



## INVITATION FOR BIDS

Sealed bids from qualifying licensed contractors will be accepted and publicly read on **May 31, 2024 at 11:00 am** local time at Morganton City Hall, located at 305 E. Union St., Suite A100, Morganton, NC 28655 for the supplying of services in connection with the installation of underground electric distribution lines in conduit.

The work to be done consists generally of the supplying of all supervision, materials, labor, tools, equipment and transportation necessary to install underground electric lines and conduit in, around, and near 12,470/7,200 volt electric distribution lines in residential, commercial, and industrial areas on the City of Morganton's Electric Utility System.

Documents for contractors desiring to submit a bid on this work may be obtained from the City of Morganton Electric Department office, or from its website at <https://www.morgantonnc.gov/rfps> . Follow the Instructions to Bidders, and direct any questions to John Steel, Electric Engineering Services Manager at (828) 438-5281 or [jsteel@morgantonnc.gov](mailto:jsteel@morgantonnc.gov). Only bids submitted by qualified licensed contractors will be considered by the City in the bid evaluation process. All decisions as to the qualifications of the bidder will be made solely by the City of Morganton and will be final.

The Evaluation Criteria used to award work under this contract will include a number of factors, especially the information provided in the Contractor's submittal. Other factors include, but are not limited to, compliance with the requirements of this Request-For-Bid and a proposed solution that best fits the utility's budgetary and operational needs, both currently and in the future. Cost of services will be considered but will not be the sole factor in awarding a contract.

No bidder may withdraw his or her bid for a period of thirty (30) days after date of actual bid opening without the City of Morganton's consent. The City of Morganton reserves the right to reject any or all bids and to waive any informalities or technicalities therein.

Specifications contained in these Instructions to Bidders shall be considered to be, attached to, and an integral part of, the "GENERAL AGREEMENT FOR INSTALLATION OF UNDERGROUND ELECTRIC DISTRIBUTION" contract to be signed by the successful bidder.

# PROPOSAL FOR THE INSTALLATION OF UNDERGROUND ELECTRIC DISTRIBUTION LINES

## Section 1.0 Scope

This proposal covers the furnishing of all supervision, materials, labor, supplies, tools, equipment and transportation necessary to install underground electric distribution lines in conduit at such time and place as may be designated by authorized representatives of the City of Morganton ("CITY").

## Section 2.0 Bidder's Qualifications

- 2.1 Bids will be accepted only from well-established and qualified licensed contractors, trained and experienced in the installation of underground utilities that are approved by CITY. No bid will be considered from any Contractor unless they are known to be skilled and were previously engaged in work of a character and scope consistent with these bid specifications.
- 2.2 Bidders must show that their equipment and facilities are sufficient and their workload so arranged as to meet the schedules called for by the Contract without the use of subcontractors. In order to aid CITY in determining the responsibility of any Bidder, the Bidder shall furnish evidence, satisfactory to CITY, of the Bidder's qualifications, experience and familiarity with work of the character specified and his or her financial ability to properly prosecute the proposed work to completion.

## Section 3.0 Instructions to Bidders

- 3.1 To reduce printing costs and to facilitate recycling, proposals in PDF format may be submitted prior to the deadline. Electronic bids should be submitted by attaching a single file of the required bid forms to an email entitled, "**BID – UNDG DITRIBUTION – RFP053124UNDG**" and emailed to:

[jsteel@morgantonnc.gov](mailto:jsteel@morgantonnc.gov)

and received no later than **11:00 A.M., Friday, May 31, 2024**. Such submission will not be opened until the time for receiving Proposals has come. **Please do not wait until the last minute to send your Proposal to avoid any possible delay that may occur during the transmittal of files.** A screen print of the email receipt will be used by the City as verification of the time received. **Late proposals will not be considered.**

- 3.2 MAILED BIDS

Bidders may *submit in duplicate* this entire specification and signed contract without the removal of any pages. Bids that are sent by U.S. Postal Service or private carrier shall be clearly marked "**BID ENVELOPE ENCLOSED**". The bid shall be sealed in a separate envelope and shall have the following information shown on the outside of the envelope:

**BID FOR: Installation of Underground Electric Distribution Lines**

**BID DUE: May 31, 2024 @ 11:00 am local time**

**BIDDER:** \_\_\_\_\_

Envelope must be addressed and submitted to:  
City of Morganton Electric Department  
ATTN: Mr. John Steel  
305 E. Union St. Suite A100  
Morganton, NC 28655

Any bid not conforming to these requirements will not be considered even if opened by mistake.

- 3.2 Before submitting a bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the system to become familiar with local conditions that may in any manner affect cost, progress, or performance of the work, (c) have knowledge of all federal, state and local laws, ordinances, rules and regulations affecting performance of the work, and (d) carefully correlate the Bidder's observations with the requirements of the Contract Documents.
- 3.3 Each bid shall be carefully prepared in accordance with the Specifications of the Contract Documents.
- 3.4 Each bid shall be signed by a representative of the Bidder who is authorized to make contractual obligations for the Bidder and shall give the Bidder's full business address. Bids by partnerships shall be signed with the partnership name followed by the signature and designation of one of the partners or other authorized representatives.
- 3.5 Bids by a corporation shall be signed in the name of the corporation, followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation. The name of all persons signing shall also be typed or printed.
- 3.6 Bids will be opened as indicated in the Invitation for Bids.
- 3.7 CITY reserves the right to reject any and all bids, waive any and all technicalities therein, disregard all nonconforming or conditional bids, and **evaluate and award bids on other than a low bid basis**. By submission of a bid, Bidder thereby agrees to these stipulations and will not challenge CITY's decisions.
- 3.8 CITY may conduct such investigations as it deems prudent to establish the responsibility, qualifications, and financial ability of the Bidders. CITY's final selection of the best overall bid submitted, as determined solely by CITY, shall be based upon factors such as: financial stability of bidder; personnel experience and training; surveys of current and previous employers and previous work history with CITY; overall quality of equipment and organization; ability to adequately serve CITY with full coverage, customer responsiveness and complaint processing; employee safety training, safety compliance and procedures, including drug-free workforce initiatives, etc.

- 3.9 If the Contract is awarded, CITY will give the successful Bidder due notice of award after the Morganton City Council meeting which is currently scheduled for **June 17, 2024**. Work is expected to commence on this Contract **July 1, 2024** unless otherwise approved at CITY's option.
- 3.10 No Bidder may not withdraw their bid for a period of thirty (30) days after date of actual bid opening without CITY's consent.

