

**SPECIFICATIONS AND ELECTRICAL
CONSTRUCTION CONTRACT FOR**

**SYSTEM UTILITY RELOCATION FOR NEW
BRIDGE PROJECT**

**PROJECT NO. 18-0352
FOR**

HENRY COUNTY - CITY OF NAPOLEON, OHIO

Prepared by:



ENCOMPASS ENGINEERS AND ARCHITECTS, INC.
Power System Engineering & Consulting
407 West Main Cross Street
Findlay, OH 45840
419-427-1819

March, 2020

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HENRY COUNTY - CITY OF NAPOLEON, OHIO
SYSTEM UTILITY RELOCATION FOR NEW BRIDGE
PROJECT - Construction
March 2020

LEGAL NOTICE

Sealed Bids for “SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT- Construction” will be received by the **OFFICE OF THE BOARD OF HENRY COUNTY COMMISIONERS**, 1853 Oakwood Avenue, Napoleon, Ohio 43545 until 10:00 A.M. EDT, **April 30th, 2020**, and at that time will be publicly opened and read aloud.

The proposed work consists of electrical relocations of 69kV transmission and 12.47kV distribution double circuits. Utilities to be moved for the new Bridge being built in the City of Napoleon, Ohio.

The Contract Documents and Specifications are on file at the office of:

Henry County of Ohio
County Engineer
Tim Schumm P.E.,P.S.
1823 Oakwood Avenue
Napoleon, OH 43545

Also available on the Henry County Engineer’s Website www.henrycountyengineer.com

And at the Consulting Engineer’s Office:

Encompass Engineers and Architects, Inc.
407 West Main Cross Street
Findlay, OH 45840
419-427-1819

ENGINEER’S ESTIMATE: \$400,000.00

Plans and specification may be picked up at the Henry County Engineer’s Office, 1823 Oakwood Avenue Napoleon, Ohio 43545. **\$30.00 PLAN FEE CHARGE FOR PROJECT (NON-REFUNDABLE)**

All bids shall comply with the instructions listed in the Specifications and shall be delivered in a sealed envelope marked:

Bid for: SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction

Henry County – City of Napoleon, Ohio
SYSTEM UTILITY RELOCATION FOR NEW BRIDGE
PROJECT
March 2020

Addressed to:

Henry County Commissioners
1853 Oakwood Avenue
Napoleon, OH 43545

Bidders must use the printed forms provided therefore, as none other will be accepted. Each proposal must contain the full name of the party or parties making the same, and all parties interested therein.

The bid shall be accompanied by a bid bond, redeemable by the Henry County Commissioners, for ten percent (10%) of the total amount of the bid as a guarantee that if the bid is accepted, a contract will be entered into.

In lieu of a “bid bond”, a certified check, on a solvent bank, in the sum of ten percent (10%) of the total amount of the bid will also be accepted as a guarantee that if the bid is accepted, a contract will be entered into.

The successful bidder will be required to post a performance-payment bond in the amount of one hundred percent (100%) of the total amount of the contract awarded.

No bidder may withdraw his bid for a period of 90 days after the scheduled closing time for the receipt of bids.

The Henry County Commissioners, Ohio, reserves the right to reject any or all bids and to waive any irregularities in bidding.

By Order of Board of Henry County Commissioners

Kristi Schultheis, Clerk

Pub: **April 9th, 2020**

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DIVISION I
FORM OF PROPOSAL
FOR
SYSTEM UTILITY RELOCATION FOR NEW BRIDGE
PROJECT - Construction

Henry County - City of Napoleon, OHIO

(To be submitted in Duplicate)

Submitted by:

_____, 2020

To: **Henry County Commissioners and Henry County Engineer, Ohio**

Gentlemen:

Having read the specifications and examined the drawings entitled **“SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction”**, dated March, 2020 prepared by Encompass Engineers and Architects, Inc., 407 West Main Cross St. Findlay, Ohio 45840, for the **Henry County - City of Napoleon, Ohio**, the undersigned hereby proposes to furnish and deliver the equipment F.O.B. the **City of Napoleon, Ohio**, all as specified and described in the specifications and as shown on the drawings of the work for the following sum(s):

BASE BID ITEM NO.EL-1 – SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction

Total Material, for the sum of

_____ Dollars (\$ _____)

Total Labor, for the sum of

_____ Dollars (\$ _____)

Total Material and Labor, for the sum of

_____ Dollars (\$ _____)

The following unit prices shall also be completed by the Bidder, and these unit prices will be used in the event extra work is needed.

UNIT PRICE UP-1 – FURNISH & INSTALL POLE MOUNTED TRANSFORMER

Total Material, for the sum of
_____ Dollars (\$ _____)

Total Labor, for the sum of
_____ Dollars (\$ _____)

Total Material and Labor, for the sum of
_____ Dollars (\$ _____)

UNIT PRICE UP-2 – FURNISH & INSTALL PAD MOUNTED TRANSFORMER

Total Material, for the sum of
_____ Dollars (\$ _____)

Total Labor, for the sum of
_____ Dollars (\$ _____)

Total Material and Labor, for the sum of
_____ Dollars (\$ _____)

COMPLETION TIME

The Contractor shall state the number of calendar days necessary for completion of this Contract after the date of Award of Contract (see Division II, Article 14).

