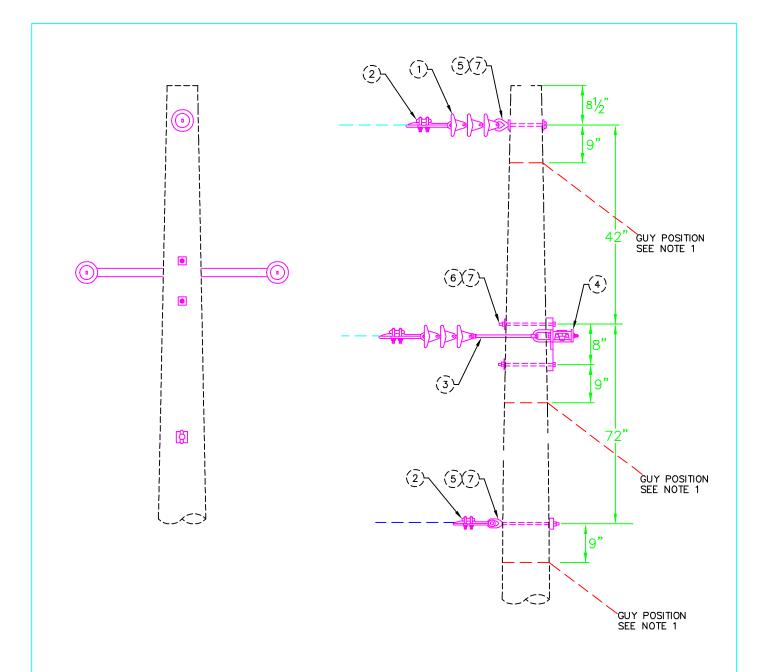






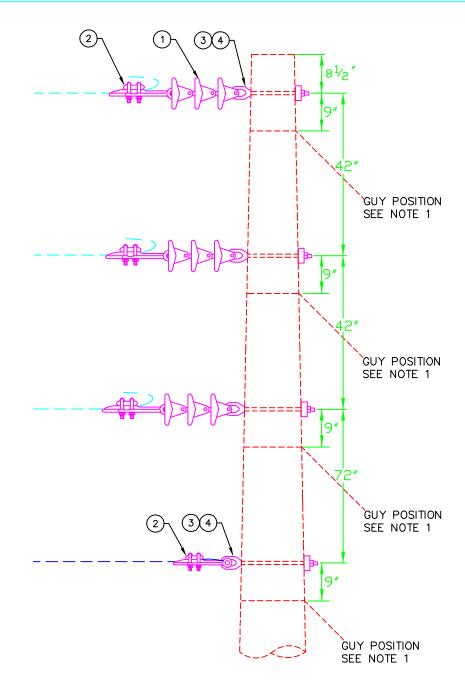
- 1) LINE ANGLE FOR A DOUBLE DEADEND SHOULD BE GREATER THAN 30°.
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 3) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

DWG				LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA						
REF	1/0	336	795	DESCRIPTION	STOCK #						
1	6	6	6	INSULATORS, POLYMER DEAD END BELLS	206920		40.47 /7 OKY DRIMARY TURES BUACE				
2	8	2	_	SHOE, #6 - 1/0 DEAD END	207570			47/7.2KV PRIMARY, THREE PHASE ANGLE, DOUBLE DEADEND SUSPENSION			
2	_	6	2	SHOE, 336 DEAD END	202450	Greenville	LARGE A				
2	-	_	6	SHOE, 795 DEAD END	202440	Utilities					
3	4	1	_	SQUEEZONS, #4	203010	DWN.	JLS	DATE: 09/03/2019		DWG. NO.	
3	_	3	1	CONN., 602007 AMPACT 336-336	202880	CKD.	KW	APPD.			
3	_	_		CONN., 795-795 AMPACT	202940	SCALE:	NONE				
4	8	8	8	BOLTS, 5/8" X 12" EYE	202290	DATE	REVISION	DATE	REVISION	C4	
5	8	8	8	WASHERS, 3 X 3 CURVED	204450						



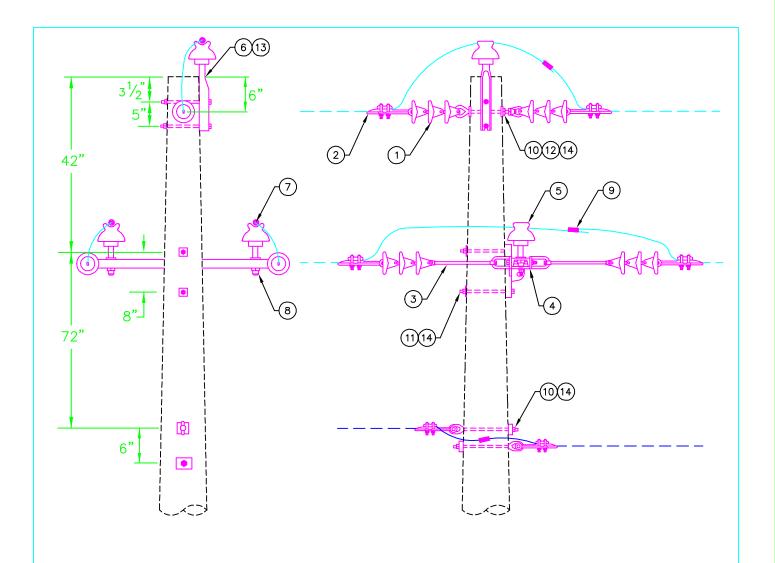
- 1) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

DWG				LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA						
REF	1/0	336	795 DESCRIPTION S		STOCK #						
1	3	3	3	INSULATORS, POLYMER DEAD END BELLS	206920		40.	12.47/7.2KV PRIMARY, THREE PHASE			
2	4	1	_	SHOE, #6 - 1/0 DEAD END	207570	k 🚫					
2	_	3	1	SHOE, 336 DEAD END	202450	Greenville		. DEADEI	ND, CROSSARM	SUSPENSION	
2	_	_	3	SHOE, 795 DEAD END	202440	Utilities					
3	2	2	2	EXTENSIONS, 14" LINKS	210340	DWN.	JLS	DATE:	09/03/2019	5,000,000	
4	1	1	1	ARMS, STEEL DEAD END CROSS	203800	CKD.	KW	APPD.		DWG. NO.	
5	2	2		· ,	202290	SCALE:	NONE				
6	2	2	2	BOLTS, 3/4" x 12"	202230	DATE	REVISION	DATE	REVISION	C5	
7	4	4	4	WASHERS, 3 X 3 CURVED	204450				·	-	
								·			



- 1) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

DWG	WG QTY			LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
REF	1/0	336	795	DESCRIPTION	STOCK #	X				
1	3	3	3	INSULATORS, POLYMER DEAD END BELLS	206920	10 17 (7 0) 11 7 7 10 7			DEE DUADE	
2	4	1	-	SH□E, #6 - 1/0 DEAD END	207570	N N			PRIMARY, THI	
2	_	3	1	SHOE, 336 DEAD END	202450	Greenville	SINGLE D	EADEND (IAP), VERTIC	AL SUSPENSION
2	_	_		SHOE, 795 DEAD END	202440	Utilities	•			
3	4	4	4	BOLTS, 5/8" X 12" EYE	202290	DWN.	JLS	DATE: 09	/03/2019	DW0 N0
4	4	4	4	WASHERS, 3 X 3 CURVED	204450	CKD.	KW	APPD.		DWG. NO.
						SCALE:	NONE			
						DATE	REVISION	DATE	REVISION	C5.V



QTY			LIST OF MATERIALS					
1/0	336	795	DESCRIPTION	STOCK#				
6	6	6						
8	2	-	SHOE, #6 - 1/0 DEAD END	207570				
-	6	2	SHOE, 336 DEAD END	202450				
-	_	6	SHOE, 795 DEAD END	202440				
4	4	4	EXTENSIONS, 14" LINKS	210340				
1	1	1	ARMS, STEEL DEAD END CROSS	203800				
3	3	-	INSULATORS, 15 kV PIN TYPE	203710				
-	-	3	INSULATOR, 25 kV POST TYPE	207720				
1	1	-	PIN, 18" POLE TOP	203430				
-	-	1	BRACKET, 35 kV POLE TOP	207890				
3	-	-	PREFORMS, 1/0 WRAP TIE	203590				
-	3	-	PREFORMS, 336 WRAP LOCK TIE	203600				
-	-	3	PREFORMS, 795 WRAP LOCK TIE	203660				
2	2	-	PINS, LONG SHANK CROSS ARM	210311				
_	_	2	PINS, 35 KV CROSS	-				
4	1	-	SQUEEZONS, #4	203010				
-	3	1	CONN., 602007 AMPACT 336-336	202880				
-	_	3	CONN., 795-795 AMPACT	202940				
3	3	3	BOLTS, 5/8" x 12" EYE	202290				
2	2	2	BOLTS, 3/4" x 12"	202230				
1	1	1	NUTS, 5/8" EYE	204420				
-	_	1	BOLTS, 3/4" x 3/4" STUD	210361				
5	5	5	WASHERS, 3 X 3 CURVED	204450				
	1/0 6 8 - 4 1 3 - 1 - 3 - 2 - 4 - - 3 2 - 1 -	1/0 336 6 6 8 2 - 6 4 4 1 1 3 3 1 1 3 2 2 4 1 1 - 3 3 3 3 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1/0 336 795 6 6 6 8 8 2	1/0336795 DESCRIPTION 6 6 6 INSULATORS, POLYMER DEAD END BELLS 8 2 - SHOE, #6 - 1/0 DEAD END - 6 2 SHOE, 336 DEAD END 6 SHOE, 795 DEAD END 4 4 EXTENSIONS, 14" LINKS 1 1 ARMS, STEEL DEAD END CROSS 3 3 - INSULATORS, 15 kV PIN TYPE 3 INSULATOR, 25 kV POST TYPE 1 1 - PIN, 18" POLE TOP 1 BRACKET, 35 kV POLE TOP 3 - PREFORMS, 1/0 WRAP TIE - 3 - PREFORMS, 336 WRAP LOCK TIE - 3 PREFORMS, 795 WRAP LOCK TIE 2 2 - PINS, LONG SHANK CROSS ARM 2 PINS, 35 KV CROSS 4 1 - SQUEEZONS, #4 - 3 1 CONN., 602007 AMPACT 336-336 3 CONN., 795-795 AMPACT 3 3 BOLTS, 5/8" x 12" EYE 2 2 2 BOLTS, 3/4" x 12" 1 1 1 NUTS, 5/8" EYE 1 BOLTS, 3/4" x 3/4" STUD				

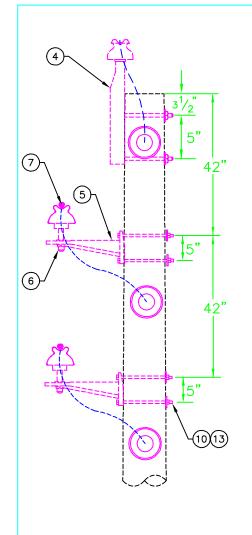
- SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

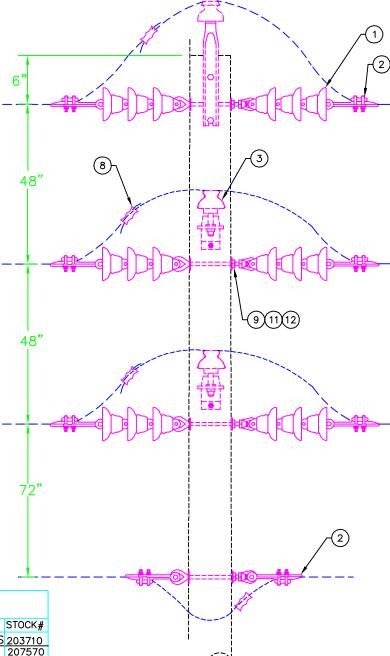
GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



12.47/7.2KV PRIMARY, THREE PHASE TANGENT DOUBLE DEADEND, CROSS. SUSPEN.

DWN.	JLS	DATE: (09/04/2019	5,440, 1,10
CKD.	KW	APPD.		DWG. NO.
SCALE:	NTS			
DATE	REVISION	DATE	REVISION	C6





DWG				LIST OF MATERIALS					
REF	1/0	336	795	DESCRIPTION	STOCK#				
1	6	6	6	INSULATORS, POLYMER DEAD END BELLS	203710				
2	8	2	-	SHOE, #6 - 1/0 DEAD END	207570				
2	_	6	2	SHOE, 336 DEAD END	202450				
2	_	-	6	SHOE, 795 DEAD END	202440				
3	3	3	-	INSULATORS, 15 kV PIN TYPE	203710				
3	_	_	3	INSULATOR, 25 kV POST TYPE	207720				
4	1	1	_	PIN, 18" POLE TOP	203430				
4	_	_	1	BRACKET, 35 kV POLE TOP	207890				
5	1	1	1	BRACKETS, MIF	203420				
6	2	2	-	PIN, SHANK	203440				
6	-	-	3	BOLTS, 3/4" x 3/4" STUD	210361				
7	3	_	-	PREFORMS, 1/0 WRAP TIE	203590				
7	_	3	_	PREFORMS, 336 WRAP LOCK TIE	203600				
7	-	_	3	PREFORMS, 795 WRAP LOCK TIE	203660				
8	4	1	-	SQUEEZONS, #4	203010				
8	_	3	1	CONN., 602007 AMPACT 336-336	202880				
8	-	_	3	CONN., 795-795 AMPACT	202940				
9	4	4	4	BOLTS, 5/8" x 12" EYE	202290				
10	6	6	6	BOLTS, 5/8" x 12"	202070				
11	4	4	4	NUTS, 5/8" EYE	204420				
12	3	3	3	WASHERS, 3 X 3 CURVED	204450				
13	5	5	5	2 1/4" SQUARE WASHER	204440				

1) SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

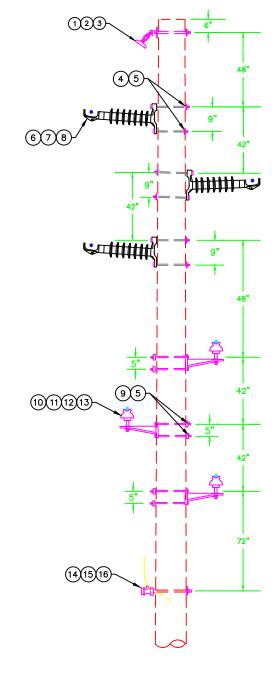


12.47/7.2KV PRIMARY, THREE PHASE TANGENT, DOUBLE DEADEND SUSPENSION

DWG. NO.

C6.V

<i>UGIIII GIES</i>	i		
DWN.	JLS	DATE:	09/04/2019
CKD.	KW	APPD.	
SCALE:	NONE		
DATE	REVISION	DATE	REVISION



60' POLE

NOTES:

- SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE. SEE MATERIALS LIST FOR DETAILS.

	LIST OF MATERIALS					
DWG REF	QTY	DESCRIPTION	STOCK#			
1	1	BOLT, 5/8" X 8", EYE	202279			
2	1	CLAMPS, 1/0 SUSPENSION	202420			
3	1	ROD, (7#9) ARMOR	208570			
4	6	5/8" X 10" MACHINE BOLT	202060			
5	12	P143 CURVED WASHER	204450	Τ		
6	3	34 kV POST INSULATOR	203760			
7	3	ARMOR ROD	_			
8	3	TRUNION CLAMP	NS			
9	6	5/8" X 12" MACHINE BOLT	202070			
10	3	BRACKETS, MIF	203420			
11	3	PIN, SHANK	203440			
12	3	INSULATORS, 15 KV PIN TYPE	203710			
13	3	PREFORMS, WRAP LOCK TIE	_			
14	1	NO. J151 SPOOL INSULATOR	208280			
15	1	PREFORMED SPOOL TIE	_			

5/8" X 12" SPOOL BOLT

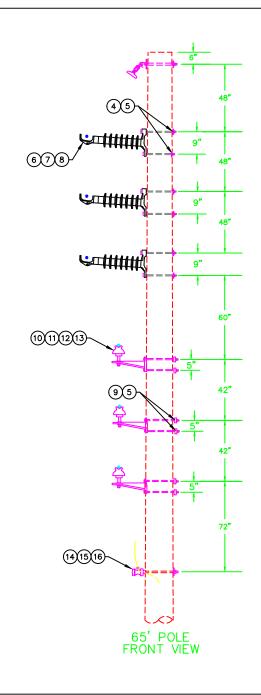
GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

34.5 KV PRIMARY, THREE PHASE TANGENT, MIF Z CONSTRUCTION SINGLE PIN

| Columbia | Columbia

DWG. NO.

SPZD1.Z1



LIST OF MATERIALS

DESCRIPTION

BOLT, 5/8" X 8", EYE

P143 CURVED WASHER

34 kV POST INSULATOR

ROD, (7#9) ARMOR

ARMOR ROD

TRUNION CLAMP

CLAMPS, 1/0 SUSPENSION

5/8" X 10" MACHINE BOLT

5/8" X 12" MACHINE BOLT

Dwg

REF

1

2

3

4

5

6

7

8

QTY

1

1

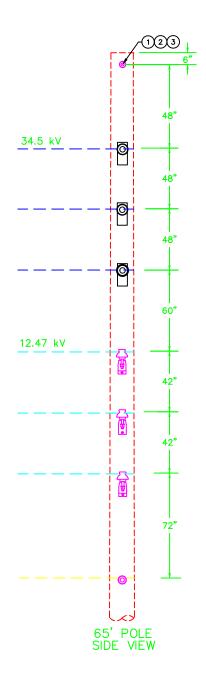
6

12

3

3

3



NOTES:

- SEE DRAWINGS DN-GG AND DM-9 FOR INFORMATION AND MATERIALS RELATED GROUNDING.
- 2) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS.

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

Greenville Utilities

12.47/7.2KV PRIMARY, THREE PHASE ANGENT, 34KV POST, 12.47 MIF VERTICAL

10	3	BRACKETS, MIF	203420	Greenville	TANGEN	, 34KV FC	DS1, 12.4/ M
11	3	PIN, SHANK	203440	Utilities			
12	3	INSULATORS, 15 KV PIN TYPE	203710	DWN.	DRB	DATE: 04	/29/2024
13	3	PREFORMS, WRAP LOCK TIE	_	CKD.	JLS	APPD.	
14	1	NO. J151 SPOOL INSULATOR	208280	SCALE:	NTS		
15	1	PREFORMED SPOOL TIE	_	DATE	REVISION	DATE	REVISION
16	1	5/8" X 12" SPOOL BOLT	202000				

GUC STOCK#

202279

202420

208570

202060

204450

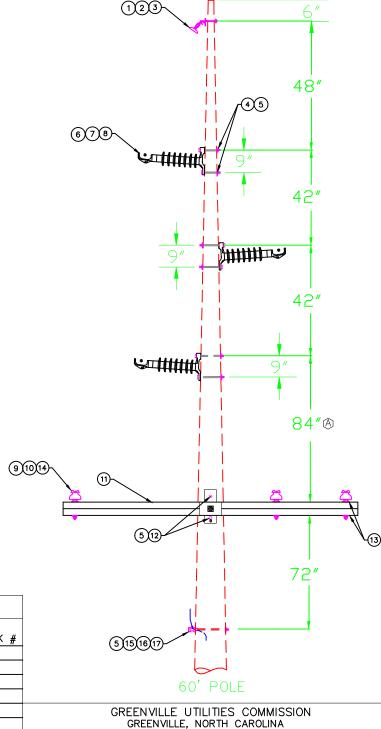
203760

NS

202070

SPVD1.V1

DWG. NO.