TO: City of Morganton, North Carolina  
(Hereinafter called the Owner)

LABOR AND MATERIAL PROPOSAL

CITY OF MORGANTON  
MORGANTON, NORTH CAROLINA  
RESIDENTIAL UNDERGROUND ELECTRIC  
INSTALLATION UNITS

<u>Directional Bore Units:</u>	<u>Per foot cost</u>
Directional Bore A (1) 3" HDPE & (1) 1" HDPE	\$ _____
Directional Bore B (2) 3" HDPE	\$ _____
Directional Bore C (1) 3" HDPE	\$ _____
Directional Bore D (1) 1" HDPE	\$ _____
Directional Bore E (1) 3" HDPE & (1) 2" HDPE	\$ _____
Directional Bore F (1) 3" HDPE & (1) 2" HDPE & (1) 1" HDPE	\$ _____
Directional Bore G (1) 2" HDPE & (1) 1" HDPE	\$ _____

Open Trench Units: Per foot cost

18" x 48" Deep  
Trench \$ \_\_\_\_\_

18" x 36" Deep  
Trench \$ \_\_\_\_\_

18" x 24" Deep  
Trench \$ \_\_\_\_\_

Per foot cost

Add 1" PVC or  
HDPE Duct to  
Trench \$ \_\_\_\_\_

Add 3" PVC or  
HDPE Duct to  
Trench \$ \_\_\_\_\_

Unit Adders:

Per foot cost

Rock Encountered  
in Open Trench  
Excavation \$ \_\_\_\_\_

Rock Encountered  
in Directional Bore \$ \_\_\_\_\_

Underground Conductor  
Pulling Units:

Per foot cost

1 Ph. 1/0 Al  
EPR Solid  
URD (LO) \$ \_\_\_\_\_

350 Al. TPX  
UD (LO) \$ \_\_\_\_\_

4/0 Al. TPX  
UD (LO) \$ \_\_\_\_\_

2/0 Al. TPX  
UD (LO) \$ \_\_\_\_\_

#10 THHN Cu. 600V

(1) Green

(1) Red

(1) Black

UD (LO) \$ \_\_\_\_\_

Conductor Termination Units:                      Cost Each

200A Load Break

Elbow on 1/0 AL.

EPR solid URD \$ \_\_\_\_\_

3 cond.in UD

Triplex To transformer

Spades \$ \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Business Address of Bidder: \_\_\_\_\_

\_\_\_\_\_

Business Telephone Number: \_\_\_\_\_

Signed on the \_\_\_\_\_ day of \_\_\_\_\_, 2024.

**Performance & Bid Bonds**

14.1 A Performance bond with the minimum amount of \$300,000 will be provided with this contract.

14.2 If subcontractors will be used, a Payment bond with the minimum amount of \$50,000 will be provided with this contract.



**GENERAL AGREEMENT FOR INSTALLATION  
OF UNDERGROUND ELECTRIC  
DISTRIBUTION LINES**

THIS AGREEMENT, made this \_\_\_ day of \_\_\_\_\_, 2024, by and between **CITY OF**

**MORGANTON** (hereinafter "Owner"), and \_\_\_\_\_ (hereinafter "CONTRACTOR").

WITNESSETH, that for and in consideration of the covenants and agreements hereinafter mentioned, to be performed by the parties hereto, and the payment hereinafter agreed to be made, it is mutually agreed as follows:

WHEREAS: Owner wishes to have underground electric distribution lines installed, repaired, or replaced in and around the City of Morganton, NC as described in the drawings and specifications attached hereto, and as outlined in detail in the contractor's proposal.

AND

WHEREAS: Contractor is willing to undertake the work as outlined

NOW THEREFORE, the parties to this agreement have covenanted and agree to and with as follows:

The Contract Documents, including the Instructions to Bidders, and Contractor's Proposal, represent the entire agreement between the parties and supersede all prior representations, negotiations, and agreements, whether written or oral. All work performed by Contractor shall be subject to inspection by CITY, and in the discretion of CITY, a reasonable amount will be withheld for work not complying with the Contract Documents until deficiencies are corrected.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in duplicate, each party hereto retaining an executed copy hereof.

Executed and entered into this \_\_\_ day of \_\_\_\_\_, 2024.

**CONTRACTOR:**

**By** \_\_\_\_\_

\_\_\_\_\_  
(TITLE)

**ATTEST:**

CITY OF MORGANTON

\_\_\_\_\_  
CITY CLERK

**By** \_\_\_\_\_  
**MAYOR**

**CONTRACT TERM**

**This contract term will begin July 1, 2024, and, unless terminated at an earlier date, and shall continue in effect until June 30, 2025 at which time it will end.**

**Payments**

CITY shall pay Contractor for the Contractor's performance of the Contract as defined, subject to additions and deductions as provided for in the Contract Documents. The charges as set forth herein shall cover in full all compensation claimed by Contractor arising from Contractor's performance of this work authorized under this Agreement.

**General Conditions**

- 1 Contractor shall comply with all state, federal and local laws (including but not limited to the Occupational Health and Safety Act) which govern the work. The Contractor shall have and maintain in force at all times, and upon request shall furnish to CITY proof that he or she has, all licenses which are required to do the work.



- 2 Contractor shall not commence work under the Contract until the required insurance is in force and a certificate showing proof of such insurance has been delivered to CITY.
- 3 Contractor shall be solely responsible for and shall have control over the means, methods, techniques and procedures for doing the work. **The Contractor is an independent contractor and neither Contractor nor any of its employees shall be deemed to be agents or employees of CITY.**
- 4 Contractor shall indemnify and hold harmless the CITY and its directors, officers, employees and agents from and against all liabilities, claims, demands, causes of action of every kind and description, damages, losses and expenses, including but not limited to attorney's fees through appeals, arising out of or resulting from the performance of the work, provided that any such claim, demand, cause of action, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of property including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the Contractor, anyone directly or indirectly employed by the Contractor or anyone for whose acts for any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. This indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.
- 5 Contractor is responsible for any and all tax liabilities which may be imposed under the State of North Carolina, Department of Revenue Sales and Use Tax Laws.
- 6 The Contract shall be binding upon and shall inure to the benefit of CITY and the Contractor and each of their respective heirs, successors and assigns. The Contractor may not assign the Contract or subcontract any part of the work. No amendment, modification or interpretation of this Contract by CITY shall be effective unless the same is in writing and signed by a duly authorized representative of CITY.
- 4.7 Any notices required to be provided under this Agreement shall be in writing and shall be deemed properly given (a) when delivered in person or (b) when forwarded by a nationally recognized overnight courier service or certified mail, return receipt requested, to City of Morganton Electric Department, PO Box 3448, Morganton, NC 28655 on behalf of CITY, or if to Contractor:

Name of Contractor \_\_\_\_\_

Attn: Name of Contact \_\_\_\_\_

Street Address \_\_\_\_\_

P.O. Box \_\_\_\_\_

City, State, Zip Code \_\_\_\_\_

The designation of the person to be so notified or the address of such person may be changed at any time and from time to time by either party by similar notice.

- 4.8 This Agreement constitutes the final, complete, and entire understanding and obligations of the parties hereto with respect to the subject matter hereof and supersedes all previous communications, representations, agreements, promises, statements, proposals, and specifications, whether written or oral, by or between the parties with respect to the same.
- 4.9 In the event Contractor breaches any material term of this Agreement, and fails to correct the same within seven (7) days after written notice from CITY, then CITY may terminate this Agreement immediately upon giving written notice to Contractor.
- 4.10 Subcontracts and Subcontractors. Within ten (10) days after the award of the contract, the Contractor shall submit to the Owner a list giving the names and addresses of subcontractors he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the Owner, the Contractor shall submit additional names for approval. The Owner shall act promptly to approve the subcontractors, and when approval of the list is given; no changes of subcontractors will be permitted except for cause or reason considered justifiable by the Owner.