16 1

- 1) DRAWING NOT TO SCALE
- SEE DRAWINGS DN-GG & DM-9 FOR INFORMATION AND MATERIALS RELATED TO GROUNDING.
- MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, & 795). SEE MATERIALS LIST FOR DETAILS.
- INSTALL 4" X 4" SQUARE WASHER (ITEM 12) ON TOP AND BOTTOM OF CROSSARM AT EACH INSULATOR. DISTANCE BETWEEN CROSSARM AND INSULATOR CAN BE
- REDUCED. CONSULT WITH ENGINEERING.

LIST	OF	MATERIALS
	01	WITTER

DWG REF	QTY	DESCRIPTION	GUC STOCK #
1	1	BOLT, 5/8" X 8", EYE	202279
2	1	CLAMPS, 1/0 SUSPENSION	202420
3	1	ROD, (7#9) ARMOR	208570
4	6	5/8" X 10" MACHINE BOLT	202060
5	9	P143 CURVED WASHER	204450
6	3	34 kV POST INSULATOR	203760
7	3	TRUNION CLAMP	NS
8	3	ARMOR ROD	_
9	3	No. 887 SHORT SHANK PINS	203440
10	3	INSULATORS, 15 KV PIN TYPE	203710
11	1	ARMS, 10' H/T FIBERGLASS CROSS	203814
12	2	5/8" X 12" MACHINE BOLT	202070
13	6	WASHER, SQUARE, 4" X 4"	220012
14	3	PREFORMED WRAPLOCK TIES	_
15	1	NO. J151 SPOOL INSULATOR	208280

PREFORMED SPOOL TIE 5/8" X 12" SPOOL BOLT **Greenville**

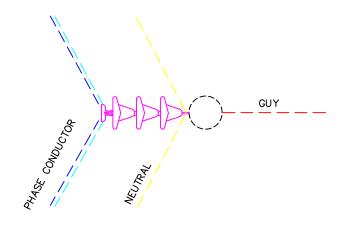
202000

34.5 KV 3-PHASE TANGENT Z-FRAME 12.47 KV DISTRIBUTION CROSSARM UB

Utilities DWN. DRB DATE: 2/26/2024 CKD. JLS APPD. JLS SCALE: N.T.S. DATE REVISION DATE REVISION

DWG. NO.

SPZD1.C1

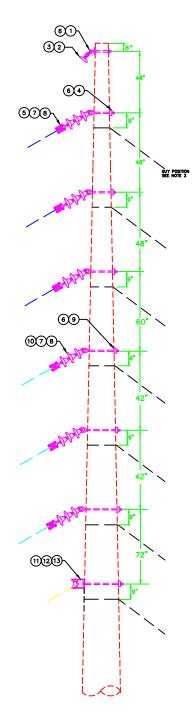




14 15

- 1) LINE ANGLE FOR A SUSPENSION INSULATOR SHOULD BE (13*-30*).
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 3) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, AND 795). SEE MATERIALS LIST FOR DETAILS

	LIST OF MATERIALS								
DWG REF									
KEF	QTY	DESCRIPTION	GUC STOCK#						
1	1	BOLT, 5/8" X 8", EYE	202279						
2	1	CLAMPS, 1/0 SUSPENSION	202420						
3	1	ROD, (7#9) ARMOR	208570						
4	3	BOLT, 5/8" X 10" EYE	202280						
5	3	INSULATORS, 34 KV DEAD END	208330						
6	6	P143 CURVED WASHER	204450						
7	6	CLAMPS, SUSPENSION	_						
8	6	ARMOR ROD	_						
9	3	BOLT, 5/8" X 12", EYE	202290						
10	3	INSULATORS, POLYMER DEAD END BELLS	203710						
11	1	NO. J151 SPOOL INSULATOR	208280						
12	1	PREFORMED SPOOL TIE	_						
13	1 5/8" X 12" SPOOL BOLT 20								



65' POLE

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

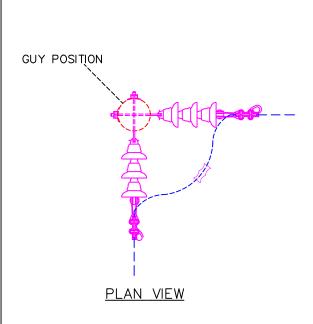


12.47/7.2KV PRIMARY, THREE PHASE LARGE ANGLE, SUSPENSION INSULATOR

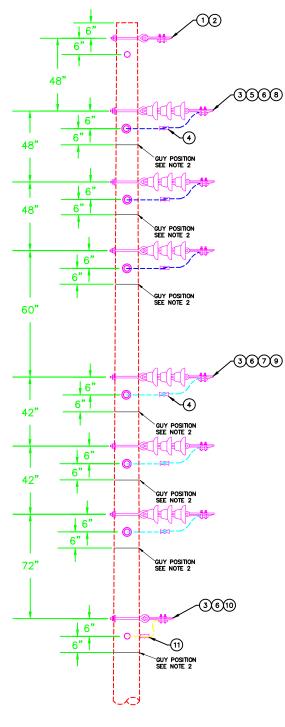
Utilities			
DWN.	DRB	DATE:	04/29/2024
CKD.	JLS	APPD.	
SCALE:	NTS		
DATE	REVISION	DATE	REVISION

DWG. NO.

SSVD3.V3



- 1) LINE ANGLE FOR A DOUBLE DEADEND SHOULD BE GREATER THAN 30°.
- 2) SEE DRAWINGS DG-12(14), DG-GG, AND DM-9 FOR INFORMATION AND MATERIALS RELATED TO GUYING AND GROUNDING.
- 3) MATERIAL VARIES WITH CONDUCTOR SIZE. SEE MATERIALS LIST FOR DETAILS.



65' POLE

		LIST OF MATERIALS					
DWG REF							
KEF	QTY	DESCRIPTION	GUC STOCK#				
1	2	BOLT, 5/8" X 8", EYE	202279				
2	2	OHGW DEADEND	GW DEADEND 220003				
3	14	SHOE, DEADEND –					
4	-	CONNECTOR, AMPACT	_				
5	6	BOLT, 5/8" X 10", EYE	202280				
6	14	P143 CURVED WASHER	204450				
7	6	BOLT, 5/8" X 12", EYE	202290				
8	6	INSULATORS, 34 KV DEADEND	208330				
9	6	INSULATORS, POLYMER DEAD END BELLS	203710				
10	2	BOLTS, 5/8" X 14" EYE	202300				

SQUEEZONS, #2

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

Greenville Utilities

DWN.

CKD.

DATE

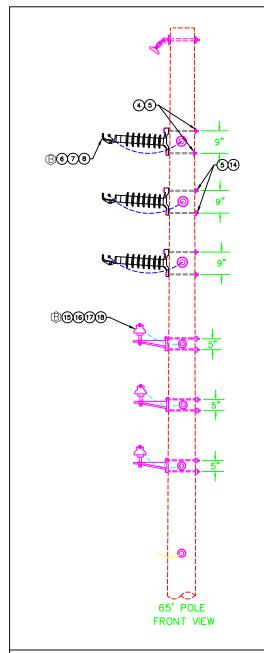
203050

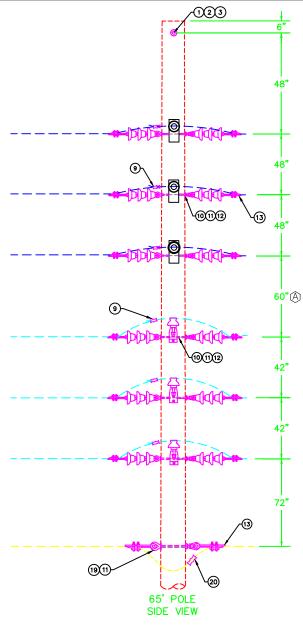
34.5 KV PRIMARY, THREE PHASE LARGE ANGLE, DOUBLE DEADEND SUSPENSION

04/29/2024 DRB DATE: JLS APPD. SCALE: NONE REVISION DATE REVISION

DWG. NO.

SSVD4.V4





LIST OF MATERIALS

DWG REF	QTY	DESCRIPTION	GUC STOCK#
1	1	BOLT, 5/8" X 8", EYE	202279
2	1	CLAMPS, 1/0 SUSPENSION	202420
3	1	ROD, (7#9) ARMOR	208570
4	6	5/8" X 10" MACHINE BOLT	202060
5	6	P143 CURVED WASHER	204450
6	3	34 kV POST INSULATOR	203760
7	3	ARMOR ROD	_
8	3	TRUNION CLAMP	NS
9	-	CONNECTOR, AMPACT	_
10	6	BOLT, 5/8" X 10", EYE	202280
11	7	NUTS, 5/8" EYE	204420
12	12	INSULATORS, POLYMER DEAD END BELLS	203710
13	14	SHOE, DEAD END	_
14	6	5/8" X 12" MACHINE BOLT	202070
15	3	BRACKETS, MIF	203420
16	3	PIN, SHANK	203440
17	3	INSULATORS, 15 KV PIN TYPE	203710
18	3	PREFORMS, WRAP LOCK TIE	_
19	1	BOLTS, 5/8" X 12" EYE	202290

SQUEEZONS, #2

19 20

NOTES:

- 1) DRAWING NOT TO SCALE
- 2) SEE DRAWINGS DN-GG & DM-9 FOR INFORMATION AND MATERIALS RELATED TO GROUNDING.
- 3) MATERIAL VARIES WITH CONDUCTOR SIZE (1/0, 336, &
- 795). SEE MATERIALS LIST FOR DETAILS.
 DISTANCE CAN BE REDUCED. CONSULT WITH ENGINEERING.
- INSTALL EYEBOLTS CENTERED IN-BETWEEN MOUNTING BOLTS FOR ITEM(6) & ITEM(15).

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



203050

34.5/12.47 KV, THREE PHASE TANGENT, DOUBLE DEADEND SUSPENSION

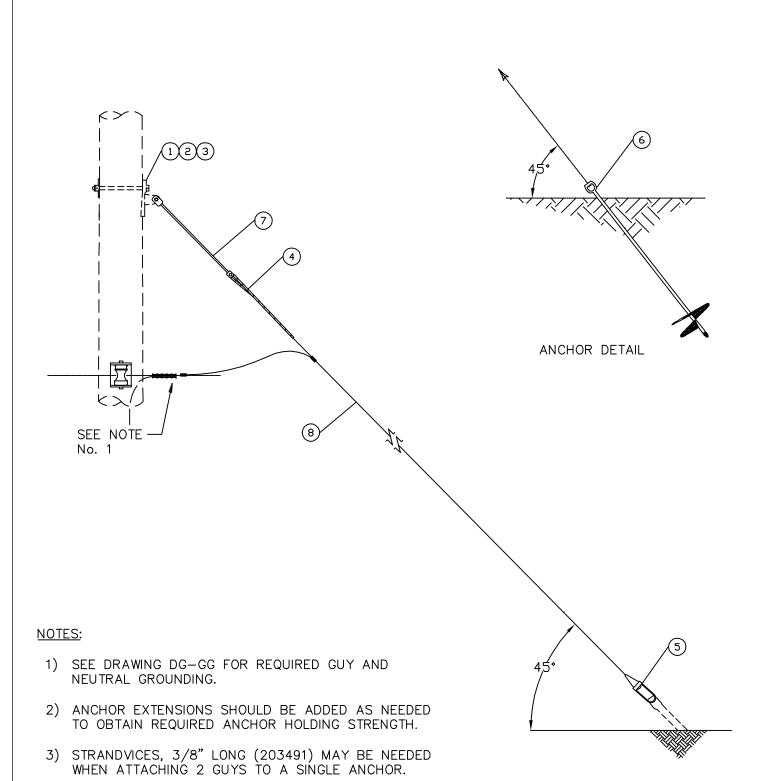
	Ungillingi(ess				
	DWN.	DRB	DATE:	02/27/2024	
	CKD.	JLS	APPD.		
	SCALE:	NONE			
	DATE	REVISION	DATE	REVISION	
_					

SSVD6.V6

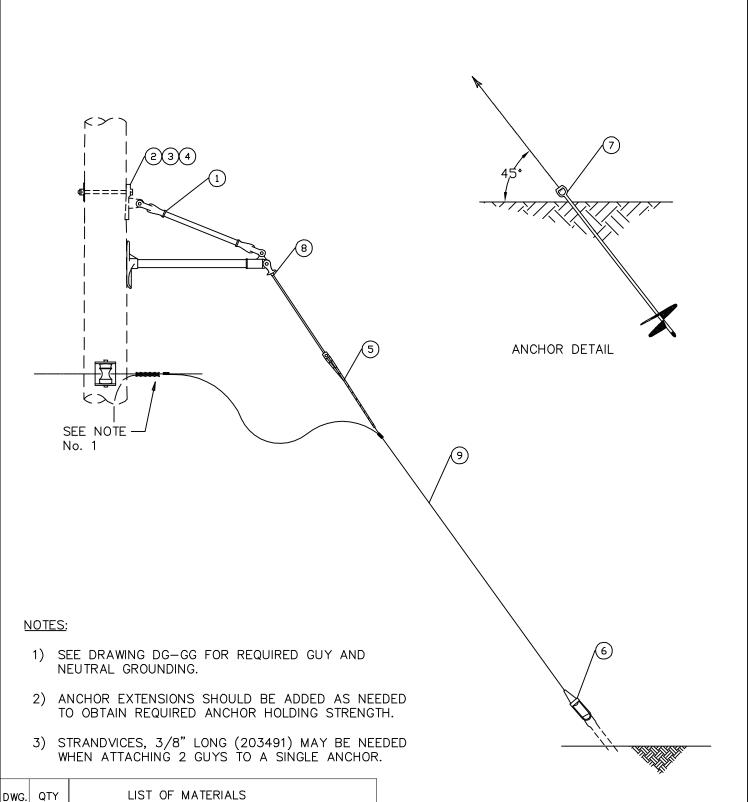
DWG. NO.

Appendix C: Standard Assembly Drawings

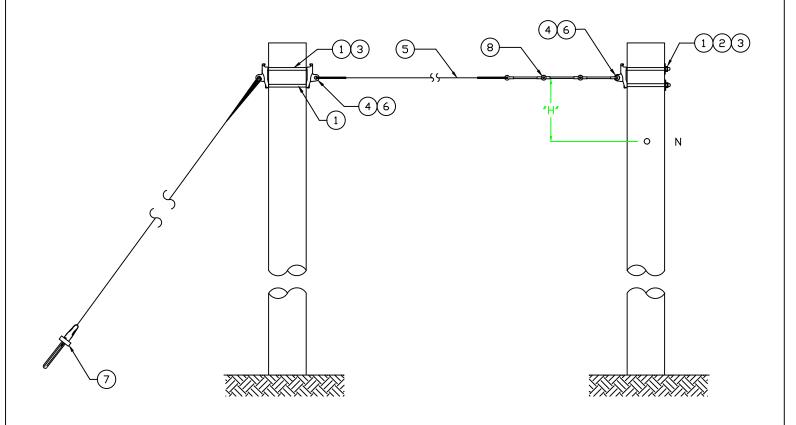
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DWG.	0.	ΤΥ	LIST OF MATERIALS							
REF.	`		2.07 01 1117 (72.117.20			GREENVI	LLE UTILIT	IES COMMISS	SION	
INCI.	12	14	DESCRIPTION	STOCK #		GREEN	ENVILLE, NORTH CAROLINA			
1	1	1	PLATES, P-345 GUY	203410						
2	1	-	BOLTS, 3/4" X 12" MACHINE	202230						
2	-	1	BOLTS, 3/4" X 14" MACHINE	202240	240 DISTRIBUTION SINGLE DOWN GUY				GUY	
3	1	1	WASHERS, 3 X 3 CURVED	204450	Greenville					
4	1	1	GRIPS, 3/8" PREFORM GUY GDE-2107	207540	Utilities					
5	1	1	STRANDVICES, 3/8"	203490	DWN. JLS		DATE: 07/31/19			
6	1	1	ANCHOR, 10" SCREW	203980	CKD. KW		APPD. KW		DWG. NO.	
7	*	*	ISOLATORS, STRAIN X REQUIRED LENGTH	_	SCALE: N.T.S	.			DG-12	
8	*	*	WIRE, 3/8" GUY	204470	DATE		DATE	REVISION	שו דר	
	1	1	GUARD, YELLOW GUY	208690					DG-14	
			* QUANTITY DEPENDS ON POLE HEIGHT & CONDUCTOR CLEARANCE							

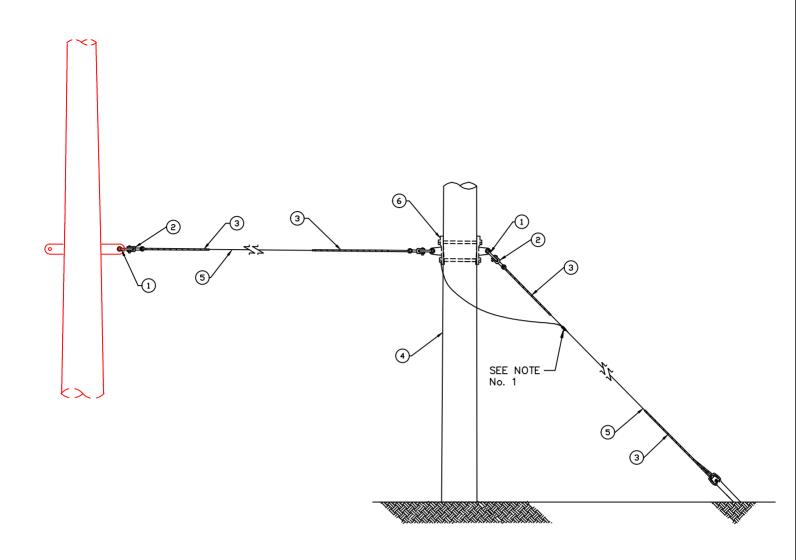


DWG.	Q ⁻	ГΥ	LIST OF MATERIALS							
KEF.	12	14	DESCRIPTION	STOCK #			LLE UTILIT	E UTILITIES COMMISSION		
1	1	1	GUY, FIBERGLASS SIDEWALK	207420		GREEN	IVILLE, NORT	TH CAROLINA		
2	1	1	PLATES, P-345 GUY	203410	X					
3	1	-	BOLTS, 3/4" X 12" MACHINE	202230						
3	-	1	BOLTS, 3/4" X 14" MACHINE	202240	DIS		DISTRIBUTION SIDEWALK GUY			
4	1	1	WASHERS, 3 X 3 CURVED	204450	Greenville					
5	1	1	GRIPS, 3/8" PREFORM GUY GDE-2107	207540	<i>Utilities</i>					
6	1	1	STRANDVICES, 3/8"	203490	DWN. JLS	·	DATE: 08/28/19			
7	1	1	ANCHOR, 10" SCREW	203980	CKD. KW		APPD. KW		DWG. NO.	
8	*	*	ISOLATORS, STRAIN X REQUIRED LENGTH	_	SCALE: N.T.	S.			SWG-12	
9	*	*	WIRE, 3/8" GUY	204470	DATE		DATE	REVISION		
	1	1	GUARD, YELLOW GUY	208690					SWG-14	
			* QUANTITY DEPENDS ON POLE HEIGHT & CONDUCTOR CLEARANCE							



- 1. ALL GUYS MUST CONTAIN GUY STRAIN INSULATORS. THE COMBINED LENGTH OF STRAIN INSULATORS MUST BE GREATER THAN "H" (VERTICAL DISTANCE BETWEEN GUY WIRE AND NEUTRAL CONDUCTOR)
- 2. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
- 3. GUY ATTACHMENT POINT SHALL BE 9" BELOW CONDUCTOR ATTACHMENT POINT.

DWG. REF.	QTY	LIST OF MATERIALS				ES COMMISS TH CAROLINA	SION
KEF.		DESCRIPTION					
1	4	BOLT, MACHINE 5/8" X REQUIRED LENGTH					
2	2	WASHER, SQUARE 2 1/4"				 WITH PREF 	DRMED
3	4	WASHER, LOCK 5/8"	Greenville		GRIPS.		
4	3	PLATES, P-345 GUY	Utilities				
5	*	WIRE, 3/8" GUY	DWN. DRB		DATE: 12/	21/2022	5,446
6	3	GRIPS, 3/8" PREFORM GUY	CKD. JLS		APPD. JLS		DWG. NO.
7	1	STRANDVICES, 3/8"	SCALE: N.T	.s.			
8	*	GUY, STRAIN INSULATOR	DATE		DATE	REVISION	DG-SG
					10/31/23	1	
	* Q	UANTITY VARIES. USE AS REQUIRED					



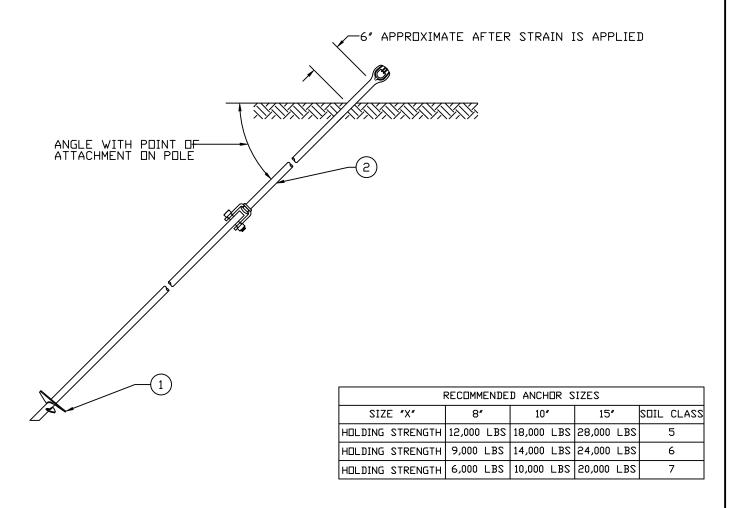
- 1) SEE DRAWING TG-GG FOR REQUIRED GUY GROUNDING TO BE INCLUDED WITH THE GUY UNIT.
- 2) SPECIFY SIZE OF GUY WIRE, MAXIMUM ULTIMATE RATED STRENGTH TO BE 33,000 LBS. REFER TO SPECIFIC WIRE SPECIFICATIONS FOR RATED STRENGTH.

* GUY WIRE AS REQUIRED

3) GUY STRAIN INSULATOR MAY BE REQUIRED. SEE STRUCTURE DRAWING/MATERIAL LIST TO VERIFY.

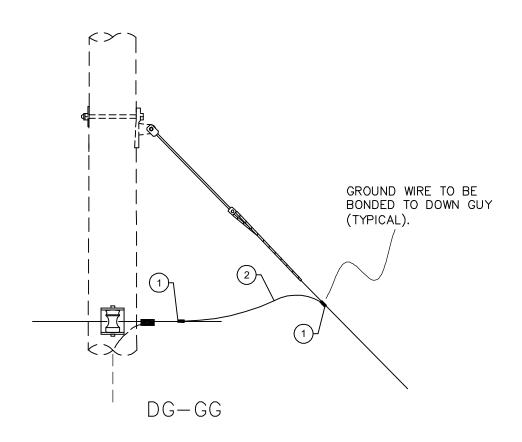
DWG. REF.	QTY	LIST OF MATERIALS				ES COMMISS H CAROLINA	ION		
REF.		DESCRIPTION							
1	3	ANCHOR SHACKLE, 30,000 LBS (MINIMUM)							
2	3	CLEVIS - THIMBLE TYPE (40,000 LBS)	SPAN GUY - WITH PRE				FORMED		
3	4	GUY - GRIP, PREFORMED	GRIPS.						
4	1	WOODEN POLE	Utilities						
5	*	GUY - WIRE	DWN. DRB		DATE: 5/2	3/2022	D.W.O. 1.10		
6	2	PLATE, P-345 GUY	CKD. JLS		APPD. JLS		DWG. NO.		
			SCALE: N.T.S	5.					
			DATE		DATE	REVISION	TG-SG		

		SOIL CLASSIFICATION DATA		
CLASS	COMMON SOIL-TYPE DESCRIPTION	GEDLOGICAL SOIL CLASSIFICATION	PROBE VALUES INLBS. (NM)	TYPICAL BLOW COUNT 'N' PER ASTM-D1586
5	MEDIUM DENSE COARSE SANDS AND SANDY GRAVEL; STIFF TO VERY STIFF SILTS AND CLAYS	SAPROLITES, RESIDUAL SOILS	300-400 (34-45)	14-25
6	LOOSE TO MEDIUM DENSE FINE TO COARSE SANDS; STIFF CLAYS AND SILTS	DENSE HYDRAULIC FILL; COMPACTED FILL; RESIDUAL SOILS	200-300 (23-34)	7-14
7	LOOSE FINE SANDS; ALLUVIUM; LOESS; MEDIUM TO STIFF AND VARIED CLAYS; FILL	FLOOD PLAIN SOILS; LAKE CLAYS; ADOBE; GUMBO, FILL	100-200 (11-23)	4-8

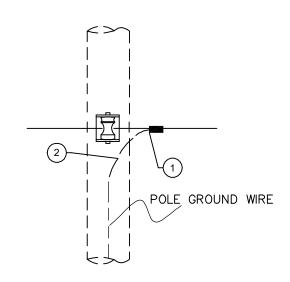


- 1. USE THE NUMBER OF EXTENSION RODS NEEDED TO REACH THE DEPTH WHERE MAXIMUM HOLDING POWER IS OBTAINED.
- 2. GROUNDING OF THE GUY IS NOT RECOMMENDED TO PREVENT CATHODIC CORROSION OF THE ANCHOR,
- 3. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

DWG. REF.				GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
KEF.	ea.	DESCRIPTION							
1	1	ANCHOR, 6FT LONG			ICTOIDUTION	ANOUGD ACC	EMPLY		
2	1	ANCHOR, EXTENSION 2 FT	DISTRIBUTION ANCHOR ASSEMBLY				FWRLY		
	*	ANCHOR, EXTENSION 4 FT	Greenville						
			Utilities						
			DWN. DRB		DATE: 12/	′21/23	D.W.G. 1.10		
			CKD. JLS		APPD. JLS		DWG. NO.		
			SCALE: N.T.	.S.					
			DATE		DATE	REVISION	DA		
		* QUANTITY AS REQUIRED							

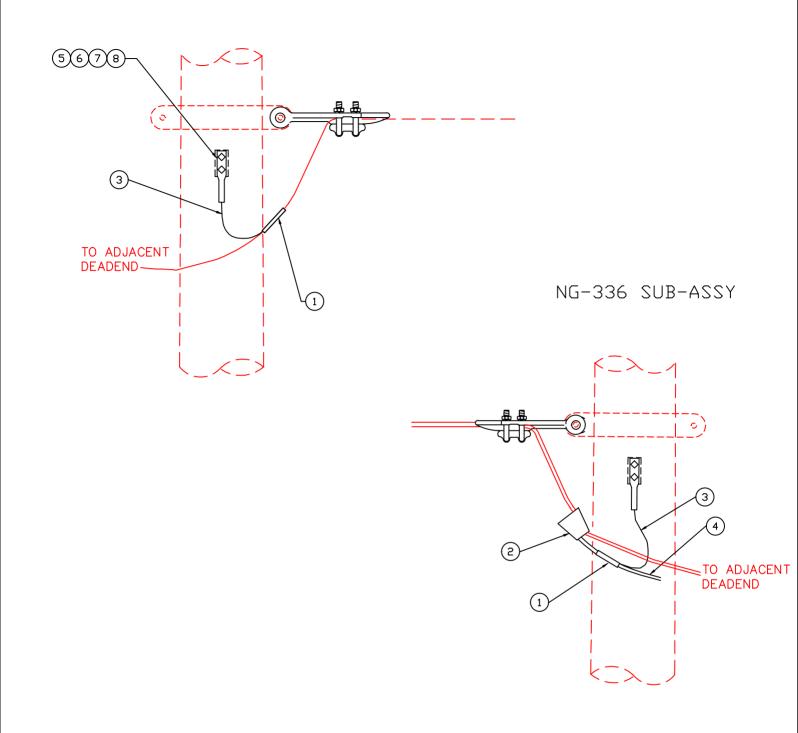


- 1) NEUTRAL SHALL BE GROUNDED AT EVERY TRANSFORMER LOCATION AND ADDITIONAL POINTS TO TOTAL NOT LESS THAN 4 GROUNDS PER MILE. (TYPICALLY 1 GROUND EVERY 4 POLES)
- 2) WHEN MULTIPLE GUYS ARE PRESENT, GUYS WILL BE TIED TOGETHER USING THE LAST GUY TO GROUND TO THE NEUTRAL. ADD WIRE AND SQUEEZONS AS NEEDED.
- 3) SEE DRAWING DM-9 FOR DRIVEN GROUND ROD GROUNDING ASSEMBLY.

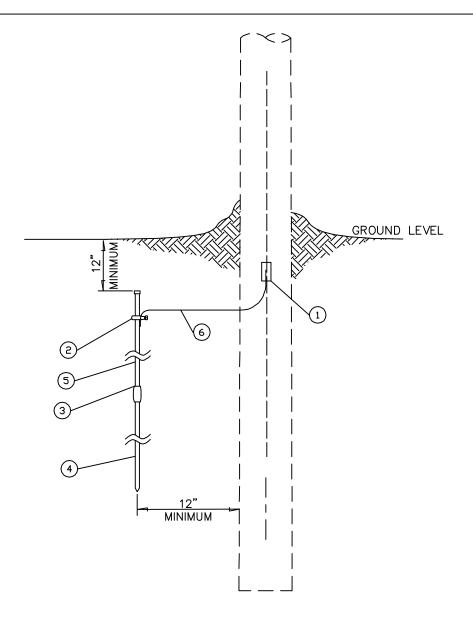


DN-GG

DWG. REF.		ΓY	LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
REF.	DG	DΝ	DESCRIPTION	STOCK #						
1	2	1	SQUEEZONS, #2	203050		DISTRIBUTION GUY AND NEUTRAL				
2	*	*	WIRE, #4 SOFT DRAWN COPPER (ft)	204490						
					Greenville	GROUNDING GUIDE				
					<i>Utilities</i>					
					DWN. JLS		DATE: 08/12/19		DW0 N0	
					CKD. KW		APPD. KW		DWG. NO.	
					SCALE: N.T.:	S.			DG-GG	
					DATE		DATE	REVISION		
									DN-GG	
			* As Required						DIN GG	



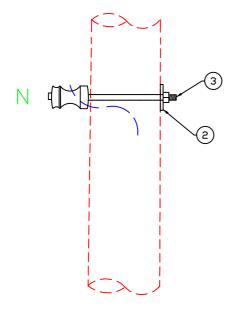
DWG. REF.	NG-1/0 QTY	NG-336 QTY	LIST OF MATERIALS				ES COMMISS TH CAROLINA	SION
REF.	Q 1 1	7	DESCRIPTION					
1	1	1	SQUEEZEON CONNECTOR #2					
2		1	AMPACT CONNECTOR 336-1/0			NEUTRAL G	ROUNDING ASS	SEMBLY
3	*	*	WIRE, #4 SOFT DRAWN	Greenville				
4		*	WIRE 1/0 ACSR	Utilities				
5	1	1	#4 COPPER 2-HOLE NEMA PAD	DWN. DRB		DATE: 06/	01/2022	
6	2	2	BOLT MACHINE, 1/2" X 1"	CKD. JLS		APPD. JLS		DWG. NO.
7	2	2	FLAT WASHER, 1/2"	SCALE: N.T.:	S.			N10 4
8	2	2	LOCK WASHER, 1/2"	DATE		DATE	REVISION	NG-1
		*LENGT	H OF WIRE AS REQUIRED		·			



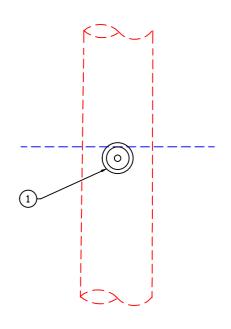
- 1) MAXIMUM GROUND RESISTANCE READING SHALL BE 25 OHMS. IF THE CLAMP—ON RESISTANCE MEASUREMENT IS USED, THE GROUND ROD SHALL BE INSTALLED AND TEMPORARILY BONDED UNTIL THE GROUND RESISTANCE READING IS TAKEN.
- 2) ADDITIONAL ROD SECTIONS SHALL BE ADDED AS NECESSARY TO REDUCE RESISTANCE TO 25 OHMS MAXIMUM. HORIZONTAL SPACING BETWEEN ADDITIONAL RODS SHALL BE NO LESS THAN 6 FEET.
- 3) GROUND ROD SHALL BE INSTALLED IN <u>UNDISTURBED SOIL</u>.

DWG. REF.	QTT			GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
KEF.		DESCRIPTION	STOCK #						
1	*	SQUEEZONS, YC4C4 COPPER	206240						
2	1	GROUND - ROD CLAMP, 5/8"	NS		DRIVEN GROUND ROD GROUNDING ASSEMBLY — WOOD POLE				
3	1	GROUND - ROD COUPLING, 5/8"	NS	Greenvile ASSEMBLY - WOOD POLE					
4	1	GROUND - ROD, 5/8" x 12'-0"	207440	Utilities					
5	1	GROUND - ROD, 5/8" x 8'-0"	203850	DWN. JLS	DATE: 08/13/19				
6	*	GROUND - WIRE, #4 (ft.)	204490	CKD. KW	APPD. KW DWG. NO.				
				SCALE: N.T.S.					
				DATE	date revision DM — 9				
		* - As Required							

FRONT VIEW

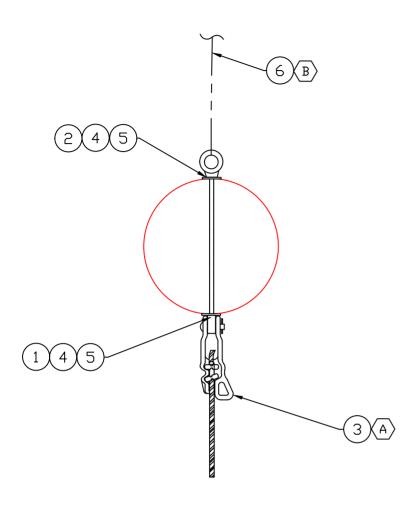


SIDE VIEW



DWG. REF.	QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA						
KEF.	Q 1 1	DESCRIPTION	X						
1	1	INSULATOR, SPOOL "J151"							
2	1	WASHER, SQUARE, 2 1/4"	NEUTRAL SPOOL ASSEM			POOL ASSEMBI	IBLY		
3	1	SPOOL BOLT X REQ. LENGTH	Greenville						
4	1	PREFORM WRAPLOCK X REQ. LENGTH, WIRE SIZE	Utilities						
			DWN. DRB		DATE: 08/18/2022		5,410		
			CKD. JLS		APPD. JLS		DWG. NO.		
			SCALE: N.T	S.					
			DATE		DATE	REVISION	NS-1		

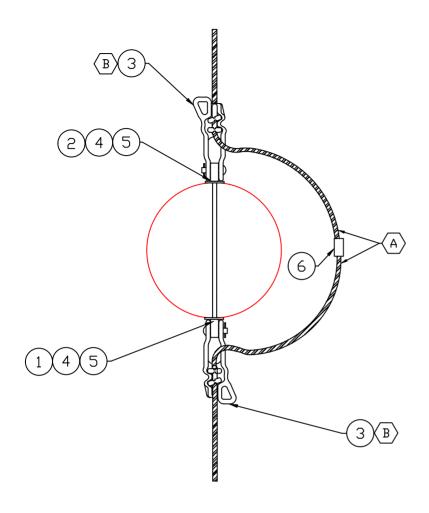
DVERHEAD VIEW



- (A) SELECT DEADEND SHOE APPROPRIATE FOR WIRE SIZE.
- B REFERENCE DWG TG-21 FOR SINGLE DOWN GUY ASSEMBLY.

DWG. REF.	QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
KEF.		DESCRIPTION						
1	1	EYE BOLT, 5/8" X LENGTH"		NEUTRAL	DEADEND			
2	1	5/8" EYE NUT						
3	1	DEADEND SHOE	Greenville					
4	2	WASHER, SQUARE, 4" X 4" X 13/16" HOLE	Utilities					
5	2	SPRING LOCK WASHER, 5/8"	DWN. DRE	3	DATE: 06	/03/2022	5,00	
6	1	SINGLE DOWN GUY	CKD. JLS		APPD. JLS		DWG. NO.	
			SCALE: N.T.S.				NDE-1	
			DATE		DATE	REVISION	ן אטב – ו	

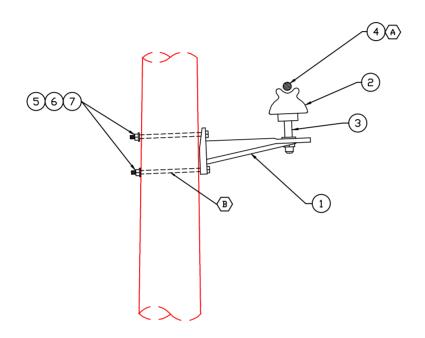
OVERHEAD VIEW



- (A) MEASURE AND TRIM EXCESS NEUTRAL CONDUCTORS AS REQUIRED AND CONNECT ENDS WITH SQUEEZON/AMPACT, ITEM (6).
- B SELECT DEADEND SHOE & SQUEEZON/AMPACT APPROPRIATE FOR WIRE SIZE.