### **DEFINITIONS:**

(a) The Owner, the Contractor are those mentioned as such in this agreement. They are treated as if each were a singular number and masculine gender.

(b) The term "work" of the Contractor includes labor and equipment or facilities necessary to complete the contract.

(c) The term "completion" shall mean full performance by the Contractor of the Contractor's obligations under this contract and all amendments and revisions thereof. A certificate of completion, stating the date of completion, signed by, and approved in writing by the Owner, shall be the sole and conclusive evidence as to the fact of completion and the date thereof. Portions of the project shall be deemed to be completed, within the meaning of this provision, when they have been completely erected, and have been inspected and accepted in writing, by Owner. Thereafter such completed sections may be energized by the Owner, at which time the Contractor's liability for maintaining them will cease.

### **THE OWNER SHALL FURNISH:**

(a) Drawings, Specifications, Instructions -- Complete detailed drawings covering all phases of the work shall be furnished with reasonable promptness. These Drawings together with the Specifications and authorized instructions from the Owner will constitute the Contractor's outline of work.

(b) Materials needed for completion of the project. However; it may be necessary to purchase some materials through the contractor in order to maintain a workable schedule.

**THE CONTRACTOR SHALL FURNISH:**

(a) Contractor's Superintendent. A competent and experienced superintendent, together with necessary assistants, shall be kept on the job at all times by the Contractor. This Superintendent shall represent the Contractor and all directions given him shall be as binding as if given the Contractor direct, provided, however that important directions shall be confirmed in writing at the request of the Contractor.

(b) Labor. All labor required for the accomplishment of the work shall be employed by the Contractor in his own name and shall be his employee. The several classes of labor required shall be entirely competent and skilled in their lines of work. The Contractor shall at all times keep good order among his employees and, at the request of the Owner, shall remove from the job any employee who, in the judgement of the Owner, is not competent or is detrimental to the orderly progress of the job or is interfering with the Owner's operations.

1. Taxes. The Contractor shall include in his quoted price all Federal, State, or other governmental division taxes and contributions for unemployment compensation, and old age or other benefits, now or hereafter effective during the term of this contract.

2. Compliance with Labor Laws. The Contractor agrees, that, as to all of his representatives and employees to be employed upon or in any way connected with the work, he shall comply fully with and be subject to the terms of the Workmen's Compensation Acts of the State before any work shall be undertaken.

(c) Construction Plant, Equipment and Tools. The Contractor shall furnish all necessary tools, trucks, cars and other equipment that may be necessary for the full and complete carrying out of the contract. All construction equipment shall be modern and substantial and of adequate sizes and capacities to handle safely and efficiently the work for which it is used.

(d) Insurance. The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

1. Claims under workmen's compensation disability benefit and other similar employee benefit acts;

2. Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

4. Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of any offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

5. Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

The CONTRACTOR shall procure and maintain at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified:

1. CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than \$500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident, and a limit of liability of not less than \$500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$200,000 aggregate for any such damage sustained by two or more persons in any one accident.

The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

General liability shall include coverage for Comprehensive form, Premises-Operations,

Explosion and Collapse Hazard, Underground Hazard, Products/Completed Operations, Contractual, Broad form Property Damage, Independent Contractors, and Personal Injury.

An umbrella liability policy shall cover the General Public Liability and Property Damage Insurance with minimum \$1,000,000 limit per occurrence in addition to the limits above.

The Owner shall be added to the Contractor's Policy as additionally insured parties.

(e) Bond. The Contractor shall furnish a bond acceptable to the Owner's Attorney in the amount of \$300,000 guaranteeing the faithful performance of the Contract and the payment of all obligations arising thereunder.

(f) The Contractor shall secure necessary permits for the prosecution of the work.

**MANNER OF CONSTRUCTION:**

(a) The Contractor shall do no work without authorized drawings or instructions. The work is to be made complete and to the satisfaction of the Owner notwithstanding any minor omissions in the Specifications or drawings.

(b) The Owner shall have the right to direct the Contractor to construct any part or parts of the project before any other part or parts thereof, and the Contractor agrees to comply with all such directions. The Contractor shall comply with all other reasonable directions of the Owner.

(c) 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; but 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 Contract.

(d) The manner of construction of the project, and all materials and equipment used therein, shall be subject to the inspection, tests, and approval of the Owner, and the Contractor shall furnish all information required by the Owner concerning the nature or source of any materials incorporated or to be incorporated in this project. The Contractor shall provide all reasonable facilities necessary for such inspection and test. The Contractor shall have an authorized agent accompany the inspector when final inspection is made and, if requested by the Owner, when any other inspection is made.

(e) The Owner shall have the authority to suspend the work wholly or in part for such period or periods as the Owner may deem necessary due to unsuitable weather or such other conditions as are considered unfavorable for the satisfactory prosecution of the work or because of the failure of the Contractor to comply with any of the provisions of the contract; provided, however, that the Contractor shall not suspend work pursuant to the provision without written authority from the Owner so to do. The time of completion hereinabove set forth shall be increased by the number of days of any such suspension, except when such suspension is due to the failure of the Contractor to comply

with any of the provisions of this contract. In the event that work is suspended by the Contractor with the consent of the Owner, the Contractor, before resuming work, shall give the Owner at least twenty-four (24) hours' notice thereof in writing.

**DEFECTIVE WORKMANSHIP AND MATERIALS:**

(a) The acceptance of any workmanship, materials, or equipment by the Owner shall not preclude the subsequent rejection thereof if such workmanship, materials or equipment shall be found to be defective after delivery or installation, and any such workmanship, materials or equipment found defective before final acceptance of the construction shall be remedied or replaced, as the case may be, by and at the expense of the Contractor. Any condemned material or equipment shall be immediately removed from the site of the project by the Contractor at the Contractor's expense. The Contractor shall not be entitled to any payment hereunder so long as any defective workmanship, materials or equipment in respect to the project, of which the Contractor shall have had notice, shall not have been remedied or replaced, as the case may be.

(b) Notwithstanding any certificate which may have been given by the Owner, if any workmanship, material or equipment which does not comply with the requirements of the contract shall be discovered within one (1) year after completion of the project, the Contractor shall remedy any such defective workmanship or replace such defective materials or equipment within thirty (30) days after notice in writing of the existence thereof shall have been given by the Owner. In the event of failure by the Contractor so to do, the Owner may remedy such defective workmanship or replace such defective materials or equipment, as the case may be, and in such event the Contractor shall pay to the Owner the cost and expense thereof.

**PAYMENT AND RELEASE OF LIENS:**

(a) Price Schedule. All work undertaken by the Contractor under the contract shall be paid for by the Owner on the basis of unit prices for each of the various items of work to be performed by the Contractor. The unit prices shall include in each case the furnishing of all necessary construction equipment and tools, supervision, field and office overhead and expenses, insurances, taxes, specified materials, labor, Workmen's Compensation Insurance and Social Security Tax and Contractor's profit. The entire compensation of the Contractor (except for such items of extra work as may be authorized in writing) shall be the sum arrived at by multiplying each unit price, as shown by the price schedule, by the number of units actually performed to which such price is applicable and adding all such products together, plus any additional amount for extra work, as authorized by the Owner and for which compensation has been mutually agreed upon.