DWG. REF.	QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA				
KEF.		DESCRIPTION					
1	1	EYE BOLT, 5/8" X LENGTH"		NEUTRAL	. DOUBLE DE	EADEND	
2	1	5/8" EYE NUT					
3	2	DEADEND SHOE	Greenville				
4	2	WASHER, SQUARE, 4" X 4" X 13/16" HOLE	Utilities				
5	2	SPRING LOCK WASHER, 5/8"	DWN. DRE	3	DATE: 06	/03/2022	5,00
6	1	SQUEEZON/AMPACT (REQUIRED SIZE)	CKD. JLS		APPD. JLS		DWG. NO.
			SCALE: N.T	ſ.S.			NDDE-1
			DATE		DATE	REVISION	ו אטטב ו
							1

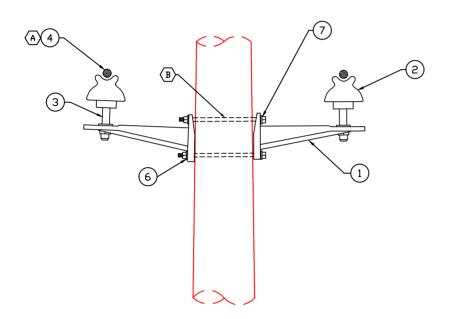
SIDE VIEW



- (A) SELECT INSULATOR & WRAP LOCK APPROPRIATE FOR WIRE SIZE.
- B SELECT BOLT LENGTH APPROPRIATE FOR POLE DIAMETER

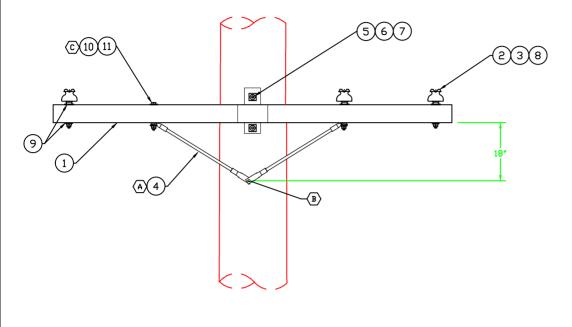
DWG. REF.	QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA								
KEF.		DESCRIPTION									
1	1	BRACKET, 18" FIBERGLASS									
2	1	INSULATOR, PIN TYPE		MIF							
3	1	PIN SHANK	Greenville	,							
4	1	PREFORM, WRAP LOCK	Utilities								
5	2	BOLT, MACHINE 5/8" REQUIRED LENGTH	DWN. D	RB	DATE: 06/06/2022		5,000				
6	2	WASHERS, 2 1/4" SQUARE	CKD. J	LS	APPD. JLS		DWG. NO.				
7	2	SPRING LOCK WASHER 5/8"	SCALE: N.T.S.				MIF-1				
			DATE		DATE	REVISION	V F —				

SIDE VIEW

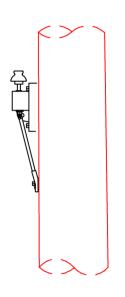


- (A) SELECT INSULATOR & WRAP LOCK APPROPRIATE FOR WIRE SIZE.
- B SELECT BOLT LENGTH APPROPRIATE FOR POLE DIAMETER

DWG. REF.	QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
REF.	Q I I	DESCRIPTION	X					
1	2	BRACKET, 18" FIBERGLASS						
2	2	INSULATOR, PIN TYPE	DOUBLE MIF BRACKET ASSE				SEMBLY	
3	2	PIN SHANK	Greenville					
4	2	PREFORM, WRAP LOCK	Utilities					
5	2	BOLT, MACHINE 5/8" REQUIRED LENGTH	DWN. DR	В	DATE: 06/	06/2022	5,110	
6	2	SPRING LOCK WASHER 5/8"	CKD. JLS	6	APPD. JLS		DWG. NO.	
			SCALE: N.T.	S.				
			DATE		DATE	REVISION		



SIDE VIEW



NOTES:

- 1) INSULATOR ITEM(2) & ITEM(3) WILL VARY BASED ON WIRE SIZE.
- MOUNT BRACE USING EXISTING HOLES IN CROSSARM.
- B HOLE TO BE FIELD DRILLED AT SPECIFIED LOCATION.
- INSTALL 3 X 3 SQUARE WASHER, ITEM(9), ON TOP AND BOTTOM OF CROSSARM.

DWG. REF.	XRM-10A QTY	LIST OF MATERIALS	
KEr.		DESCRIPTION	
1	1	ARMS, 10' H/T FIBERGLASS	
2	3	PIN INSULATOR	
3	3	PREFORMS, WRAP LOCK	
4	1	CROSSARM BRACE	1
5	3	BOLT, MACHINE 5/8" X LENGTH"	
6	3	SPRING LOCK WASHER, 5/8"	Gr
7	3	WASHER, SQ. 4 X 4 X 13/16"	U
8	3	CROSSARM PINS	D۷
9	8	3 X 3 SQUARE WASHERS	Ck
10	1	5/8" x 8" BOLT	SC
11	1	5/8" LOCK WASHER	D/

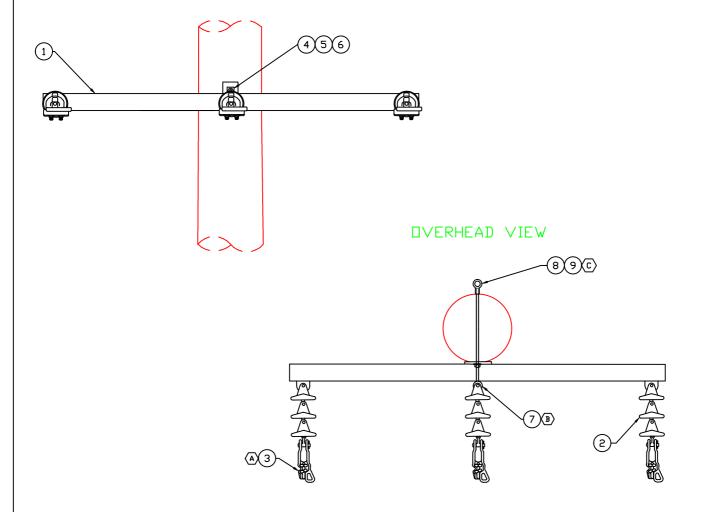
GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

10' TANGENT DISTRIBUTION CROSSARM

ireenville Utilities			
WN. DRB		DATE: 5/2	7/2022
CKD. JLS		APPD. JLS	
SCALE: N.T.	S.		
DATE		DATE	REVISION

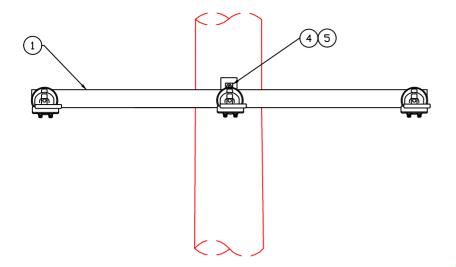
DWG. NO.

XRM-10A

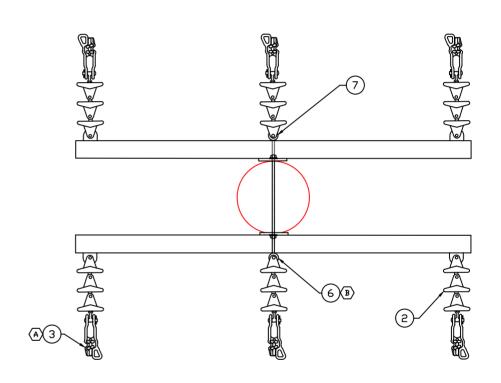


- (A) SELECT DEADEND SHOE APPROPRIATE FOR WIRE SIZE.
- B EYEBOLT TO BE INSTALLED IN TOP HOLE OF CROSSARM BRACKET, AS SHOWN.
- © GUY ASSEMBLY NOT SHOWN. SEE DWG TG-21 FOR REFERENCE.

DWG. REF.	XRM-10B QTY	LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA				
NEF.	Q I I	DESCRIPTION	X				
1	1	ARMS, 10' DE FIBERGLASS		10' DEAD	END DISTRIE	BUTION CROSS	ARM
2	3	INSULATORS, POLY DE BELLS					
3	3	DEADEND SHOE	Greenville				
4	1	BOLT, MACHINE 5/8" X LENGTH"	Utilities				
5	2	SPRING LOCK WASHER, 5/8"	DWN. DRB	•	DATE: 5/2	27/2022	
6	3	WASHER, SQ. 4 X 4 X 13/16"	CKD. JLS		APPD. JLS	,	DWG. NO.
7	1	EYE BOLT, 5/8" X LENGTH"	SCALE: N.T.	S.			XRM-10DE
8	1	5/8" EYE NUT	DATE		DATE	REVISION	אלואו– וטטבן
9	1	GUY ASSEMBLY			·		



OVERHEAD VIEW



- (A) SELECT DEADEND SHOE APPROPRIATE FOR WIRE SIZE.
- $\ \, \mbox{\ \ \, } \mbox{\ \ } \mbox{\$

DWG. QTY REF. LIST OF MATERIALS GREENVILLE UTILITIES COMMISS GREENVILLE, NORTH CAROLINA	SION				
DESCRIPTION DESCRIPTION					
1 2 ARMS, 10' DE FIBERGLASS 10' DOUBLE DEADEND DISTRIBUTION	,N				
2 6 INSULATORS, POLY DE BELLS CROSSARM					
3 6 DEADEND SHOE Greenville	!				
4 1 BOLT, MACHINE 5/8" X LENGTH" Utilities					
5 2 SPRING LOCK WASHER, 5/8" DWN. DRB DATE: 5/27/2022	5.W0 M0				
6 1 EYE BOLT, 5/8" X LENGTH" CKD. JLS APPD. JLS	DWG. NO.				
7 1 5/8" EYE NUT SCALE: N.T.S.	XRM-10DDE				
DATE DATE REVISION	$]$ Y ω [M] $=$ LODDE				

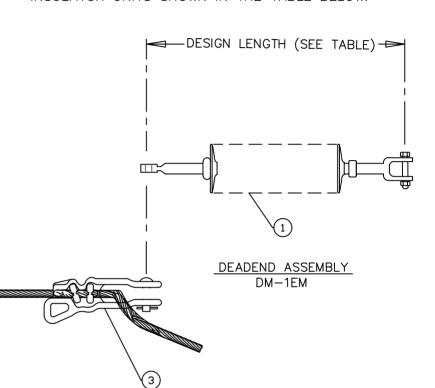
DESIGN LENGTH (SEE TABLE)

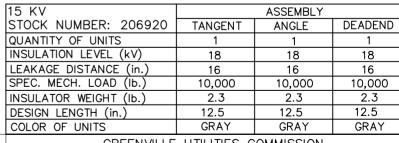
(2)

DWG.

TANGENT ASSEMBLY
DM-1AM (OR) DM-1BM

- THE TABLE BELOW SHALL BE COMPLETED FOR EACH PROJECT.
- 2. SUITABLE SUSPENSION CLAMPS MUST BE SELECTED FOR THE CONDUCTOR BEING USED. THE FOLLOWING ARE TO BE CONSIDERED: TYPE OF CONDUCTOR, DIAMETER OF CONDUCTOR (CONSIDERING ARMOR RODS AND/OR LINERS), FTC
- THE CAPACITY OF THE HARDWARE MUST BE EQUAL TO OR GREATER THAN THE SPECIFIED MECHANICAL LOAD OF THE INSULATOR UNITS SHOWN IN THE TABLE BELOW.





GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



SUSPENSION INSULATOR ASSEMBLY

REF.		
KEF.	ITEM	DESCRIPTION
1		INSULATOR, SUSPENSION. POLYMER
2		CLAMP, SUSPENSION x REQ. CONDUCTOR SIZE
3		DEADEND SHOE, x REQ. CONDUCTOR SIZE
4	*	ARMOR ROD x REQ. CONDUCTOR SIZE

Armor Rod not required if suspension clamp is cushioned

ANGLE ASSEMBLY

LIST OF MATERIALS

DM-1CM

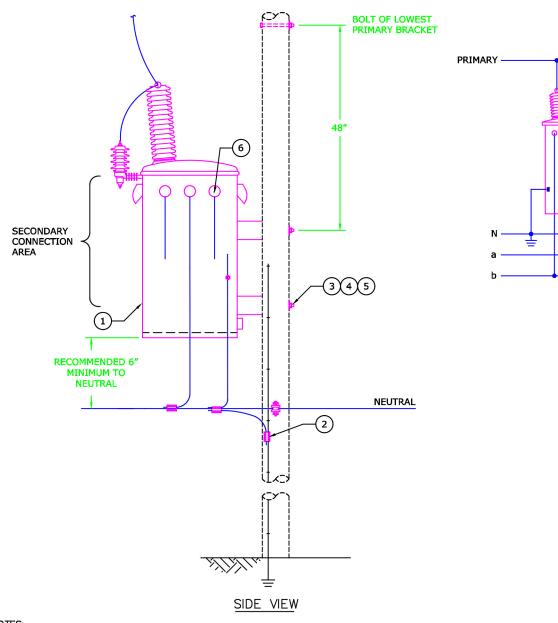
 DWN. DRB
 DATE: 06/01/2022

 CKD. JLS
 APPD. JLS

 SCALE: N.T.S.
 DATE
 REVISION

DM-1

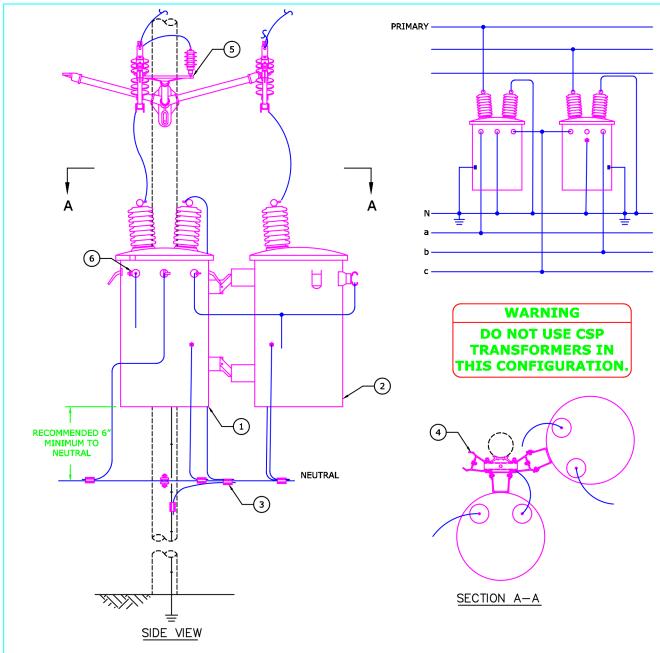
DWG. NO.



- BOND TRANSFORMER NEUTRAL AND TRANSFORMER GROUND TO SYSTEM NEUTRAL AND SYSTEM GROUND. CSP TRANSFORMERS MAY BE MOUNTED AT 45° TO THE LINE. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.

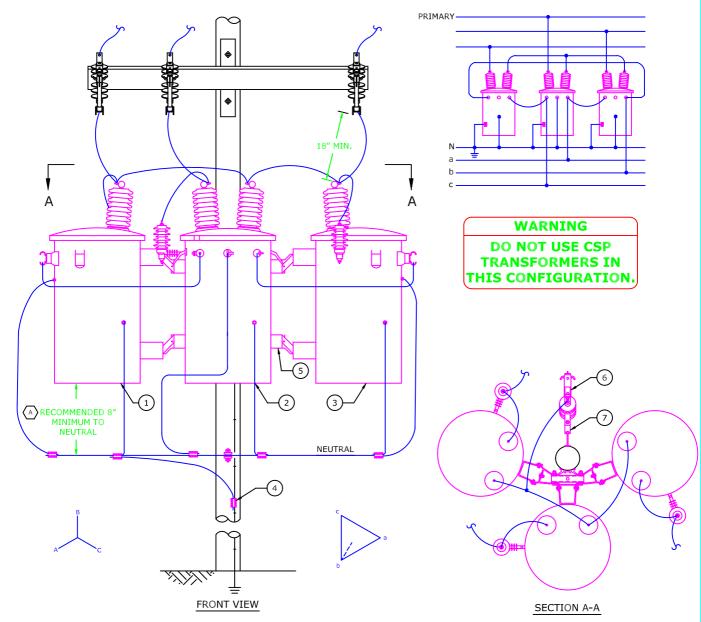
 SEE DRAWING MG—11EC FOR CONDUCTOR SIZE.
 CURRENT LIMITTING FUSES AS REQUIRED. SEE DWG. M5—9CLEC.
 NO DISCONNECT NEEDED ON A SINGLE PHASE TRANSFORMER.
 TRANSFORMER SHALL BE INSTALLED SO THAT SECONDARY BUSHINGS ARE ON ROAD SIDE.
 X2 GROUND WIRE SHALL BE #2 BARE COPPER & TANK GROUNDS SHALL BE #6 BARE COPPER.

DWG REF	OTY	LIST OF MATERIALS					TIES COMMIS	
REF	QII	DESCRIPTION	STOCK #		0.1.			
1	1	TRANSFORMER, REQUIRED SIZE	-		011	0.5 5.140	E 00D TD44	05001150
2	-	CONNECTOR	_	N A	SIN		E CSP TRAN /120 VOLT	SFORMER
3	2	BOLT, MACHINE	_	Greenville		240	/120 VOL1	
4	2	WASHER, SQUARE FLAT, 2 1/4"	-	Utilities	3			
5	2	WASHER, SQUARE, FLAT	_	DWN.	JLS	DATE:	11/29/21	DW0 N0
6	-	UB-4 OR UB-6 AS NEEDED	_	CKD.	KW	APPD.		DWG. NO.
7	1	CLAMP (NOT SHOWN)	_	SCALE:	NONE			
8	1	STIRRUP, SIZE AS REQ. (NOT SHOWN)	_	DATE	REVISION	DATE	REVISION	G105EC



- BOND TRANSFORMER NEUTRAL AND TRANSFORMER GROUND TO SYSTEM NEUTRAL AND SYSTEM GROUND.
 PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
 GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.
 SEE DRAWING MG-11EC FOR CONDUCTOR SIZE.
 CURRENT LIMITTING FUSES AS REQUIRED. SEE DWG. M5-9CLEC.
 X2 GROUND WIRE SHALL BE #2 BARE COPPER & TANK GROUNDS SHALL BE #6 BARE COPPER.
 H2 GROUND WIRE SHALL BE #4 INSULATED COPPER.
 APPARATUS BRACKET AND NEUTRAL HEIGHT MAY VARY DEPENDING ON SIZE OF TRANSFORMER BANK.

DWG	OTY	LIST OF MATERIALS					TIES COMMIS	
REF	٦	DESCRIPTION	STOCK #					
1	1	TRANSFORMER, REQUIRED SIZE	_		T144		DUED 040 /	400 VOLT
2	1	TRANSFORMER, REQUIRED SIZE	_		I WO	J IRANSEC	RMER, 240/ WIRE DELTA	120 VOLI
3	_	CONNECTOR	_	Greenville		-PHASE, 2	F WIRE DELIA	A BANK
4	1	BRACKET, CLUSTER MOUNT	_	Utilities	ē			
5	1	3-PHASE APPARATUS BRACKET	_	DWN.	JLS	DATE:	11/29/21	DW0 N0
6	_	UB-4 OR UB-6 AS NEEDED	_	CKD.	KW	APPD.		DWG. NO.
7	2	CLAMP (NOT SHOWN)	_	SCALE:	NONE			
8	2	STIRRUP, SIZE AS REQ. (NOT SHOWN)	_	DATE	REVISION	DATE	REVISION	G210EC



- 1. BOND TRANSFORMER NEUTRAL AND TRANSFORMER GROUND TO SYSTEM NEUTRAL AND SYSTEM GROUND.
- 2. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
- 3. MAY USE HARDENED SPIN TOP BUSHINGS IN LIEU OF BIRD GUARDS.
- 4. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.

- APPLICABLE.

 5. TRANS* DENOTES TRANSFORMER KVA SIZE

 6. DO NOT PERMANENTLY GROUND HIGH SIDE TRANSFORMER NEUTRAL.

 7. INSTALL ADDITIONAL CUTOUT FOR TEMPORARY GROUNDING HIGH SIDE TRANSFORMER NEUTRAL.

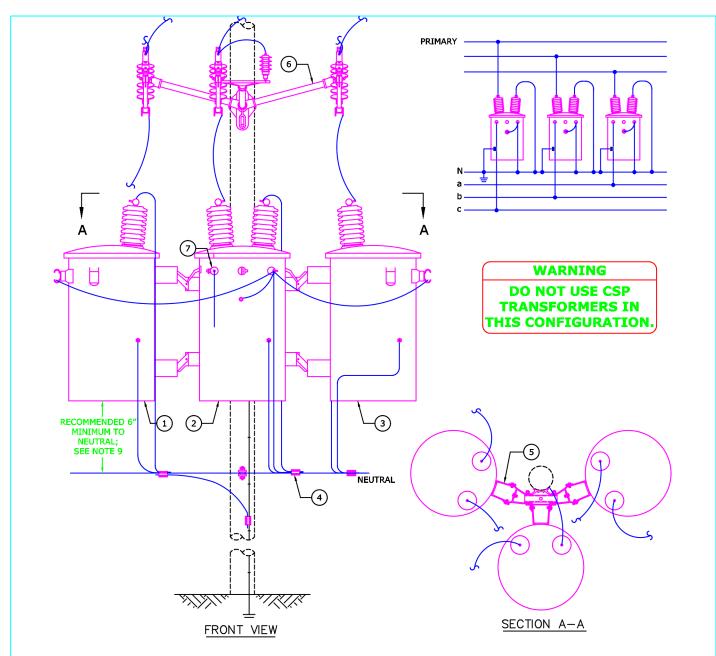
 8. SEE DWG. MG-11EC FOR CONDUCTOR SIZE.

 9. SEE DWG. M2-1EC FOR TRANSFORMER GROUNDING.

- 10. FUSES AS REQUIRED, SEE DWGS. M5-9EC AND M5-9CLEC.

 A PLEASE CONSULT NESC IF YOU ARE GOING TO MOUNT THE TRANSFORMER AT A DIFFERENT CLEARANCE.

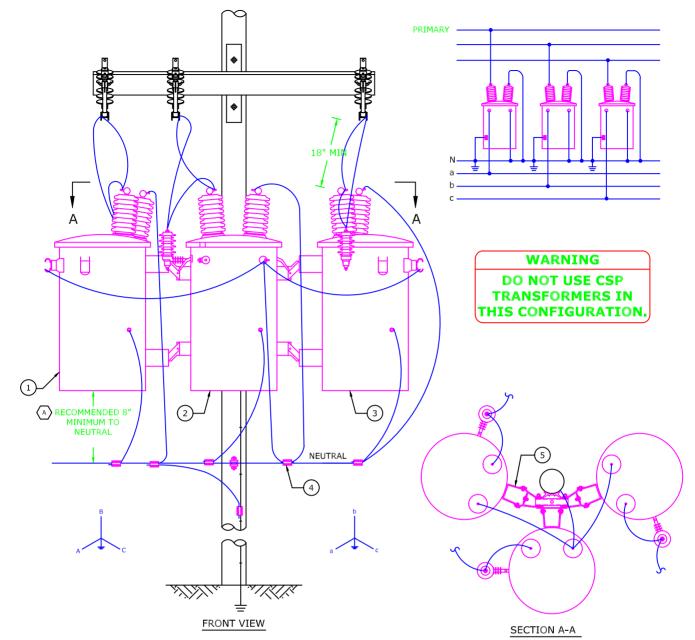
DWG REF	QTY	LIST OF MATERIALS					ITIES COMMIS ORTH CAROLINA			
REF	٦	DESCRIPTION	STOCK #							
1	1	TRANSFORMER, REQUIRED SIZE	-		TUD			400 VOLT		
2	1	TRANSFORMER, REQUIRED SIZE	-		7 DUAS	LE IKANSI	FORMER, 240	NDARY BANK		
3	1	TRANSFORMER, REQUIRED SIZE	_	Greenville	3-PHAS	oc, 4 WIRE	. DELTA SECC	INDAKT BANK		
4	-	CONNECTOR	-	Utilities	'					
5	1	BRACKET, CLUSTER MOUNT	-	DWN.	DRB	DATE:	08/05/2022	D.W.O. 11.0		
6	1	SWITCH, FUSED CUTOUT	_	CKD.	JLS	APPD.		DWG. NO.		
7	1	BRACKET, 1PH, CUTOUT/ARRESTER	-	SCALE:	NONE					
			_	DATE	REVISION	DATE	REVISION	G310EC		
			_							



- BOND TRANSFORMER NEUTRAL AND TRANSFORMER GROUND TO SYSTEM NEUTRAL AND SYSTEM GROUND.
 PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
 GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.

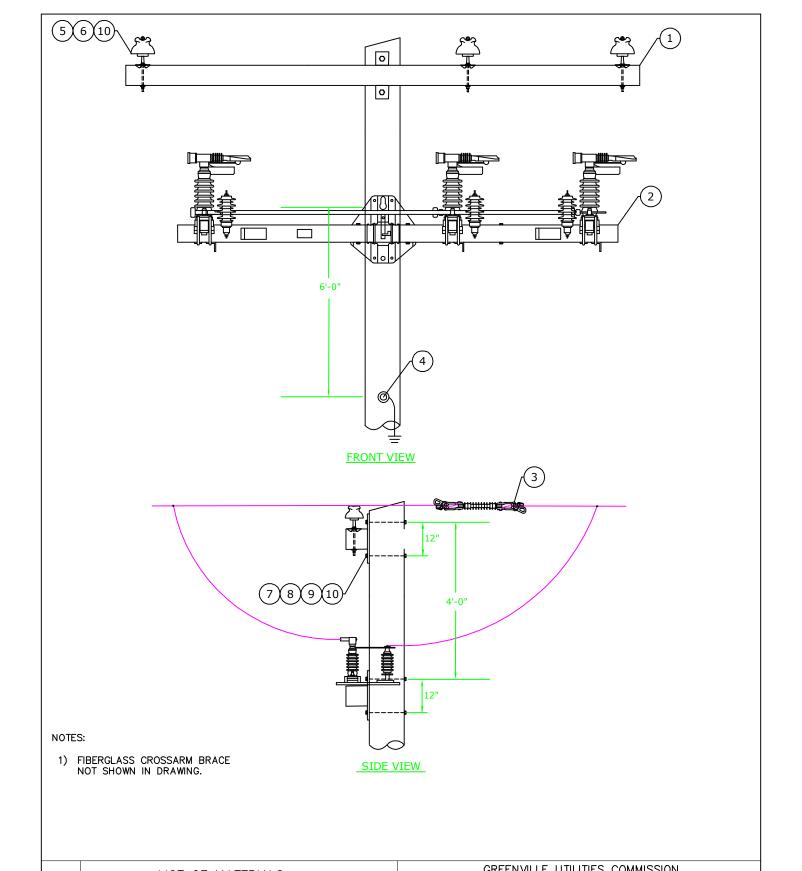
- 4. SEE DRAWING MG-11EC FOR CONDUCTOR SIZE.
 5. CURRENT LIMITTING FUSES AS REQUIRED. SEE DWG. M5-9CLEC.
 6. X2 GROUND WIRE SHALL BE #2 BARE COPPER & TANK GROUNDS SHALL BE #6 BARE COPPER.
 7. H2 GROUND WIRE SHALL BE #4 INSULATED COPPER.
 8. APPARATUS BRACKET AND NEUTRAL HEIGHT MAY VARY DEPENDING ON SIZE OF TRANSFORMER BANK.

DWG REF	OTY	LIST OF MATERIALS					TIES COMMIS	
REF	٠	DESCRIPTION	STOCK #					
1	1	TRANSFORMER, REQUIRED SIZE	_		TUD	TO ANICE	0DUED 000	/400 VOLT
2	1	TRANSFORMER, REQUIRED SIZE	_	N A	IHRI	LE IKANSE	ORMER, 208 4 WIRE WYE	/120 VOLI
3	1	TRANSFORMER, REQUIRED SIZE	_	Greenville		J-PHASE,	4 WIRE WIE	DAINN
4	_	CONNECTOR	-	Utilities	=			
5	1	BRACKET, CLUSTER MOUNT	_	DWN.	JLS	DATE:	11/29/21	DW0 N0
6	1	3-PHASE APPARATUS BRACKET	_	CKD.	KW	APPD.		DWG. NO.
7	_	UB-4 OR UB-6 AS NEEDED	-	SCALE:	NONE			
8	3	CLAMP (NOT SHOWN)	_	DATE	REVISION	DATE	REVISION	G312EC
9	3	STIRRUP, SIZE AS REQ. (NOT SHOWN)	_					

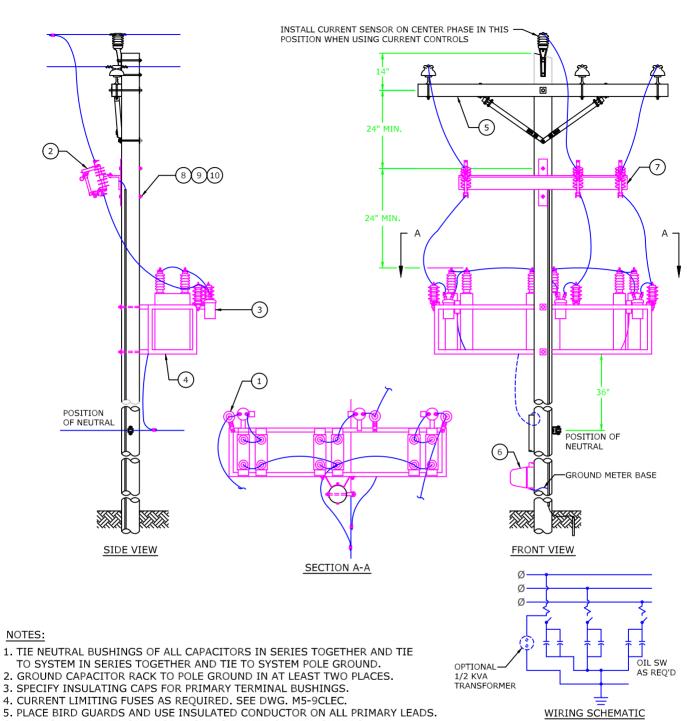


- 1. BOND TRANSFORMER NEUTRAL TO SYSTEM NEUTRAL AND SYSTEM GROUND.
- 2. PLACE BIRD GUARDS AND USE INSULATED CONDUCTOR ON ALL PRIMARY LEADS.
- 3. MAY USE HARDENED SPIN TOP BUSHINGS IN LIEU OF BIRD GUARDS.
- 4. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER WHEN APPLICABLE.
- 5. TRANS* DENOTES TRANSFORMER KVA SIZE.
- 6. SEE DRAWING MG-11EC FOR CONDUCTOR SIZE.
- 7. SEE DWG. M2-1EC FOR TRANSFORMER GROUNDING.
- 8. FUSES AS REQUIRED, SEE DWGS. M5-9EC AND M5-9CLEC.
- (A) PLEASE CONSULT NESC IF YOU ARE GOING TO MOUNT THE TRANSFORMER AT A DIFFERENT CLEARANCE.

DWG REF	QTY	LIST OF MATERIALS					ILITIES COMMIS: NORTH CAROLIN <i>A</i>	
REF		DESCRIPTION	STOCK #	T.				
1	1	TRANSFORMER, REQUIRED SIZE	-	Z.	TUDE		E001/E0 4001/	/077 VOLT
2	1	TRANSFORMER, REQUIRED SIZE	_		IHKE	E IRANS	FORMER, 480Y RE WYE SECON	/2// VULI
3	1	TRANSFORMER, REQUIRED SIZE	_	Greenville	3-24	SE, 4 WI	KE WIE SECON	IDAKI BANK
4	_	CONNECTOR	-	Utilities				
5	1	BRACKET, CLUSTER MOUNT	_	DWN.	DRB	DATE:	08/05/2022	DW0 N0
			-	CKD.	JLS	APPD.		DWG. NO.
			_	SCALE:	NONE			
			_	DATE	REVISION	DATE	REVISION	G314EC
			_					



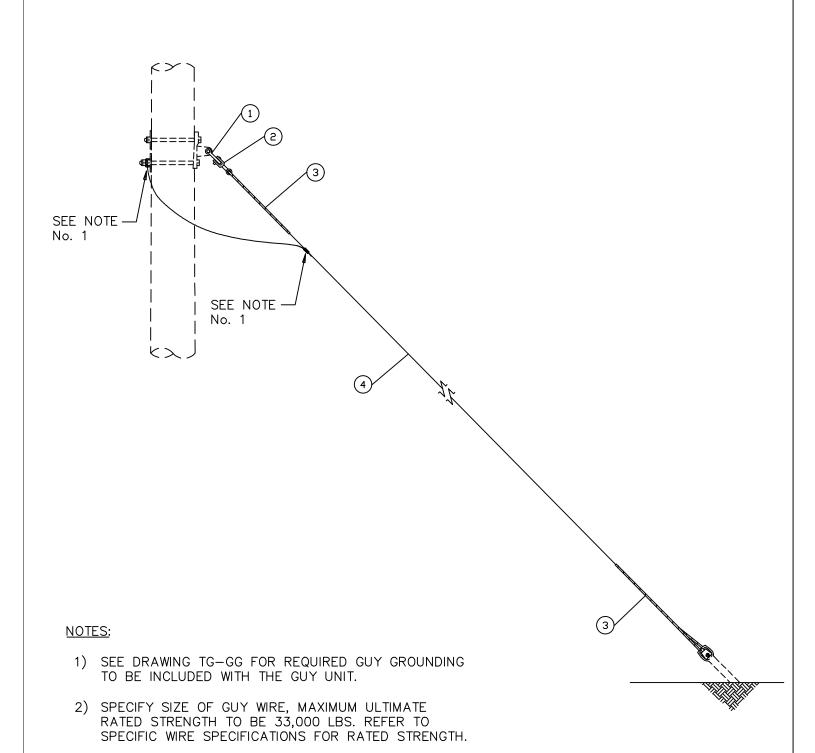
DWG. REF.		LIST OF MATERIALS						TES COMMISS TH CAROLINA	ION
KEF.	ea.	DESCRIPTION	ITEM	DET.	X				
1	1	10' DISTRIBUTION CROSSARM DE	-						
2	1	15 KV HORIZONTAL GANG SWITCH	_					AL GANG SWITC DETAIL	Ж
3	3	DEAD END ASSEMBLY, SECONDARY	-		Greenvil			DETAIL	
4	1	NEUTRAL ASSEMBLY, DEADEND	-	TM-4E	Utilitie				
5	3	25 KV PIN INSULATOR	-		DWN. JLS		DATE: 11/	23/21	5,112
6	3	25 KV PINS, LONG SHANK CROSS	-		CKD. KW		APPD. KW		DWG. NO.
7	4	BOLT, MACHINE 5/8" x 20"	-		SCALE: N.	.T.S.	PAGE 1 0	F 1	
8	4	SPRING LOCK WASHER, 5/8"	-		DATE	REVISION	DATE	REVISION	
9	4	NUT, 5/8"	-			•		·	
10	7	WASHER, SQUARE, 3 x 3 x 1/4" w/ 13/16"	-						



- 3. SPECIFY INSULATING CAPS FOR PRIMARY TERMINAL BUSHINGS.

- 6. MAY USE HARDENED SPIN TOP BUSHING IN LIEU OF BIRD GUARDS.
- 7. ALL GROUND WIRE SHALL BE #4 BARE COPPER.
- 8. SEE DWG. M5-6EC FOR ARRESTER INFORMATION.
- 9. SEE DWG. M2-1EC FOR GROUND ROD DETAIL.

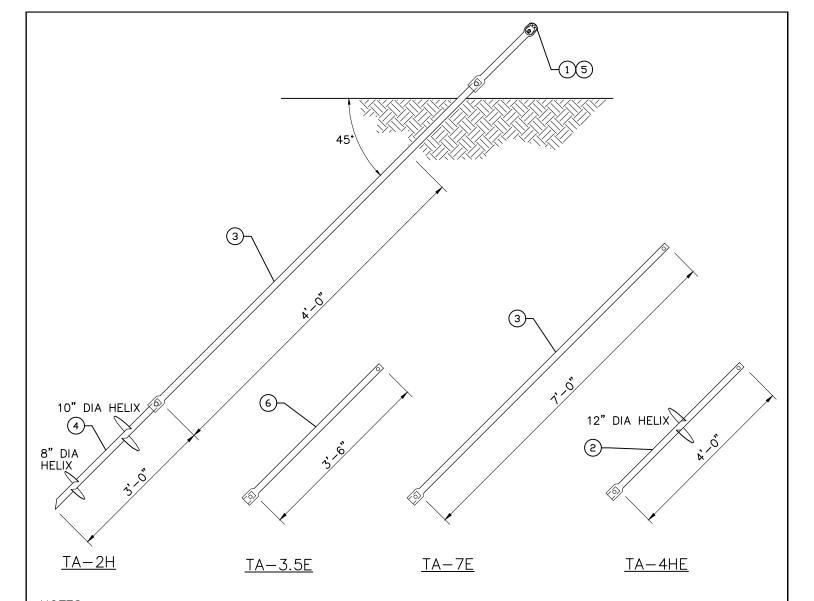
DWG	OTY	LIST OF MATERIALS					ILITIES COMMIS NORTH CAROLINA	
REF	Q	DESCRIPTION	STOCK #					
1	3	ARRESTER, INTERMEDIATE	-			0.45.4	0.700 400545	1.37
2	1	SWITCH, FUSED CUTOUT	_		TUDEE		CITOR ASSEMB CROSSARM CO	
3	1	SWITCH, OIL	_	Greenville		-PHASE	CRUSSARM CU	NSTRUCTION
4	-	ASSEMBLY, CAPACITOR BANK	-	Utilities				
5	1	CROSSARM, SYP, WOOD	_	DWN.	DRB	DATE:	08/05/2022	DWO NO
6	1	CONTROLLER, CAPACITOR BANK	_	CKD.	JLS	APPD.		DWG. NO.
7	1	BRACKET, 3 PH, CUTOUT/ARRESTER	_	SCALE:	NONE			
8		BOLT, MACHINE	_	DATE	REVISION	DATE	REVISION	M9-13EC
9		WASHER, SQUARE FLAT, 2 1/4"	_					
10		WASHER, LOCK 5/8"	_					



GREENVILLE UTILITIES COMMISSION LIST OF MATERIALS TG-21 DWG. GREENVILLE, NORTH CAROLINA REF. A(M)DESCRIPTION ANCHOR SHACKLE, 30,000 LBS (MINIMUM) SINGLE DOWN GUY - WITH CLEVIS - THIMBLE TYPE (40,000 LBS) 2 1 PREFORMED GRIPS. 3 2 2 GUY - GRIP, PREFORMED, FOR GUY WIRE Greenville GUY - WIRE DWN. JLS DATE: 03/15/19 DWG. NO. CKD. KW APPD. KW SCALE: N.T.S. TG-21DATE **REVISION** DATE

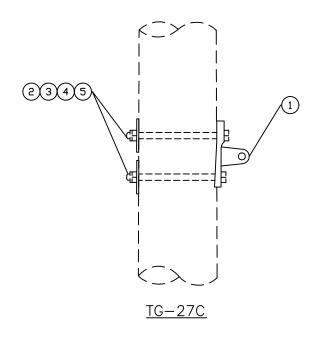
3) "M" INDICATES INCLUSION ON ANCHOR ASSEMBLY.