(b) Payment to Contractor. Within the first fifteen (15) days of each Accounting Month, the Owner shall make partial payment to the Contractor for construction accomplished during the preceding Accounting Month, on the basis of complete Assembly Units furnished and certified to by the Contractor, and approved by the Owner solely for the purpose of payment; Provided, however, that such approval by the Owner shall not be deemed approval of the workmanship or materials. Only ninety percent (90%) of each such estimate approved during the construction of the project shall be paid by the Owner to the Contractor prior to completion of the project. Upon completion by the Contractor of the construction of the project, the Contractor shall certify to the

Owner the total number and character of Assembly Units and the Owner, after checking such certification and making any necessary corrections therein, shall thereupon certify the same to the Owner together with a certificate of the total cost of the construction performed under this contract. Upon the approval of said certificates by the Owner, the Owner shall make payment to the Contractor of all amounts to which the Contractor shall be entitled thereunder which shall not have been paid. No payment shall be due while the Contractor is in default in respect of any of the provisions of this contract and the Owner may withhold from the Contractor the amount of any claim by a third party against either the Contractor or the Owner based upon alleged failure of the Contractor to perform the work hereunder, in accordance with the provisions of this contract.

(c) The entire compensation shall not exceed the maximum contract price for the construction of the project as computed from the Proposal, unless such excess shall have been approved in writing by the Owner.

It is agreed that the number of such units may be greater or less than the estimated number based upon the Plans and Specifications and the size of the project(s) as originally contemplated and the Contractor shall not be entitled to any claim for damages on account of any reasonable additions to or subtractions from the project, or of any delay occasioned thereby, or of any changes in the routing of the lines.

(d) Release of Liens. Upon the completion by the Contractor of the construction of the project, but prior to the payment to the Contractor of any amount in excess of ninety percent (90%) of the total cost of all assembly units comprising the completed project as certified by the Owner, or at any other time specified by the Owner, the Contractor shall deliver to the Owner, in duplicate, release of all liens and of rights to claim any lien, in a form satisfactory to the Owner, from all manufacturers, materialmen, and sub-contractors furnishing services or materials for the project and an affidavit in a form satisfactory to the Owner to the effect that all labor and material used on or for the project has been paid and that all such releases have been submitted to the Owner.

### **PROTECTION TO PERSONS AND PROPERTY:**

The Contractor shall at all times take all reasonable precaution 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. 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:

(a) The Contractor shall so conduct the construction of the project as to cause the least possible obstruction of public highways.

(b) The Contractor shall provide all watchmen determined by the Owner to be necessary to properly protect all construction work done and materials furnished under this contract.

(c) 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.

(d) The Contractor shall do all things necessary or expedient to properly protect any and all highways and any and all property of others from damage and in the event that any such highways or other property are damaged in the course of the construction of the project, the Contractor shall at its own expense restore any or all of such damaged property immediately to as good a state as before such damage occurred.

(e) During periods of performance by the Contractor of work under this agreement, those portions of the lines upon which work is being performed shall be under the charge and control of the Contractor and during such period of control by the Contractor all risks in connection with the construction of the project and the materials to be used therein shall be borne by the Contractor. The Contractor shall make good and fully repair all injuries and damages to the project or any portion thereof under the control of the Contractor where the same shall have occurred by reason of the Contractor's negligence. The Contractor shall hold the Owner harmless from any and all claims for injuries to persons or for damage to property happening by reason of any negligence or faulty construction on the part of the Contractor or any of the Contractor's agents or employees during the control by the Contractor of the project or any part thereof.

(f) Any and all excess earth, rock, debris, underbrush and other useless material shall be removed by the Contractor from the site of the project as rapidly as practicable as the work progresses.

(g) Upon violation by the Contractor of any of the provisions of this section, after 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: Provided, however, that the Owner may, if it deems it necessary or advisable, correct such violation at the Contractor's expense without such prior notice to the Contractor.

(h) The Contractor shall not proceed with cutting of trees or clearing of rights-of-way without written notification from the Owner that proper authorization has been received from the Owner of the property, and the Contractor shall promptly notify the Owner whenever any landowner objects to the trimming or felling of any trees or the performance of any other work on his land in connection with the project, and shall obtain the consent in writing of the Owner before proceeding in any such case.

### **REMEDIES:**

(a) Completion on Contractor's Default. If default shall be made by the Contractor of any sub-contractor in the performance of any of the terms of this contract, the Owner, without in any manner limiting its legal and equitable remedies in the circumstances, may serve upon the Contractor and the surety or sureties upon the Contractor's Bond or Bonds a written notice requiring the Contractor to cause such default to be corrected forth with. Unless within ten (10) days after the service of such



notice upon the Contractor such default shall be corrected or arrangements for the correction thereof satisfactory to the Owner shall be made, this contract shall be terminated. In the event of any such termination the Owner shall serve notice thereof upon said surety or sureties, which shall have the right to take over and perform the obligations of the Contractor hereunder. If said surety or sureties shall not assume the performance of the Contractor's obligations hereunder within twenty (20) days after the date of such notice, the Owner may take over the construction of the project and prosecute the same to completion by contractor or otherwise for the account and at the expense of the Contractor, and the Contractor and its surety or sureties shall be liable to the Owner for any cost or expense in excess of the contract price occasioned thereby. In such event the Owner may take possession of and utilize, in completing the construction of the project, any materials, tools, supplies, equipment, appliances, and plant belonging to the Contractor or any of its sub-contractor, which may be situated at the site of the project. The Owner in such contingency may exercise any right, claims or demands which the Contractor may have against third persons in connection with this contract and for such purpose, the Contractor does hereby assign, transfer, and set over unto the Owner all such rights, claims and demands.

(b) Liquidated Damages. The time of the completion of the construction of the project is of the essence of this contract. Should the Contractor neglect, refuse, or fail to complete the construction within the time herein agreed upon, after giving effect to extensions of time, if any, herein provided, then in that event and in view of the difficulty of estimating with exactness damages caused by such delay, the Owner shall have the right to deduct from and retain out of such moneys which may be then due, or which may become due and payable to the Contractor, the sum of Three Hundred Dollars (\$300.00) per day for each and every day that such construction is delayed in its completion beyond the specified time, as liquidated damages and not as a penalty; if the amount due and to become due from the Owner to the Contractor is insufficient to pay in full any such liquidated damages, the Contractor shall pay to the Owner the amount necessary to effect such payment in full.

(c) Cumulative Remedies. Every right or remedy herein conferred upon or reserved to the Owner shall be cumulative, shall be in addition to every right and remedy now or hereafter existing at law or in equity or by statute, and the pursuit of any right or remedy shall not be construed as an election: Provided, however, that the provisions of Section 8 (b) above shall be the exclusive measure of damages for failure by the Contractor to complete the construction of the project within the time herein agreed upon.

(d) Litigation Venue. Any controversy or litigation arising out of this Agreement shall be resolved by and venued in the courts of Burke County, North Carolina.