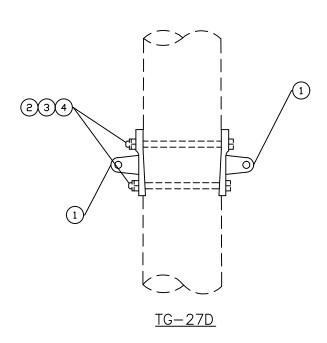
* GUY WIRE AS REQUIRED



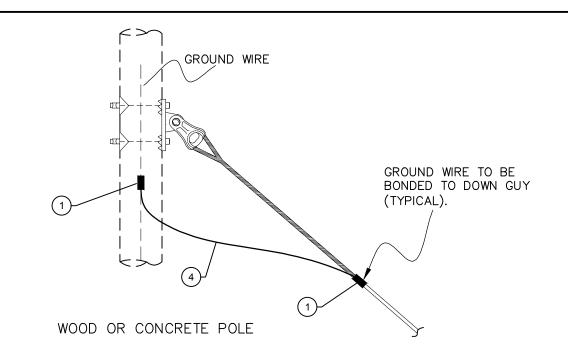
- 1) MAXIMUM WORKING LOAD VALUES BASED UPON USE OF ANCHOR IN CLASS 6 SOIL CONDITIONS.
- 2) MAXIMUM WORKING LOAD FOR THE TA-2H = 23,000 LBS. MAXIMUM WORKING LOAD FOR THE TA-2H WITH THE TA-4HE = 32,000 LBS.
- 3) ANCHOR TO BE POWER INSTALLED USING TORQUE INDICATOR WITH A MINIMUM TORQUE VALUE OF: 2,300 FT.-LBS. FOR THE TA-2H 3,000 FT.-LBS. FOR THE TA-2H WITH THE TA-4HE AND MAXIMUM OF 6,000 FT.-LBS.
- 4) WHEN SPECIFICALLY CALLED FOR ON THE PLAN & PROFILE AND/OR STAKING SHEETS, THE TA-4HE (ITEM 2) SHALL BE INSTALLED CONNECTED DIRECTLY TO THE DOUBLE HELIX ANCHOR ASSEMBLY (ITEM 4) WITH THE SEVEN FOOT EXTENSION ASSEMBLY (ITEM 3) THEN BEING CONNECTED TO THE TA-4HE.

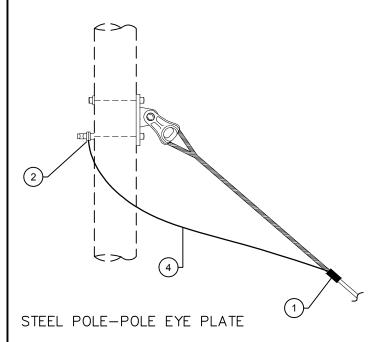
DWG. REF.		LIST OF MATERIALS				IES COMMISS TH CAROLINA	ION
1	ea.	DESCRIPTION ANCHOR - CLAMP, BONDING					
2		ANCHOR - EXTENSION ASSEMBLY, 12" HELIX (1-1/2" SQUARE SHAFT x 4'-0")	Greenville	1		N AND DISTRIE PR ASSEMBLY	BUTION
3		ANCHOR - EXTENSION ASSEMBLY	<i>Utilities</i>				
		(1-1/2" SQUARE SHAFT x 7'-0")	DWN. JLS		DATE: 03/	/14/19	D.W.O. 110
4		ANCHOR - DOUBLE HELIX (8", 10")	CKD. KW		APPD. KW		DWG. NO.
		(1-1/2" SQUARE SHAFT x 3'-0")	SCALE: N.T.S	S.			T 4 O
5		ANCHOR - TWINEYE ASSEMBLY, FOR DOUBLE HELIX	DATE		DATE	REVISION	TA-2
6		ANCHOR - EXTENSION ASSEMBLY					
_		(1-1/2" SQUARE SHAFT x 3'-6")					

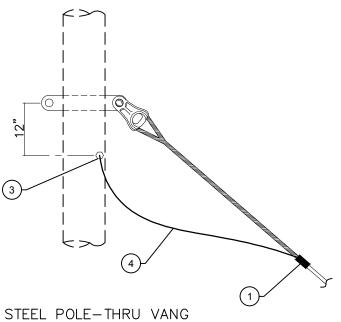




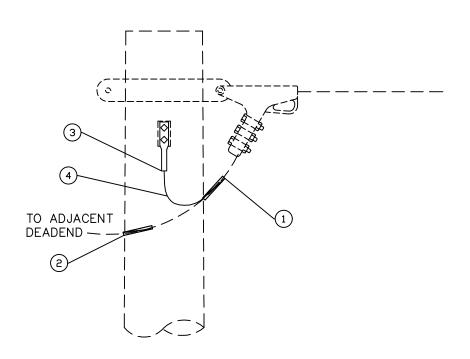
DWG. REF.	TG-	-27	LIST OF MATERIALS				IES COMMISS TH CAROLINA	ION
KEF.	С	D	DESCRIPTION					
1	1	2	TRANSMISSION GUY PLATE		TRA	NSMISSION A	AND DISTRIBUT	ION LINE
2	2	2	BOLT, MACHINE, 3/4" x Required Length				CHMENT UNIT	
3	2	2	SPRING LOCK WASHER, 3/4"	Greenville Utilities				
4	2	2	NUT, 3/4"	Utilities				
5	2	_	WASHER, SQUARE, 4" x 4" x 1/4" w/ 15/16"	DWN. JLS	·	DATE: 03/	/ 12/19	5,110
				CKD. KW		APPD. KW		DWG. NO.
				SCALE: N.	ſ.S.			TO 07
				DATE		DATE	REVISION	TG-27





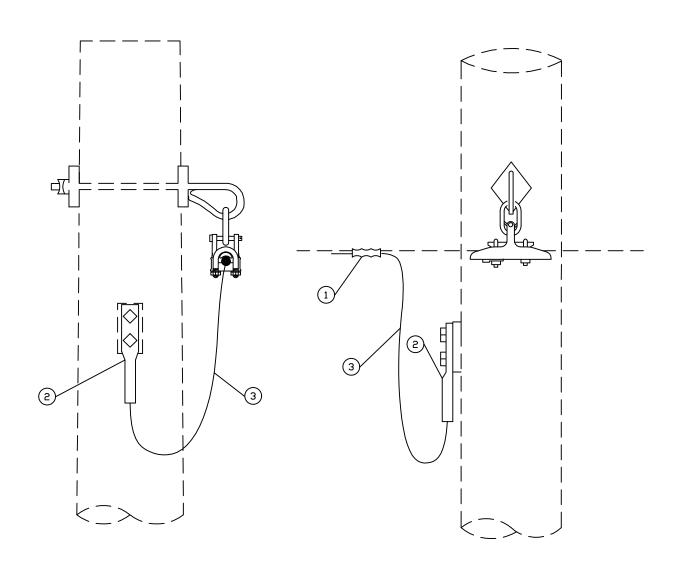


DWG. REF.		LIST OF MATERIALS				IES COMMISS TH CAROLINA	ION
KEF.	ea.	DESCRIPTION					
1	1	CONNECTOR - COMPRESSION, #4 S.D. TO #4 S.D.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
2	1	BONDING CLIP, FOR #4 S.D.		TRANS	SMISSION GU	Y GROUNDING	GUIDE
3	1	CABLE TAP LUG, BRONZE BOLTED, FOR #4 S.D.	Greenville				
4	5	GROUND - WIRE, #4 S.D. (ft.)	Utilities				
			DWN. JLS		DATE: 03/	/14/19	D.W.O. 1.1.0
			CKD. KW		APPD. KW		DWG. NO.
			SCALE: N.T.	S.			TO 00
			DATE		DATE	REVISION	TG-GG
	•						
				•			

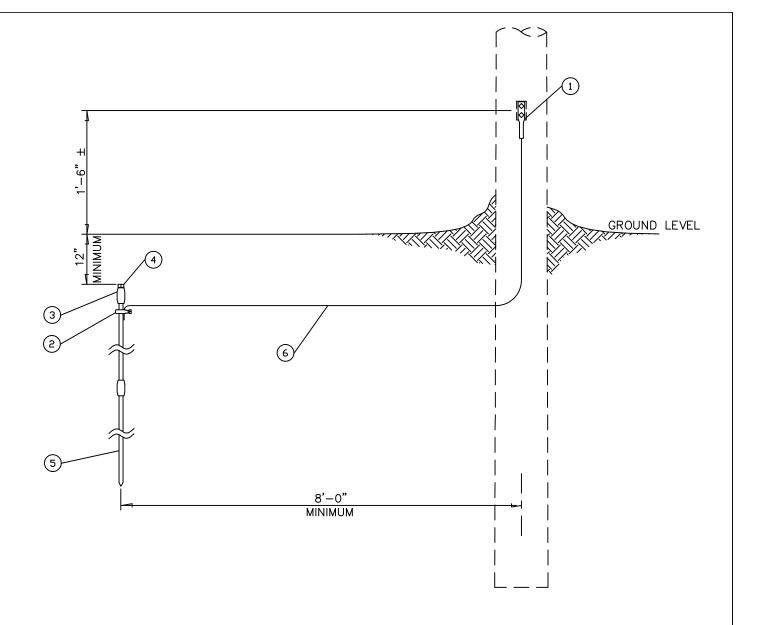


TM-2A SINGLE DEADENDTM-2B DOUBLE DEADENDTM-2C TRIPLE DEADEND

DWG. REF.		TM-2		LIST OF MATERIALS			VILLE UTILITIES COMMISSION ENVILLE, NORTH CAROLINA			
KLF.	Α	В	C	DESCRIPTION						
1	1	1	1	CONNECTOR - COMPRESSION, OHGW TO #4		- I	TD A NICHICCIO	N OHOW STEE	DOLE	
2	_	1	2	CONNECTOR - COMPRESSION SLEEVE OHGW TO OHGW				N OHGW STEE OUNDING ASSE		
3	1	1	1	CONNECTOR - COMPRESSION, NEMA 2 HOLE #4	Greenville Utilities	-	DEADEIND ON	OONDING ASSI		
4	5	5	5	GROUND WIRE, #4 (ft.)	Utilities					
					DWN. JLS		DATE: 03,	/12/19		
					CKD. KW		APPD. KW	1	DWG. NO.	
					SCALE: N.T	.s.			T	
					DATE		DATE	REVISION	TM-2	

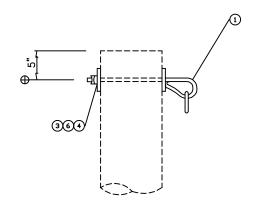


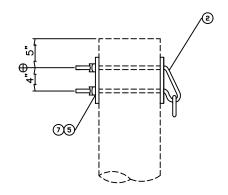
DWG. REF.		LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA					
KEF.	ea.	DESCRIPTION						
1	1	CONNECTOR - COMPRESSION, BI-METALLIC, 7 No. 9	OV Greenville Utilities		OVERHEAD GROUND WIRE GROUNDING ASSEMBLY — STEEL POLE			
		ALUMOWELD TO #4						
2	1	CONNECTOR - COMPRESSION, NEMA 2-HOLE FOR #4						
3	5	GROUND - WIRE, #4 (ft.)						
			DWN. JLS		DATE: 03/13/19		D.W.O. N.O.	
			CKD. KW		APPD. KW		DWG. NO.	
			SCALE: N.T.	.S.			T. 4 0. ((0)	
			DATE		DATE	REVISION	TM-9X(S)	
							, ,	



- 1) MAXIMUM GROUND RESISTANCE READING SHALL BE 25 OHMS. IF THE CLAMP—ON RESISTANCE MEASUREMENT IS USED, THE GROUND ROD SHALL BE INSTALLED AND TEMPORARILY BONDED UNTIL THE GROUND RESISTANCE READING IS TAKEN. ADDITIONAL ROD SECTIONS SHALL BE ADDED AS NECESSARY TO REDUCE RESISTANCE TO 25 OHMS MAXIMUM.
- 2) SPECIFY TM-9R FOR ADDITIONAL GROUND ROD SECTION AND COUPLING.
- 3) GROUND ROD TO BE INSTALLED IN UNDISTURBED SOIL.

DWG. REF.	TM-9		LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA			ION		
KEF.	SP	R	DESCRIPTION						
1	1	_	CONNECTOR - COMPRESSION, NEMA 2 HOLE #4			DRIVEN GROUND ROD GROUNDING			
2	1	-	GROUND - ROD CLAMP, GALVANIZED, 5/8"						
3	1	1	GROUND - ROD COUPLING, GALVANIZED, 5/8" THREADED	Greenville		ASSEMBLY - STEEL POLE			
4	1	-	GROUND - DRIVING STUD, STEEL, 5/8"	Utilities					
5	1	1	GROUND - ROD, GALVANIZED, 5/8" x 10'-0"	DWN. JLS		DATE: 03/13/19			
6	15	-	GROUND - WIRE, #4 (ft.)	CKD. KW		APPD. KW		DWG. NO.	
				SCALE: N.T.S.				TM O	
				DATE		DATE	REVISION	TM-9	
	·	·							





SINGLE BOLT O.H.G.W. SUPPORT TM-6A(S)

DOUBLE BOLT O.H.G.W. SUPPORT TM-6B(S)

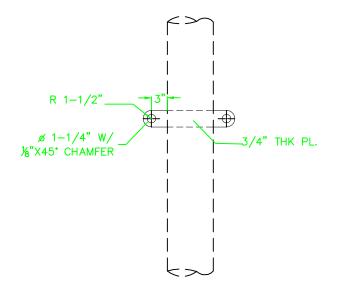
<u>NOTES</u>

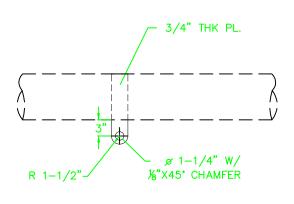
1. Designated strength limitations of the overhead groundwire support assemblies are:

Allowable Vertical Load 5,000 lbs.

TM-6A(S) 5,000 lbs. TM-6B(S) 5,000 lbs.

DWG.	DWG. REF. A B		LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA							
REF.			DESCRIPTION								
1	1	-	SUPPORT, SINGLE BOLT OHGW, 3/4"		040		O.H.G.W. SUPPORT ASSEMBLY FOR STEEL				
2	_	1	SUPPORT, DOUBLE BOLT OHGW, 5/8"		0.H.G		POLES				
3	1	-	WASHER, SQUARE, 4" x 4" x 1/4" w/ 15/16"	Greenville	Greenwille						
4	1	-	NUT, 3/4"	Utilities							
5	_	2	NUT, 5/8"	DWN. JLS	·	DATE: 02/26/19		5346			
6	1	_	SPRING LOCK WASHER, 3/4"	CKD. KW		APPD. KW		DWG. NO.			
7	_	2	SPRING LOCK WASHER, 5/8"	SCALE: N.T.	SCALE: N.T.S.			TM C(C)			
				DATE		DATE	REVISION	TM-6(S)			
								`			





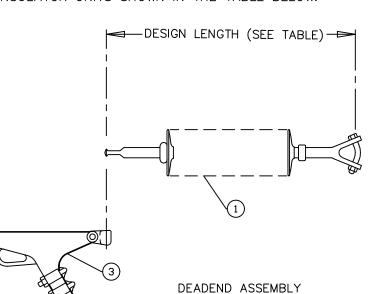
STEEL POLE THRU VANG

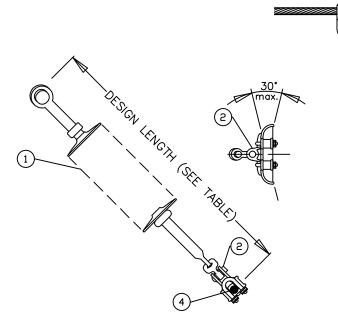
CROSSARM THRU VANG

DWG. REF.		LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA				
KEF.	ea.			STEEL POLE/CROSSARM THRU VANG			U VANG
			Greenville Utilities		DATE: 04/01/19		
			DWN. JLS CKD. KW		APPD. KW		DWG. NO.
			SCALE: N.T.	.S.			
			DATE		DATE	REVISION	TV-1
			·				, , ,

DESIGN LENGTH (SEE TABLE)

- 1. THE TABLE BELOW SHALL BE COMPLETED FOR EACH PROJECT.
- 2. SUITABLE SUSPENSION CLAMPS MUST BE SELECTED FOR THE CONDUCTOR BEING USED. THE FOLLOWING ARE TO BE CONSIDERED: TYPE OF CONDUCTOR, DIAMETER OF CONDUCTOR (CONSIDERING ARMOR RODS AND/OR LINERS), ETC.
- THE CAPACITY OF THE HARDWARE MUST BE EQUAL TO OR GREATER THAN THE SPECIFIED MECHANICAL LOAD OF THE INSULATOR UNITS SHOWN IN THE TABLE BELOW.





(1)

(2)

TANGENT ASSEMBLY
TM-1AM (OR) TM-1BM

ANGLE ASSEMBLY
TM-1CM

115 KV	ASSEMBLY					
115 KV	TANGENT	ANGLE	DEADEND			
QUANTITY OF UNITS	1	1	1			
INSULATION LEVEL (kV)	138	138	138			
LEAKAGE DISTANCE (in.)	139	139	139			
SPEC. MECH. LOAD (Ib.)	25,000	25,000	25,000			
INSULATOR WEIGHT (Ib.)	11.9	11.9	11.9			
DESIGN LENGTH (in.)	59.6	59.6	59.6			
COLOR OF UNITS	GRAY	GRAY	GRAY			

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

TM-1EM

DWG.		LIST OF MATERIALS	
REF.	ITEM	DESCRIPTION	
1		INSULATOR, SUSPENSION. POLYMER	
2		CLAMP, SUSPENSION x REQ. CONDUCTOR SIZE	
3		DEADEND SHOE, x REQ. CONDUCTOR SIZE	
4	*	ARMOR ROD x REQ. CONDUCTOR SIZE	
5		CORONA RING FOR 115 KV INSULATOR	
			:

Armor Rod not required if suspension clamp is cushioned

Greenville Utilities

SUSPENSION INSULATOR ASSEMBLY

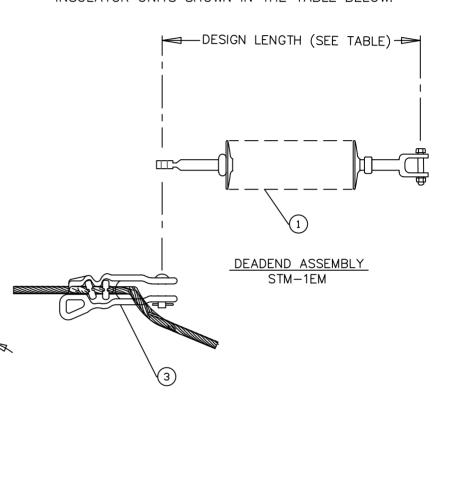
Willingles				
DWN. JLS	•	DATE: 03/	/ 11 / 19	D.W.O. 1.10
CKD. KW		APPD. KW		DWG. NO.
SCALE: N.T	.S.			
DATE		DATE	REVISION	M-

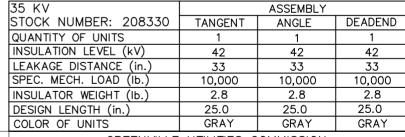
DESIGN LENGTH (SEE TABLE)

(2)

TANGENT ASSEMBLY STM-1AM (OR) STM-1BM

- THE TABLE BELOW SHALL BE COMPLETED FOR EACH PROJECT.
- 2. SUITABLE SUSPENSION CLAMPS MUST BE SELECTED FOR THE CONDUCTOR BEING USED. THE FOLLOWING ARE TO BE CONSIDERED: TYPE OF CONDUCTOR, DIAMETER OF CONDUCTOR (CONSIDERING ARMOR RODS AND/OR LINERS),
- 3. THE CAPACITY OF THE HARDWARE MUST BE EQUAL TO OR GREATER THAN THE SPECIFIED MECHANICAL LOAD OF THE INSULATOR UNITS SHOWN IN THE TABLE BELOW.





GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA



SUSPENSION INSULATOR ASSEMBLY

DWG. REF.		LIST OF MATERIALS				
KEF.	ITEM	DESCRIPTION	ĺ			
1		INSULATOR, SUSPENSION. POLYMER				
2		CLAMP, SUSPENSION x REQ. CONDUCTOR SIZE				
3		DEADEND SHOE, x REQ. CONDUCTOR SIZE				
4	*	ARMOR ROD x REQ. CONDUCTOR SIZE	ĺ			
5			ĺ			
			Ĺ			
			ĺ			

Armor Rod not required if suspension clamp is cushioned

LIST OF MATERIALS

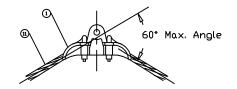
ANGLE ASSEMBLY

STM-1CM

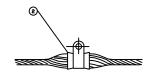
DWN. DRB		DATE: 06/01/2022			
CKD. JLS		APPD. JLS			
SCALE: N.T	.s.			۱,	
DATE		DATE	REVISION		

DWG. NO.

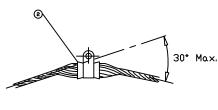
STM-1



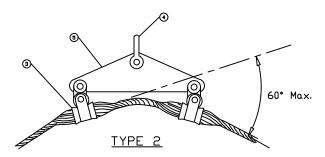
TANGENT & ANGLE CLAMP TM-4A



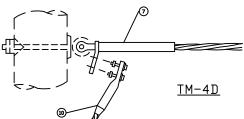
TANGENT ASSEMBLY TM-4B



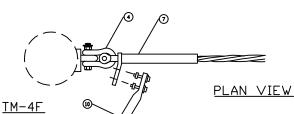
TYPE 1

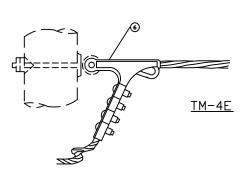


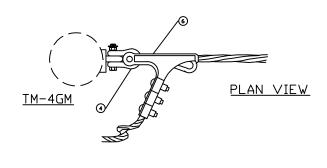
ANGLE ASSEMBLY TM-4C (NDTE 1)









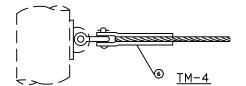


10

11

- The appropriate cushioned suspension angle assembly shall be installed for the line angles shown on the plan-profile drawings:
 - For angles from 0 degrees to 30 degrees, use type 1
 - For angles from 30 degrees to 60 degrees use type 2

DEVDEND	ASSEMBLY
DEUDEND	HOOFINDE



DWG.		LIST OF MATERIALS	
REF.	ITEM	DESCRIPTION	
1		CLAMP, SUSPENSION (TO 60°)	
2		CLAMP, CUSHIONED SUSPENSION	
3		CLAMP, CUSHIONED SUSP. & CLEVIS EYE	
4		ANCHOR SHACKLE 40,000 LBS. BNC	G
5		YOLK PLATE	T T
6		CLAMP BOLTED DEADEND (3 BOLT)	D
7		CLAMP, COMPRESSION DEADEND	С
8		LINK, EXTENSION, CLEVIS 6"	S
a		JUMPER CONNECTOR, COMPRESSION	D

JUMPER TERMINAL, COMPRESSION

ARMOR ROD

GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA

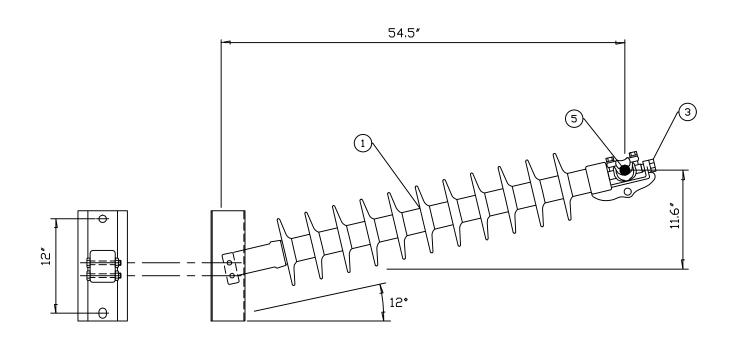


O.H.G.W. ASSEMBLIES CUSHIONED SUSPENSION AND SUSPENSION CLAMPS

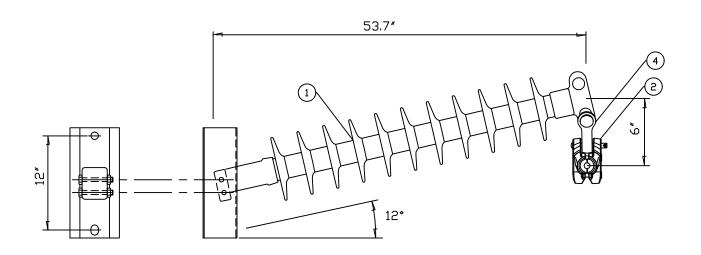
DWN. JLS		DATE: 02/27/19			
CKD. KW		APPD. KW			
SCALE: N.T	.S.				
DATE		DATE	REVISION		

DWG. NO.

TM-4



TM-3BM - HORIZONTAL POST INSULATOR



TM-3DM - HORIZONTAL POST INSULATOR - TANGENT & SMALL ANGLE

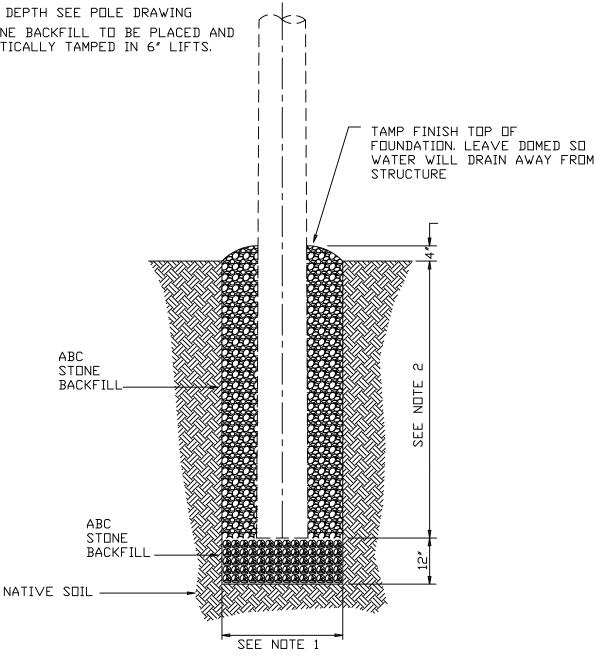
DWG. REF.	TM-3		LIST OF MATERIALS	GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA						
1	BM 1	DM 1	DESCRIPTION INSULATOR, POLYMER HORIZONTAL POST							
2	_	1	CLAMP, SUSPENSION x REQ. CONDUCTOR SIZE		HORIZ	HORIZONTAL POST INSULATOR ASSEMBLY				
3	1	_	CLAMP, TRUNION x REQ. CONDUCTOR SIZE	Greenville	,					
4	_	1	Y-CLEVIS, BALL	Utilities						
5	1	*	ARMOR ROD x REQ. CONDUCTOR SIZE	DWN. JLS	DWN. JLS		/ 01 / 19	DWG. NO.		
				CKD. KW	CKD. KW		APPD. KW			
				SCALE: N.1	Γ.S.			T. 4		
				DATE		DATE	REVISION	TM-3		
		*	Armor Rod not required if suspension clamp is cushioned							



1. HOLE DIAMETER SHALL BE EQUAL TO THE POLE BUTT DIAMETER PLUS 18", UNLESS OTHERWISE NOTED.

2. SETTING DEPTH SEE POLE DRAWING

3. ABC STONE BACKFILL TO BE PLACED AND PNEUMATICALLY TAMPED IN 6" LIFTS.



DWG. REF.		LIST OF MATERIALS		GREENVILLE UTILITIES COMMISSION GREENVILLE, NORTH CAROLINA		
REF.	ea. *	DESCRIPTION ABC STONE BACKFILL	ABC STONE BACKFILL FOUNDATION Greenville Utilities			
				DATE: 02/27/19		
			CKD. KW	APPD. KW DWG. NO.		
				S. TALE EMD		
				DATE REVISION TMF—EMB		
		* SIGNIFIES AS REQUIRED				

Appendix D: Sag Tension Charts

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JOB NUMBER -

:96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :795 MCM (1350)

LOADING DISTRICT : MEDIUM

DESIGN TENSION : 35.9 % ULTIMATE 13900 LBS.

RULING SPAN : 150.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

TEMPERATURE - DEGREES F

	32	40	50	60	70	80	90
AN			SPAN SAG	- INCHES			
			oran dag				
100.	з.	4.	4.	5.	6.	7.	8.
110.	4.	4.	5.	6.	7.	8.	
120.	5.	5.	6.	7.	9.		10.
130.	5.	6.	7.	8.	10.	10.	12.
140.	6.	7.	8.	10.	12.	12.	14.
		· ·	٠.	10.	14.	14.	16.
150.	7.	8.	9.	11.	13.	1.6	
160.	ප.	9.	11.	13.	15.	16.	18.
170.	9.	10.	12.	14.	17.	18.	21.
180.	10.	12.	14.	16.		20.	24.
190.	12.	13.	15.	18.	19.	23.	27.
		20.	15.	10%	21.	25.	30.
200.	13.	14.	17.	20.	2.4	2.0	
310.	14	16.	19.	22.	24.	28.	33.
220.	15.	17.	20.	24.	26.	31.	36.
230.	17.	19.	22.		29.	34.	40.
240.	18.	21.	24.	26.	31.	37.	43.
		21.	۵4.	29.	34.	40.	47.
250.	20.	22.	26.	31.	2.5		
260.	22.	24.	28.		37	44.	51.
270.	23.	26.	31.	34.	40.	47.	56.
280.	25.	28.	33.	36.	43.	51.	60.
390.	27.	30.		39.	46.	55.	64.
	٠,٠	50.	35.	42.	50.	59.	69.
TENSION							
	3476.	3113.	2672	2261	1005		
220.	04/0.	3113.	2673.	2261.	1897.	1598.	1366.

JOB NUMBER :96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :795 MCM (1350)

LOADING DISTRICT : MEDIUM

DESIGN TENSION : 35.9 % ULTIMATE 13900 LBS.

RULING SPAN : 200.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

TEMPERATURE - DEGREES F

32 40 50 60 7 O --30 90 -----___ - -AM SPAN SAG - INCHES -----3. 3. 4. 100. 5. 4. 6. 7. 5. 6. 7. 7. 8. 8. 10. 10. 11. 11. 13. 4 · <u>.</u> 4. 5. 5. 6. 7. 110. 5. 7. 7. 9. 9. 10. 5. 6. 120. 5. 130. 140. 6. 7. 7. 7. 9. 10. 11. 13. 15. 8. 9. 10. 11. 13. 15. 17. 9. 10. 11. 13. 15. 17. 19. 10. 11. 12. 14. 16. 19. 21. 11. 12. 14. 16. 18. 21. 24. 150. 160. 170. 180. 12. 190. 14. 16. 18. 21. 12. 13. 13. 15. 16. 15. 18. 20. 23. 26. 17. 19. 22. 26. 29. 18. 21. 24. 28. 32. 200. 210-220 : 15. 27. 230. 20. 22. 23. 25. 16... 18. 31. 33. 35. 19. 240. 17. 38. 19. 21. 24. 27. 31. 36. 41. 20. 23. 26. 30. 34. 39. 45. 22. 24. 28. 32. 37. 42. 48. 24. 26. 30. 34. 40. 45. 52. 25. 28. 32. 37. 42. 49. 56. 250. 260. 270. 280. 40. 42. 90. 56. TENSION LBS. 3693. 3352. 2941. 2558. 2218. 1930. 1696.

JOB NUMBER :96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :795 MCM (1350)

LOADING DISTRICT : MEDIUM

DESIGN TENSION : 35.9 % ULTIMATE 13900 LBS.

RULING SPAN : 250.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

			TEMPERATURE - DEGREES F				
	32	4 O 	50 	60 	70 	80	90
AN			SPAN SAG	INCHES			
150.	7.	7.	8.	9.	10.	12.	13.
160.	ತ.	8.	9.	11.	12	13.	15.
170.	9.	9.	11.	12.	13.	15.	17.
130.	10.		12.	13.	15.	17.	19.
190.	11.	12.	13.	15.	17.	19.	21.
200.				16.	19.	21.	23.
210.	13.	14.	16.	13.	20.	23.	26.
220=	14.	16.	18.	20.	22.	25.	28.
230	16.	17.	19.	22.	24.	28.	31.
240.	17.	19.	21.	24.	27.	30.	33.
250.	18.	20.	23.	26.	29.	33'.	36.
260.	20.	22.	25.	28.	31.	35.	39.
270.	22	24.	27.	30.	34.	38.	42.
280.	23.	25.	29.	32.	36.	41.	45.
290.	25.	27.	31.	35.	39.	44.	49.
300.	27	29.	33.	37.	40.	47.	52.
310.	28.	31.	35.	W39.	44.	50.	56.
320.	30.	33.	37.	42.	47.	53.	59.
330.	32	35.	40	45.	50.	57.	63.
40.	34.	38.	42.	47.	53.	60.	67.
TENSION							
LBS.	3775.	3456.	3076.	2727.	2418.	2152.	1931.

JOB NUMBER

:96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :336.4 MCM 18/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION : 34.5 % ULTIMATE 8680 LBS.

RULING SPAN

: 150.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

			TEMPERATURE - DEGREES F					
	32	40	50	60	70	80	90	
								
AN			SPAN SAG	- INCHES				
				3				
100.	2.	3.	з.	4.	4.	5.	6.	
110.	3.	3.	4.	4.	5.	6.		
120.	4.	4.	4.	5.	6.	7.	7.	
130.	4.	5.	5.	6.	7.		9.	
140.	5.	5.	6.	7.		8.	10.	
		0 ,	•		8.	10.	12.	
150.	6.	6.	7.	8.	9.	11.	1.0	
160.	5.	7.	8.	9.	11.		13.	
170.	7.	8.	9.	10.	12.	13.	15.	
180.	8.	9.	10.	11.		14.	17.	
190.	9.	10.	11.	13.	13.	16.	19.	
			11.	13.	15.	18.	21.	
200.	10.	11.	12.	14.	17.	20.	2.4	
210.	11.	12.	13.	16.	13.		24.	
220.	12.	13.	15.	17.	20.	22.	26.	
230.	13.	14.	16.	19.	22.	24.	29.	
240.	14.	15.	18.	20.		26.	31.	
		10.	10.	20.	24.	29.	34.	
250.	15.	17.	19.	22.	26.	2.1	0.77	
260.	17.	18.	21.	24.	28.	31.	37.	
270.	18.	19.	22.	26.		34.	40.	
230.	19.	21.	24.		30.	36.	43.	
90.	21.	22.	26.	28.	33.	39.	46.	
	<u> </u>	۵4.	20.	30.	35.	42.	50.	
TENSION								
LBS.	2232.	2041.	1799.	1558.	1325.	1109.	924.	

JOB NUMBER :96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :336.4 MCM 18/1 ACSR

LOADING DISTRICT : MEDIUM

DESIGN TENSION : 34.5 % ULTIMATE 8680 LBS.

RULING SPAN

: 200.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

TEMPERATURE - DEGREES F

	32 	40	50 	60 	70 	80 	90
, N			SPAN SAG	- INCHES			
×				}			
100. 110. 120. 130.	2. 3. 3. 4.	3. 3. 4.	3. 3. 4. 5.	3. 4. 5. 6.	4. 5. 5.	4. 5. 6. 7.	5. 6. 7. 9.
140.	5.	5.	6.	6.	7.	9.	10.
150. 160. 170. 180. 190.	5. 6. 7. 8. 9.	6. 7. 7. 8. 9.	6. 7. 8. 9. 10.	7. 8. 10. 11. 12.	9. 10. 11. 12. 14.	10. 11. 13. 14.	11. 13. 15. 16.
200. 210. 220. 230. 240.	9. 10. 11. 13. 14.	10. 11. 12. 14. 15.	12. 13. 14. 15.	13. 15. 16. 17.	15. 17. 18. 20. 22.	18. 19. 21. 23. 25.	20. 22. 25. 27.
250. 260. 270. 380.	15. 16. 17. 19. 20.	16. 17. 19. 20. 22.	18. 19. 21. 23. 24.	21. 22. 24. 26. 28.	24. 26. 28. 30. 32.	27. 30. 32. 34. 37.	32. 34. 37. 40.
TENSION LBS.	2307.	2124.	1894.	1668.	1452.	1254.	1082.

JOB NUMBER :96-4385-0001 DATE :04-29-1996

***** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :336.4 MCM 18/1 ACSR

LOADING DISTRICT : MEDIUM

DESIGN TENSION : 34.5 % ULTIMATE 8680 LBS.

RULING SPAN : 250.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

TEMPERATURE - DEGREES F

	32	40	50	60	70	80	90						
AN			SPAN SAG	- INCHES									
				·									
150.	6.	6.	7.	8.	9.	10.							
160.	6.	7.	8.	9.	10.	11.	11.						
170.	7.	8.	9.	10.	11.	13.	13.						
180.	8.	9.	10.	11.	13.		14.						
190.	9.	10.	11.	12.	14.	14.	16.						
		~ ~ •	* * *	14.	14.	16.	18.						
200.	10.	11.	12.	14.	15.	18.	20.						
210.	11.	12.	13.	15.	17		y 22.						
220.	12.	13.	15.	16.	19.	21.							
230.	13.	14.	16.	18.	20.	23.	24.						
240.	14.	16.	17.	20.	22.	25.	26.						
			2	20.	٠ ٠٠٠	25.	28.						
250.	16.	17.	19.	21.	24.	27.	31.						
260.	17.	18.	20.	23.	26.	30.	33.						
270.	18.	20.	22.	25.	28.	32.	36.						
280.	20.	21.	24.	27.	30.	34.	39.						
290.	21.	23.	25.	29.	32.	37.	41.						
					33.	Ji.	41.						
300.	22.	24.	27.	31.	35.	39.	44.						
310.	24.	26.	29.	33.	37.	42.	47.						
320. 😑	26.	28.	31.	35.	40.	45.	51.						
330.	27.	29.	33.	37.	42.	48.	54.						
0.	29.	31.	35.	39.	45.	51.	57.						
					40.	51.	57.						
TENSION													
LBS.	2201.	2027.	1012	1600	1.466								
* ~ *	٠٠٠٠٠.	2027.	1813.	1609.	1420.	1254.	1111.						