### **COMPLETION TIME AND CONSTRUCTION SCHEDULE**

(a) The term of this contract will be one year from the award of the contract. The Contractor may begin work as soon as the contract is awarded to allow for inclement weather and incidental delays.

(b) On behalf of Morganton residents, the Owner has requested the following limitations on the work schedule.

- 1) Wherever possible, pedestrian traffic should not be impeded.
- 2) Present street lighting should be maintained until new lights are ready for operation.
- 3) Contractor shall get approval of Owner before removing any items conflicting with installation of trench, not noted for removal on construction drawings.
- 4) The Contractor may be asked to suspend work during city wide events.
- 5) As much as is reasonable, care should be taken to minimize damage to existing ornamental plantings on resident's property.

**MISCELLANEOUS:**

(a) Purchase of Materials. The Contractor shall purchase all materials and supplies Not purchased by Owner, outright and not subject to any conditional sales agreement, bailment, or other agreement reserving to the seller any right, title, or interest therein. All materials and supplies shall become the property of the Owner when erected in place.

(b) Assignment of Guarantees. All guarantees of materials and workmanship running in favor of the Contractor shall be transferred and assigned to the Owner on completion of construction and at such time as the Contractor receives final payment.

(c) Patent Infringement. The Contractor shall save harmless and indemnify the Owner from any and all claims, suits, and proceedings for the infringement of any patent or patents covering any materials or equipment used in construction of the project.

(d) Permits for Explosives. All permits necessary for the handling or use of dynamite or other explosives in connection with the construction of the project shall be obtained by and at the expense of the Contractor.

(e) Compliance with Statutes and Regulations. The Contractor shall comply with all applicable statutes, ordinances, rules, and regulations pertaining to the construction of the project.

(f) Franchises and Rights-of-Way. The Contractor shall be under no obligation to obtain or assist in obtaining: Any franchises, authorizations, permits, or approvals required to be obtained by the Owner from Federal, State, County, Municipal, or other authorities; and rights-of-way over private lands; or any agreements between the Owner and third parties with respect to the joint use of poles, crossings, or any other matter incident to the construction and operation of the project.

(g) Non-Discrimination. During the performance of this agreement Contractor agrees that Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or natural origin except where religion, sex, or natural origin is a bona fide occupational qualification reasonably necessary for the normal operation of the

Contractor. Contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of this non-discrimination clause. Contractor in all solicitations or advertisements for employees placed by or on behalf of Contractor will state that Contractor is an equal opportunity employer. Contractor will include the provisions of this paragraph in every sub-contract or purchase order of over \$10,000.00 so that the provisions will be binding upon each sub-contractor or vendor.

(h) Standard of Care. Contractor shall perform the services herein described expeditiously and diligently and in accordance with the standard of care and skill ordinarily exercised under similar conditions by reputable members of its profession or trade practicing in the same or similar locality within the State of North Carolina existing as of the date such services are provided and in accordance with all applicable laws, codes, and regulations in effect as of the date such services are provided.

(i) Termination for Cause. This Contract may be terminated by the Owner upon fifteen (15) days written notice to the Service Provider to the address first named above in the event of substantial failure or default of the Service Provider to perform in accordance with the terms hereof through no fault of the Owner's.

(j) Termination for Convenience. The obligation to provide further services under this Contract may be terminated by the Owner for its convenience and not for cause upon fifteen (15) days written notice. Service Provider shall be compensated for work performed through the date of termination and for termination expenses, including any expenses directly attributable to termination and for which Service Provider is not otherwise compensated. Termination expenses shall not, however, include loss profits on services not performed as a result of such termination for convenience.

(k) Indemnification. Service Provider agrees to defend, indemnify and hold harmless the Owner for any and all actions, claims or disputes that may arise as a result of Service Provider's negligence, any sub-contractor's negligence and/or any joint negligence of the Owner, Service Provider, or sub-contractor.

(l) Enforcement. This Contract shall be governed by the laws of the State of North Carolina. Any action maintained by either party for the enforcement or interpretation of the terms of this Contract shall be filed in the courts of Burke County, North Carolina.

(m) Interruption of Utilities. Any necessary shutdown of electrical or other utilities must be cleared at least 48 hours in advance with Mr. Brooks Kirby, Electric Director, City of Morganton.

(n) As-Built Drawings. As the work progresses the Contractor shall keep a complete record of any and all variations between the actual project installations and the contract drawings and specifications requirements. Upon completion of the project, one set of drawings shall be marked in red to show all such variations and these drawings shall be forwarded to the Owner.

(o) Existing Utilities and Obstructions. The Owner has attempted to design around

underground utilities and their anticipated elevations. Not all of the utilities nor their elevations are shown, and the Contractor, therefore, shall be responsible for determining the exact location and elevation wherever necessary for any existing subterranean utilities or other underground obstructions in advance of work being done either from local information or by actually uncovering the utilities or obstructions. Any such existing water line, sewer line, cable, conduit, or any other utility or obstruction either underground or above ground, damaged by the Contractor shall be repaired immediately at the Contractor's expense. Any utility discovered during excavation to be deteriorated by natural aging and not damaged as a result of contractor negligence shall be reported to the Owner for repair immediately.

(p) Underwriter Laboratory Approval. All fabricated assemblies of electrically operated equipment furnished under this contract shall have Underwriters Laboratory approval or U.L. Reexamination listing in every case where such approval has been established for the particular type of materials or devices in question.

All manufactured items of electrically operated equipment shall have Underwriters Laboratory approval or U.L. Re-examination listing in every case where such approval has been established for the particular type of device in question.

(q) Protection of Streets. Contractor shall be responsible for protecting the streets connecting to the project from deposits of mud, sand, stone, litter, or debris in any form. It is necessary that every effort be taken to minimize the interference with normal City operations caused by the construction. All mud deposited on streets shall be cleaned as often as required to avoid traffic or pedestrian hazards.

(r) Protection of Drainage System. All catch basins and storm drain lines shall be protected at all times from the entry of mortar, concrete spill, and other construction debris. The residue from the cleaning of ready-mix trucks, wheelbarrows, concrete buggies, etc., must be prevented from entering the drainage system, and if cleaning is done, it must be contained and the residue removed with other refuse.

(s) Barricades and Signs. The Contractor shall be responsible for all barricades, temporary signs and directing of all traffic by flagmen as may be required at critical locations. The contractor shall erect substantial barricades at both the point of the work and at the last intersection a detour can be made. The barricades shall be constructed in such a way that traffic cannot drive across sidewalks, plantings, etc., and if this happens, the Contractor shall be responsible for the damage to the affected property.

Detour signs shall be erected on the intended route of displaced traffic. Any change of traffic patterns, parking, etc., shall be covered by temporary signs and approved in writing by the N.C.D.O.T. All existing signs in the affected area of construction shall be covered or removed and reinstalled at the return of normal traffic patterns. Permits to parking signs shall be obtained from the Owner prior to start of construction.

(t) Subcontracts and Subcontractors. Within ten (10) days after the award of the

contract, the Contractor shall submit to the Owner a list giving the names and addresses of subcontractors he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the Owner, the Contractor shall submit additional names for approval. The Owner shall act promptly to approve the subcontractors, and when approval of the list is given, no changes of subcontractors will be permitted except for cause or reason considered justifiable by the Owner.