JOB NUMBER :96-4385-0001

DATE

:04-29-1996

***** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :336.4 MCM 18/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION

: 34.5 % ULTIMATE 8680 LBS.

RULING SPAN

: 300.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

			TEMPERATUR	E - DEGREES	S F		
	32 	40 	50	60 	70 	80 	90
AN			SPAN SAG	INCHES			
200. 210. 220. 230. 240.	11. 12. 13. 14. 15.	12. 13. 14. 15. 17.	13. 14. 16. 17.	14. 16. 17. 19. 21.	16. 18. 19. 21. 23.	18. 20. 22. 24. 26.	20. 22. 24. 26.
250. 260. 270. 280. 290.	17. 18. 20. 21. 23.	18. 20. 21. 23. 24.	20. 22. 24. 25. 27.	23. 24. 26. 28. 30.	25. 27. 29. 31. 34.	28. 30. 32. 35.	28. 31. 33. 36. 39.
300. 310. 320. 330.	24. 26. 27. 29. 31.	26. 28. 30. 32. 34.	29. 31. 33. 35.	32. 35. 37. 39. 42.	36. 39. 41. 44. 46.	40. 43. 46. 48. 51.	44. 47. 50. 54.
350. 360. 370. 380. 0.	33. 35. 37. 39. 41.	36. 38. 40. 42. 44.	40. 42. 44. 47. 49.	44. 47. 49. 52. 55.	49. 52. 55. 58. 61.	55. 58. 61. 64.	60. 64. 67. 71. 75.
TENSION LBS.	2047.	1887.	1697.	1522.	1366.	1230.	1116

ו יפיקגם

2047. 1887. 1697. 1522. 1366. 1230. 1116.

DOODH C XCCCCTS ----

JOB NUMBER :96-4385-0001 DATE :04-29-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :336.4 MCM 18/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION : 34.5 % ULTIMATE 8680 LBS.

RULING SPAN : 350.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

	TEMPERATURE - DEGREES F										
	32	40	50	60	70	80	90				
		~ -	- -			~ -					
AN											
			SPAN SAG	- INCHES							
				3							
200.	12.	12.	14.	15.	17.	18.	20.				
210.	13.	14.	15.	17.	18.	20.	20.				
220.	14.	15.	17	18.	20.	22.					
230.	15.	17.	18.	20.	22:		24.				
240.	17.		20.	22.	24.	24.	26.				
		10.	20.	، ک	र द ∙	26.	28.				
250.	18.	20.	22.	24.	26.	28.	31.				
260.	20.	21.	23.	26.	28.	31.	33.				
270.	21.	23.	25.	28.	30.	33.	35. 36.				
280.	23.	24.	27.	30.	33.	35.					
290.	24.	26.	29.	32.	35.		38.				
			4 ,	Ja.	55.	38.	41.				
300.	26.	28.	31.	34.	37.	41.	44.				
310.	28.	30.	33.	36.	40.	43.	47.				
320.	30.	32.	35.	39.	43.	46.	50.				
330.	32.	34.	38.	41.	45.	49.	53.				
340.	34.	36.	40.	44.	48.	52.	57.				
					20.	Js.	57.				
350.	36.	38.	42.	46.	51.	55.	60.				
360.	38.	40.	45.	49.	54.	59.	63.				
370	40.	43.	47.	52	57.	62.	67.				
380.	42.	45.	50.	55.	60.	65.	71.				
9.	44.		52.	58.	63.	69.					
			• • • • • • • • • • • • • • • • • • • •	J .	05.	09.	74.				
TENSION											
LBS.	1893.	1753.	1592.	1447.	1321.	1212.	1119.				

JOB NUMBER :96-4385-0001

DATE

:04-26-1996

**** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :1/0 AWG 6/1 ACSR

LOADING DISTRICT : MEDIUM

DESIGN TENSION

: 36.9 % ULTIMATE 4380 LBS.

RULING SPAN

: 150.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

TEMPERATURE - DEGREES F

	32	40	50	6.0	5.0		
	J2	40	50	60 	70	80	90
						~~	
PAN			SPAN SAG	- INCHES			
100.	2.	2.	2.	3.	3.	3.	3.
110.	2.	3.	3.	3.	3.	4.	4.
120.	3.	3.	3.	4.	4.	4.	5.
130.	3.	4.	4.	4.	5.	5.	ó.
140.	4.	4.	4.	5.	5.	6.	7.
150.	4.	5.	5.	6.	6.	7.	8.
160.	5 .	5.	6.	ó.	7.	8.	9.
170.	6 .	6	7.	7.	8.	9	10.
180.	ó.	7::*:	7.	8.	9.	10.	11.
190.	7.	8.	8.	9.	10.	11.	13.
200.	8.	9.	9.	10.	11.	12.	14.
210.	9.	9.	10.	11.	12.	13.	15.
220.	10.	10.	11.	12.	13.	15.	17.
230.	10.	11.	12.	13.	15.	16.	18.
240.	11.	12.	13.	14.	16.	18.	20.
250.	12.	13.	14.	16.	17	19.	22.
260.	13.	14.	16.	17.	19.	21.	23.
270.	14.	16.	17.	18.	20.	22.	25.
280.	15.	17.	18.	20.	22.	24.	27.
190.	17.	18.	19.	21.	23.	26.	29.
TENSION							
LBS.	1093.	1031.	952.	872.	792.	711.	631.

JOB NUMBER :96-4385-0001

DATE

:04-26-1996

***** INITIAL STRINGING SAG TABLE *****

CONDUCTOR DESCRIPTION :1/0 AWG 6/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION : 36.9 % ULTIMATE 4380 LBS.

RULING SPAN : 200.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

	TEMPERATURE - DEGREES F										
	32	40	50	60	7 O	80	90				
PAN			SPAN SAG				- -				
100.	2	_									
110.	2.	2.	2.	2.	3.	3.	3.				
120.	2.	3.	3.	3.	3.	4.	4.				
130.	3	3.	3.	4.	4.	4.	5.				
	3.	4.	4.	4.	5.	5 :	6.				
140.	4.	4.	4.	5.	5.	6.	6.				
150.	4.	5.	5.	6.	6.	27	_				
160.	5.	5.	6.	6.	7.	7.	7.				
170.	6.	6.	7.	7.	8.	8.	8.				
180.	6.	7.	7.	8.	9.	9.	10.				
190:	7.	8.	8.	9.	10.	10.	11.				
			٠.	<i>y</i> •	10.	11.	12.				
200.	8.	8.	9.	10.	11.	12					
210.	9.	9.	10.	11.	12.	13.	13.				
220.	10.	10.	11.	12.	13.	13. 14.	15.				
230.	10.	11.	12.	13.	14.		16.				
240.	11.	12.	13.	14.	15.	16.	17.				
				T T .	13.	17.	19.				
250.	12.	13.	14.	15.	17.	1.0	0.1				
260.	13.	14.	15.	17.	18.	19.	21.				
270.	14.	15.	16.	18.	19.	20.	22.				
280.	16.	16.	18.	19.	21.	22.	24.				
390.	17.	18.	19.	21.	22.	23.	26.				
			13.	21.	22.	25.	28.				
TENSION											
LBS.	1106.	1045.	0.6.9	001							
- -	1100.	1040.	968.	891.	813.	737.	662.				

JOB NUMBER :95-4385-0001

DATE

:04-26-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :1/0 AWG 6/1 ACSR

LOADING DISTRICT

:MEDIUM

DESIGN TENSION : 36.9 % ULTIMATE 4380 LBS.

RULING SPAN

: 250.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH - SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

		TEMPERATURE - DEGREES F											
	32	40	50	60	70	80	90						
PAN			SPAN SAG										
~ ~						(4)							
150.	4.	5.	5.	5.	6.	,	_						
160.	5.	5.	6.	6.	7.	6.	7.						
170.	6 .	6.	6.	7.	8.	7.	8.						
180.	5.	7.	7.	8.	8.	8.	9						
190.	7 .	7.	8.	9.	9.	9.	10.						
		, ,	•	<i>3</i> *	9.	10.	11.						
200.	8.	8.	9.	10.	1.0								
210.	9.	9.	10.	11.	10.	11.	13.						
220.	9.	10.	11.		12.	13.	14.						
230.	10.	11.	12.	12. 13.	13.	14.	15.						
240.	11.	12.	13.		14.	15.	17.						
		14.	13.	14.	15.	16.	18.						
250.	12.	13.	14.	1 =									
260.	13.	14.	15.	15.	16.	18.	20.						
270.	14.	15.	16.	16.	18.	19.	21.						
280.	15.	16.	17.	17.	19.	21.	23.						
290.	16.	17.	19.	19.	20.	22.	25.						
	100	* / +	19.	20.	22.	24.	26.						
300.	17.	18.	20.	2.2									
310.	19.	20.	21.	22.	24.	26.	28.						
320.	20.	21.	23.	23.	25.	27.	30.						
330.	21.	22.	24.	25.	27.	29.	32.						
40.	22.	24.	26.	26.	28.	31.	34.						
	23.	24.	20.	28.	30.	33.	36.						
TENSION						9							
LBS.	1119.	1060.	985.	910.	934	844	_						
				710.	836.	764.	593.						

JOB NUMBER :95-4385-0001 DATE

:04-26-1996

***** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :1/0 AWG 6/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION : 36.9 % ULTIMATE 4380 LBS.

RULING SPAN : 300.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

	TEMPERATURE - DEGREES F						
	32	4 O 	50	6 O 	70 	80	90
AN			SPAN SAG	- INCHES			
200. 210.	8. 9.	9. 9.	9. 10.	10.	11.	12. 13.	13.
220. 230.	10. 11.	10.	11.	12.	13.	13. 14. 16.	14.
240.	12.	12.	13.	14.	16.	17.	17. 19.
250. 260.	13. 14.	13. 14.	14. 16.	16. 17.	17. 18.	18. 20.	20. 22.
270. 280.	15. 16.	16. 17.	17. 18.	18. 19.	20.	21. 23:	23. 25.
290.	17.	18.	19.	21.	23.	25.	27.
300. 310.	18. 19.	19. 21.	21. 22.	22. 24.	24. 26.	27. 28.	29. 31.
320. 330. 340.	21. 22.	22. 23.	23. 25.	25. 27.	28. 29.	30. 32.	33. 35.
350.	23. 25.	25.	27.	29.	31.	34.	37.
360. 370.	26. 28.	26. 28. 29.	28. 30.	30. 32.	33. 35.	36. 38.	39. 42.
380 90	29. 31.	31. 32.	31. 33.	34. 36.	37. 39.	40. 43.	44. 46.
	91.	. S.C.	35.	38.	41.	45.	49.
TENSION LBS.	1078.	1020.	949.	878.	800		
			277	070.	808.	741.	678.

JOB NUMBER :96-4385-0001

DATE :04-26-1996

**** INITIAL STRINGING SAG TABLE ****

CONDUCTOR DESCRIPTION :1/0 AWG 6/1 ACSR

LOADING DISTRICT :MEDIUM

DESIGN TENSION : 36.9 % ULTIMATE 4380 LBS.

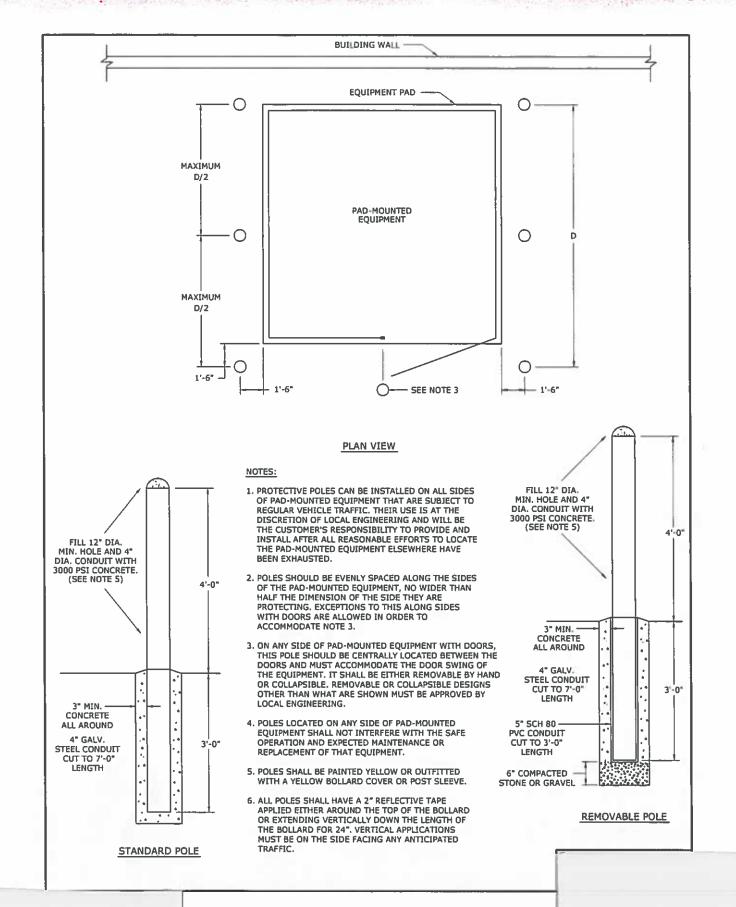
RULING SPAN : 350.00 FT

SAG IS GIVEN IN INCHES , TO THE NEAREST INCH , FOR EACH SPAN AND TEMPERATURE , BASED UPON NO ICE LOAD.

			TEMPERATURE - DEGREES F				
	32	4 0 	50	60	70 	80	90
PAN			SPAN SAG	- INCHES			
200.	9.	10.	11.	11.	12.	14.	15.
210.	10.	11.		13.	14.	15.	16.
220.	11.	12.		14.		16.	18.
230.	12.		14.			18.	19.
240.	13.		15.			19.	21.
250.	15.	15.	17.	18.	19.	21.	23.
260.	16.	17.	18.	19.	21.	23.	25.
270.	17.	18.	19.	21.	23.	25	27.
280.	18.	19.	21.	23.	24	26.	29.
290.	20.	21.	22.	24.	26.	28.	31.
300.	21.	22.	24.	26.	28.	30.	33.
310.	22.	24.	26.	28.	30.	32.	35.
320.	24.	25.	27.	29.	32.	35.	38.
330	25.	27.	29.	31.	34.	37.	40.
340.	27.	28.	31.	33.	36.	39.	42.
350.	28.	30.	33.	35.	38.	41.	45.
360.	30.	32.	34.	37.	40.	44.	47.
370.	32.	34.	36.	39.	43.	46.	50.
380.	34.	36.	38.	41.	45.	49.	
390.	35.	37.	40.	44.	47.	51.	56.
TENSION							
LBS.	939.	886.	821.	759.	700.	645.	595.

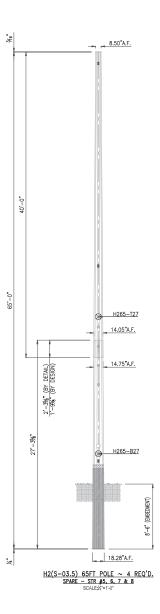
Appendix E: Bollard Detail Drawing

[Balance of Page Left Blank Intentionally]



Appendix E: Galvanized Steel Pole Drawing

[Balance of Page Left Blank Intentionally]



SLIP-FIT POLE ASSEMBLY AND ERECTION PROCEDURE

1. Procedure

1.1 Assembly

MD Henry recommends that the assembly of the poles be performed on the ground and the poles are raised to position in one

If necessary, the poles may be assembled in the air by section. This is not recommended if there is an alternate method available.

A 2-inch horizontal weld bead is positioned on the flats of the lower male shaft for indicating the proper overlap distance during assembly. Refer to MDH Erection Drawings for minimum design overlap.

Assembly nuts or holes have been provided during fabrication, four nuts above and four nuts below each splice. These attachment points are 180 degrees apart and allow a 1-inch or 1-1/2-inch high-strength bolt to be used for the attachment of the jacking device.

Depending on the section sizes and the availability of equipment, there are several methods that can be used for jacking the sections together. Hydraulic or mechanical (chain hoists, turnbuckles) jacking devices are both acceptable

Whichever type of jacking device is used, the pole sections should be blocked up level plumbed prior to jacking. The sections should be manually worked up and down to help "walk" the pole sections together. In general, the pole sections should be overlapped as far as possible prior to the jacking operation.

NOTE: DO NOT USE GREASE OR OIL TO LUBRICATE THE POLE SECTIONS AS THIS RESULTS IN DISCOLORATION. WHICH IS DIFFICULT TO REMOVE.

The applied jacking force shall be sufficient to seat the upper female shaft down to a point between the indicated design and detailed overlap points. The applied jacking force shall not exceed 25 kips.

Caution should always be used when jacking pole sections together since the required jacking forces are of large magnitude.

If upon completion of the assembly procedure, the minimum overlap cannot be obtained, or if there exist visible air gaps (in excess of 3/16-inch on opposite flats), M.D. Henry Company should be contacted prior to further erection of the pole.

Under no circumstances should structures be loaded without specified slip joint engagement unless written authorization from M.D. Henry Company has been received.

1.3 Erection

With the pole on the ground, the arms, pole steps, and other miscellaneous pieces should be installed, making the pole ready to climb when it is erected. Once the pole is up, and inspection is complete, the steps are removed coming down the pole. It may be necessary to leave off climbing devices in the area where they would interfere with the filting straps.

The assembled pole may be picked up from a single point with a nylon or padded cable choker and swung into position. The balance point must be field determined as it varies dependent upon the number of arms or other appurtenance installed prior to erection. Experienced crane operators will find no problem going from pole to pole and determining the proper lifting points.

When setting the poles, MD Henry recommends splices below the lifting point be tethered together as a safety precaution against pulling apart during erection.

After erecting, proper plumbing of the poles can be accomplished by adjusting the anchor bolt nuts underneath the base plate. In the case of direct embedded poles, plumbing should be accomplished prior to back-filling around the bottom sections.

Contractor and field personel are responsible to meeting contractor and utility safety programs as applied by qualified and properly trained personel.

> FINAL DRAWING APPROVED FOR CONSTRUCTION

NO.	REVISIONS	DATE	BY
R0	REVISED FOR FINAL ISSUE	11/12/2000	JME
RB	REVISED PER CUSTOMER COMMENTS (10/06/2020)	10/14/2020	JME

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GREENVILLE UTILITIES COMMISSION

GALVANIZED STEEL POLES (SPARE/STR 5, 6, 7 & 8) DRAWING NUMBER | SX-8901-27SE | RO STEEL ERECTION