(u) Execution, Correlation and Intent of Documents. The contract documents shall be executed in three counterparts by the Owner and Contractor.

The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

It is not intended that work not covered under any heading, section, branch, class or trade of the specifications, shall be supplied unless it is shown on drawings or is reasonably inferable therefrom as being necessary to produce the intended results.

(v) Shop Drawings. Where shop drawings are called for or are necessary for proper carrying out of the work, the Contractor shall submit for the Owner's approval three (3) copies of drawings before commencing installation of work.

The Contractor shall make any and all corrections necessary for obtaining approval, and then shall furnish the Owner with three (3) sets of revised drawings.

The Owner's approval of Contractor's drawings shall not relieve the Contractor for errors, omissions or deviations from the plans or specifications, unless the Contractor has in writing called the Owner's attention to such deviation at the time of submittal.

It is the duty of the Contractor to check all shop drawings before submitting them for approval. Drawing shall bear the Contractor's stamp showing that they have been so checked. Owner's approval will be given for design and general arrangement only, and will not cover detailed dimensions or deviations from plans and specifications unless such detailed approval is requested at time of submission.

## **ELECTRIC CONSTRUCTION SPECIFICATIONS**

### Applicable Specifications and Standards

Insulated Power Cable Engineers Association  
General Specifications for Wire and Cable with Thermoplastic Insulation, IPCEA  
S-66-524 and NEMA - WC7.

National Fire Protection Association

National Electrical Code

American National Standards Institute, Inc.

National Electrical Safety Code

U. S. Department of Labor

OSHA Standards on Electrical Safety Related Work Practices

U. S. Department of Transportation

Uniform Traffic Control Devices

North Carolina Department of Transportation

North Carolina Construction and Maintenance Operations Supplement.

### General

The installation shall comply with the applicable rules of the National Electrical Safety Code and National Electrical Code. In no case shall the materials and workmanship fail to meet the minimum requirements of these Codes. All electrical materials shall be new except as otherwise directed herein.

Defective equipment or equipment damaged in the course of installation or test shall be replaced or repaired in a manner meeting the approval of the Owner.

## Earthwork and Cutting and Patching

### A. General

The Contractor shall take the site in its present condition, perform all grubbing, excavation, trenching, backfilling and patching necessary for the execution of the construction. All permits for the proposed construction shall be obtained by the contractor.

### B. Classification and Disposition of Excess Material

The Contractor shall thoroughly clear the site of all debris and surplus earth resulting from the clearing and excavation to the satisfaction of the Owner. All debris shall be removed from the site and deposited in an approved location.

### C. Grubbing

Grubbing shall include the removal and disposal of all stumps, roots larger than 3 inches in diameter, and matted roots to the depths indicated. All depressions excavated below the original surface for or by the removal of stumps, roots, rotted wood, and refuse shall be refilled with suitable material or fill quality and compacted to made the surface conform to the bearing capacity of the surrounding subgrade surface.

### D. Excavation

The Contractor shall excavate to elevations and dimensions shown, plus sufficient space to permit erection of forms, sheeting, shorting, and bracing. Excavation carried below the depths indicated without specific directions shall be refilled to the proper grade with thoroughly compacted suitable fill. Shoring shall be furnished and installed by the Contractor, if required, to protect the workmen and the proposed system from water damage and from hazard of earth slides into ditch. The Contractor shall repair any damage caused by his excavation of trenching. The drawings indicate the general nature, depth, and location of existing underground facilities, but they are not to be construed as indication of all utilities or obstructions which may be encountered.

The Contractor shall at all times during construction of the work, provide and maintain ample means and equipment with which to promptly remove and properly dispose of all water entering excavations and keep excavations dry until conduit lines or other structures to be built therein are completed.

If rock is encountered it shall be removed and replaced with suitable materials in such a manner as to provide a compacted earth cushion with a maximum thickness of 8 inches.

All excavation in stoned or grassed areas shall have stone or sod stripped, stored, and

reinstalled by Contractor. All excavated earth in grassed areas shall be placed on suitable material to protect the grass and shall be removed as soon as possible. Any area where grass has been damaged shall be replaced to the Owner's satisfaction. This shall include surface preparation, raking, fertilizer, grass seed, straw, etc.

#### Rock

Rock, by definition, shall be materials including boulders  $\frac{1}{2}$  cubic yard or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

Rock excavation for trenches includes removal and disposal of materials and obstructions encountered that cannot be excavated with a track-mounted power excavator equivalent to Caterpillar Model 215C LC, and rated not less than 115 flywheel horsepower and 32,000 pound drawbar pull, equipped with a short stick and a 42-inch wide, short tip radius rock bucket rated at 0.81 cubic yard (heaped) capacity. Trenches in excess of 30 feet in either length or width are classified as open excavation.

Rock excavation in open excavations includes removal and disposal of materials and obstructions encountered that cannot be dislodged and excavated with modern, track-mounted, heavy-duty excavating equipment without drilling, blasting, or ripping. Rock excavation equipment is defined as Caterpillar Model 973 or equivalent track-mounted loader, rated not less than 210 flywheel horsepower and developing a minimum of 45,000 pound breakout force.

Rock that must be bored through is defined as materials encountered that require a rock boring bit or heavier equipment than earth bores or that reduce progress of the boring one fourth of normal progress as established by other bores on the project. Limits of rock to be bored must be verified by the Owner or Construction Manager during the bore.

If rock in trenches cannot be removed by conventional methods, drilling or hydraulic hammering will be required. Blasting will not be allowed. Do not perform rock excavation work until material to be excavated has been cross sectioned and classified by Owner or Construction Manager. Such excavation will be paid on the basis of Contract conditions.

Rock payment lines are limited to the following:

One foot outside perimeter of equipment pads.

In duct trenches, three inches below invert elevation of ducts and no wider than minimum trench width;

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Owner.

Unauthorized excavation, as well as remedial work directed by Ownerer, shall be at Contractor's expense.

#### E. Backfill



All backfill of excavations for conduit lines or other structures shall be free of roots, vegetable matter, waste construction materials, or other objectionable material. Backfill materials shall be placed in uniform layers not exceed 6 inches in loose depth and each layer shall be thoroughly compacted. Compaction shall be accomplished with power tamps in accordance with ASTM D1557 to not less than 95 of maximum dry density.

Material used for backfill under and around pipe and over pipe to a depth of 2 feet above top of pipe shall be clay, sand, or other earth which is free of rocks over 3 inches in any dimension, cinders, broken concrete, roots stumps, timber or other objectionable foreign matter. Special care shall be exercised in tamping backfill under pipe to secure solid bearings for pipe, being careful, however, not to disturb alignment or grade of pipe or pipe joints. Heavy rollers, vehicles, crawler equipment, or other such equipment shall not be used for compacting backfill over pipe lines.

Polyethylene film marker tape shall be installed above all underground lines. In paved areas, tape shall be laid directly on compacted earth subgrade before restoring the pavement. In unpaved areas, tape shall be laid on compacted backfill approximately one foot below finished grade, but with a minimum of 6" differential between the conduit and marker. Tape shall be installed with the printed side up and ends shall be tied with square knots. The marker shall be 6" x .004", bright red or yellow, and marked continuously in black letters with the words "CAUTION" and "BURIED ELECTRIC LINES BELOW."

#### F. Patching

Where existing sidewalks, driveways, streets and highways are cut, the patching shall be finished in such a manner as to match the adjoining surfaces. Curbs and gutters shall be replaced by the same shape and materials as existing walkways and/or steps shall be replaced with concrete construction or similar to existing construction. All pavement cut shall be patched whether or not a paved surface is indicated on the plans. Work shall be done neatly by workmen skilled in the trade.

Where street paving is cut, the asphalt shall be neatly cut with an asphalt cutter. Breaking the asphalt out with a backhoe or other means will not be tolerated. Boards or other suitable materials shall be placed under backhoe outrigging to prevent damage to the asphalt. The patching shall consist of a minimum of 6 inches of run-of-crusher stone and 4 inches of asphalt of existing type. If the surrounding pavement is damaged by backhoe or by any other means, the damaged spot shall be cut out and patched as above. If the surface of surrounding area is damaged, the whole area shall be paved over with 3/4 inches sand-asphalt at no additional cost to the Owner.

Stone base and paving shall be placed immediately after opening is backfilled. Backfill shall be tamped thoroughly and any settlement which occurs in the street during 12 months warranty period shall be repaired and resurfaced with asphalt at no further cost to the Owner. In order to provide bearing for replaced pavement, all pavement cuts shall be wider on each side than earth cut at top of trench in accordance with assembly drawings.

#### Secondaries

All connections to secondary conductors shall be made with solderless connectors. Two wrenches shall be used for tightening all connectors.

### Direct Buried PVC Conduit

Underground circuits shall be installed in PVC Schedule 40 or HDPE SDR 13.5 conduit as indicated on the plans, unless otherwise noted.

### Splice Boxes

One eight foot ground rod shall be installed in each splice box. All metallic conduit, equipment, apparatus cases and frames together with steel supporting structures shall be bonded to the system neutral and to ground. A No. 6 AWG copper conductor shall connect to the driven ground. All connections shall be of the clamp type or brazed.

### Duct Assignment

In general, conduit assignment shall be made as follows, unless the plans indicate otherwise: Conductor that will bend to the left and right shall be installed in the left and right hand conduits respectively. Conductor that goes through a number of splice boxes shall use the conduit that would not change positions if the conduit were joined together without a splice box.

### Conductor

#### A. Conductor - 600 Volts or Less

Conductors shall be UL Type "THHN" or XHHW-2, suitable for operations at 600 volts as specified in the National Electrical Code, at conductor temperatures not to exceed 60° C when exposed to oil or coolant, 90° C in dry locations. Conductors shall be annealed copper, insulated with high-heat and moisture resistant PVC, jacketed with abrasion, moisture, gasoline, and oil resistant nylon.

All conductor sizes and types are noted in the proposal section.

Underground secondary and service cable shall be as specified in the List of Materials and shall be installed in conduit in accordance with the Construction Drawings.

Buried cable splices may be made only with permission by the Owner and only when required for repair or extension of existing secondary or service cable. When permitted, cable splices shall be of the prefabricated type and shall be installed in accordance with the manufacturer's instructions. Splices that depend solely on tape for a moisture barrier shall not be used. No bends will be permitted within 12 inches of the ends of splice. The cable or circuit numbers and the exact location of the splices shall be noted on the drawings (As-Built).

All low voltage cable connections made in below-ground enclosures shall be completely

moisture proof. Diving bells with open terminals or moisture barriers that depend solely on tape or not acceptable for below-ground applications. Snugly fitting insulated boots may be used above ground. An inhibiting compound shall be applied to all secondary and service connections. Sufficient inhibitor shall be applied to conductor strands and connector to prevent the entrance of moisture.

The secondary connections and insulation shall have accommodations for all future and existing services as shown on the plans and specifications.

### B. 15 KV Cable

Jacketed shielded underground distribution cable suitable for direct burial installations on grounded wye distribution systems for voltages up to 15 KV phase to phase shall be provided by Owner.

Where references are made to American Society of Testing and Materials (ASTM), Association of Edison Illumination Companies (AEIC) Specification No. 6, and Insulated Power Cable Engineering Association (ICEA), the latest revision thereof shall apply.

The cable shall be furnished in continuous lengths of the completed cable assembly on reels. The reels shall be constructed so as to allow reels to be easily picked up with a forklift. Reels are to be non-returnable and substantially constructed of good materials and shall afford proper protection to the cable during shipment.

### C. Cable Acceptance Tests

a. Continuity: After installation of the cable and prior to energization, the contractor and the owner shall jointly 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.

### D. Placing Underground Cable in Trenches and Conduit

The cable shall be placed in the trench as soon after the trenching operation as feasible. The minimum temperatures specified by the cable manufacturer at which cable-laying operations will be permitted shall be observed.

Wherever possible, cable shall be paid 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 placement shall be done under constant supervision to be certain that no damage to the cable occurs.

Cable shall be carefully inspected as it is removed from the reel in laying operations to be certain that it is free from visible defects. The Superintendent shall notify the Owner immediately if defects are discovered.

Sufficient slack and in no case less than 12 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 minimum bending radius of primary cable is twelve times the overall diameter of the cable. The minimum bending radius of secondary and service cable is eight 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.

Where cable must be pulled through conduit or duct, the operation shall be performed in such a way that the cable will not be damaged from strain or dragging. The cable shall be lubricated with a suitable cable lubricant prior to pulling into conduit or duct.

In placing primary cable, the stress applied while pulling into ducts or during other pulling operations shall not exceed the least of the following:

a. Where a pulling eye is attached to the conductor, the maximum pulling strain in pounds shall not exceed .006 times the circular mil area for aluminum or .008 times the circular mil area for copper.

b. Where a basket grip is placed over the cable, the pulling strain shall not exceed the lesser of (1) that calculated in a above or (2) 1000 pounds. The cable under the cable grip and 1.0 foot preceding it shall be severed and discarded after the pulling operation.

c. In no case shall the maximum pulling tension exceed that recommended by the specific cable manufacturer.

d. At bends the maximum sidewall pressure recommended by the cable manufacturer shall not be exceeded.

e. When specified, the Contractor shall pull cable in direction indicated on the construction plans.

Primary voltage distribution cable shall be as specified in the List of Materials and shall be directly buried in cable trenches or installed in conduit in accordance with the Construction Drawings.

The cable shall be installed in continuous lengths between connections. All splices, taps, and terminations for cable as required are to be fabricated in accordance with cable manufacturer's recommendations or in accordance with the details of such fabrication as included on the drawings.

Cable markers shall be provided at both ends of each cable run to identify the individual runs. Markers shall be attached directly to the cables below the terminations, and shall consist of adhesive plastic tape with identifying characters embossed or stamped by a pressure-type tool.

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. Any indication of misfit such as a loose or exceptionally tight fit shall be called to the attention of the Owner. Cable shall be trained to avoid strain on terminations.

Cable shall be carefully handled at all times to avoid damage, and shall not be dragged across the ground, fences, or other sharp projections. 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 shall be terminated or sealed immediately after the cutting operation.

#### E. Cable Markers

Tags shall be provided at ends or terminations of each conductor, cable, and wire and one each cable and wire passing through splice boxes. They shall be approximately 3/4 inch in diameter and 1/16 inch thick, shall be made of copper, brass, or plastic and shall be suitably and permanently attached to the wires in a manner that will not permit accidental detachment with No. 12 AWG soft copper wire.

Phase identification shall be accomplished through use of suitable equipment and instrumentation approved by the Owner.

#### F. Cable Connection to Overhead Lines

All cable connections to overhead lines shall be installed according to the attached drawings and specifications.

#### Applicable Drawings and Plans

The drawings and plans shall form a part of these specifications and shall specify in detail the work to be performed.

Should any further drawings be required in explanation of the work, they shall be furnished by the Owner and shall be equally binding upon the Contractor. All drawings are a part of the contract, and the drawings and these specifications shall be considered as cooperative so that any thing or matter both, shall be done and performed the same as shown upon and described by both.

The drawings and specification shall be used for this work only, and are the property of the Owner and must be returned to the Owner's office upon request at the completion of the work.

#### Decorative Structures

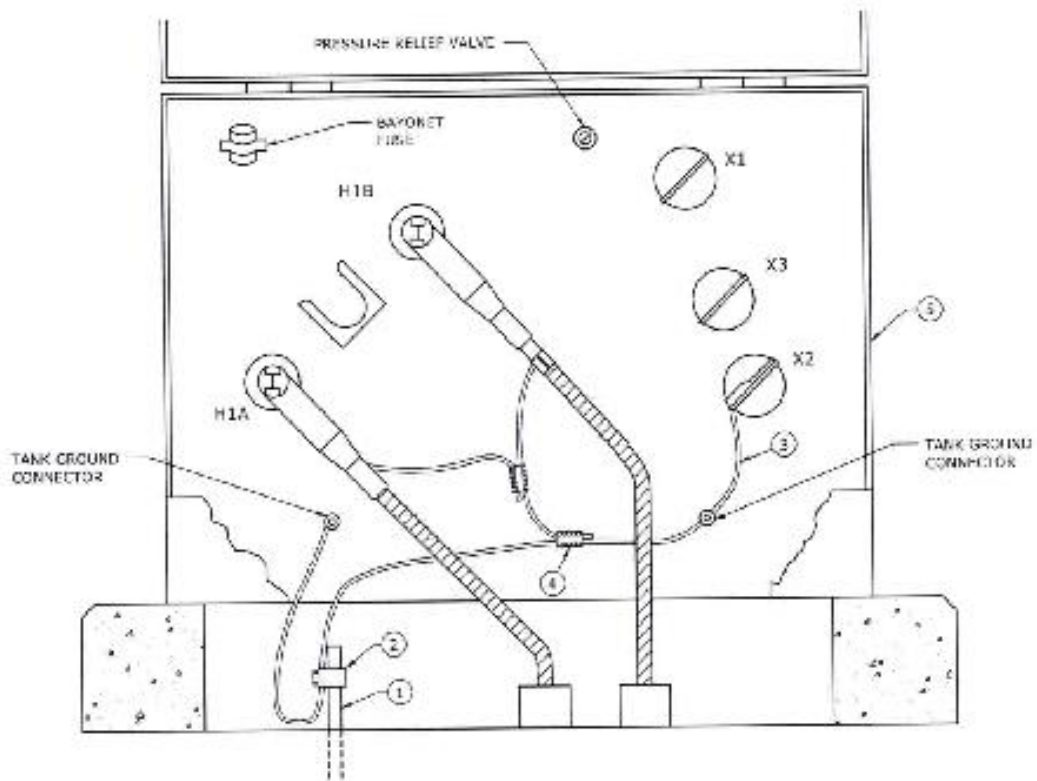
Luminaires shall be connected for proper operation and shall be LED or installed complete with lamp. Light standards shall be factory painted. Contractor will touch up poles as

necessary.

Street light fixtures shall be mounted on Owner furnished fourteen foot direct buried standards.

#### Equipment Pads

The site for the pad shall be on undisturbed earth adjacent to but not over the trench. The site shall be cleared of all debris and excavated to the specified depth. Gravel, sand or other acceptable self-draining materials shall be added to the site, as shown in the construction drawings, thoroughly compacted, and the pad installed level at the specified elevation.



NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	1	ROD, GROUND, 5/8" x 4', COPPER CLAD
2	-	1	CLAMP, GROUNDING ROD
3	-	-	JUMPERS, LEADS, AS REQ'D.
4	-	X	CONNECTOR, AS REQ'D.
5	-	1	XPRV, PAD MOUNTED W/ 2 P.M. LOAD BREAK BUS INGS & INT. FUSE

**NOTES:**

1. WHEN CONNECTING CONCENTRIC NEUTRALS TO TRANSFORMER GROUND, LEAVE AN ADEQUATE LENGTH SO ELBOWS CAN BE REMOVED WITHOUT DISCONNECTING NEUTRALS FROM GROUND.

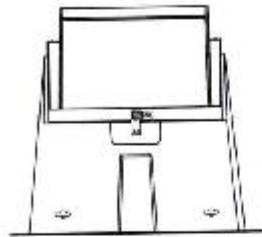
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REVISED	BY	APPR.	

PRIMARY CONNECTIONS,  
SINGLE PHASE LOOP FEED,  
PAD-MOUNTED TRANSFORMER

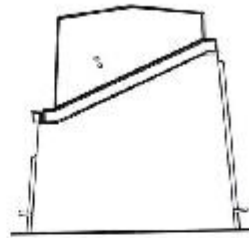
**ELECTRICITIES**  
OF NORTH CAROLINA, INC.

SCALE  
1" = 1'-0"

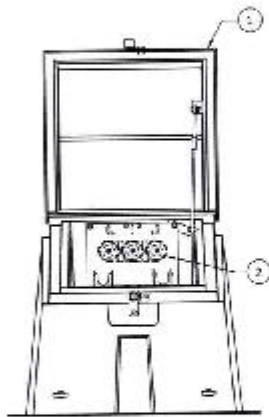
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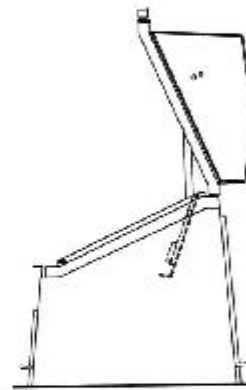
FRONT VIEW



SIDE VIEW



FRONT VIEW  
OPEN COVER



SIDE VIEW  
OPEN COVER

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	1	PRIMARY JUNCTION ENCLOSURE, SINGLE-PHASE
2	-	1	JUNCTIONS, POSITIONS AS REQ'D.

NOTES:

1. SHALL BE INSTALLED WITH A DRIVEN GROUND ROD.

3			
2			
1			
0	DATE	DESIGNED BY	DR.
REVISION	BY	APP.	

SINGLE-PHASE FIBERGLASS  
PRIMARY JUNCTION ENCLOSURE



SCALE  
1/2"=1'-0"

DWG.  
UM1-3EC