Number of calendar days for Completion _____
(Including Saturdays, Sundays, and Holidays)

Signature of Bidder

Witness:

By _____

Address _____

ACKNOWLEDGEMENT OF ADDENDA

The Bidder shall list and acknowledge below each Addendum received for this project:

<u>Addendum No.</u>	<u>Date</u>	<u>Signature</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Company Name _____

Company Address _____

MATERIAL AND EQUIPMENT DATA

The material and equipment list on this page shall be completed by each Bidder insofar as the list applies to his work. If awarded the Contract, the Contractor shall be held to the listing as submitted.

<u>Sub Item No.</u>	<u>Item</u>	<u>Manufacture & Type</u>
EL-100	Installation of Contractor Supplied Materials	_____
EL-200	Installation of Owner-Purchased Major Equipment	_____
EL-400	Installation and Termination Cables: Termination Hardware – Controls Termination Kits – 15kV	_____ _____
EL-700	Miscellaneous Items of Construction	_____

**BID GUARANTY AND
CONTRACT BOND**

(SECTION 153.571 Ohio Revised Code)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

(Name and Address)

as Principal and _____

(Name of Surety)

_____ as Surety, are hereby held and firmly bound unto the **Henry County Commissioners – City of Napoleon, Ohio** hereinafter called the Obligee, in the penal sum of the dollar amount of the bid submitted by the Principal to the Obligee on _____ to undertake the project known as: "**SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT – Construction**".

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Obligee, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of _____ Dollars (\$). (If the above line is left blank, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named Principal has submitted a bid on the above referred project:

NOW, THEREFORE, if the Obligee accepts the bid of the Principal and the Principal fails to enter into a proper Contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the Obligee the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the Obligee may in good faith Contract with the next lowest bidder to perform the work covered by the bid; or in the event the Obligee does not award the Contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the Obligee the difference not

to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission of printing new contract documents, required advertising and printing, and mailing notices to prospective bidders, whichever is less, then this obligation shall be void, otherwise to remain in full force and effect. If the Obligee accepts the bid of the Principal and the Principal, within ten days after the awarding of the Contract, enters into a proper Contract in accordance with the bid, plans, details, specifications, and bills of material, which said Contract is made a part of this Bond the same as though set forth herein; and

IF THE SAID Principal shall well and faithfully perform each and every condition of such Contract; and indemnify the Obligee against all damage suffered by failure to perform such Contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material therefore; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing or completing of said Contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said Contract or in or to the plans and specifications therefore shall in any way affect the obligations of said Surety on this Bond, and it does hereby waive notice of any such modifications, omissions, or additions to the terms of the Contract or to the work or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20__.

PRINCIPAL:

SURETY COMPANY ADDRESS:

Street

City State Zip

TITLE: _____

SURETY AGENT'S ADDRESS:

BY: _____
Attorney-in-Fact

Agency Name

Street

City State Zip

**AFFIDAVIT
OF
NON-COLLUSION**

This Affidavit shall be filled out and executed by the Bidder; if the bid is made by a corporation, then by its properly authorized agent.

The name of the individual swearing to the affidavit should always appear on the line marked "Name of Affiant." The affiant's capacity, when a partner or officer of a corporation should be inserted on lines marked "Affiant." The affiant should sign individual name at end, not partnership nor corporation name, and swear to said affidavit before a Notary Public, who must attach his seal.

STATE OF _____ COUNTY OF _____

(Name of Affiant)

_____ being duly sworn, do depose and say that

(Affiant)

resides at _____

and that _____

(Give name of all persons, firms or corporation interested in bid)

is or are the only person interested in the profits of any Contract which may result from the herein contained Proposal; that the said Proposal is made without any connection or interests in the profits thereof with any other person making any other bid or proposal for said work; that the said proposal, is part, in all respect, fair and without collusion or fraud; and also that no member of the Council, head of department or bureau or employee therein or any officer of the **Henry County Commissioners** is directly or indirectly interested therein; and that all the statements made in this proposal are true.

Subscribed and sworn to this _____ day of _____, 20__ before me

_____.

Notary Public

Affiant

**CONTRACTOR/MANUFACTURER/VENDOR
AFFIDAVIT OF COMPLIANCE WITH
OHIO REVISED CODE, SECTION 5719.042***

To:

_____, 20____
(Date)

State of Ohio

County of _____

I, _____, hereby make oath say that:
(Name)

- 1. I am the _____ of _____
(Authorized Representative)
_____, the firm that submitted the attached bid.
- 2. At the time the bid was submitted, the firm named above (was/was not) charged with delinquent personal property taxes on the general tax list of personal property in **Henry County, Ohio**.
- 3. (If Applicable) The amount of due and unpaid delinquent personal property taxes is \$ _____ and penalties and interest on the same are \$ _____.

Contractor

By (Authorized Representative)

Title

Sworn to before me and subscribed in my presence at _____ this _____
day of _____, A.D., 20____.

Notary Public

My commission expires _____, 20____.

* Sworn statement required by Ohio Revised Code as to the status of Bidder's (Company's) personal property taxes.

THIS AFFIDAVIT MUST BE SIGNED BEFORE ANY PAYMENT CAN BE MADE.

CONTRACT FOR

SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction

FOR

HENRY COUNTY - CITY OF NAPOLEON, OHIO

Contract No. 18-0352

THIS AGREEMENT, dated this _____ day of _____, 2020, by and between the **Henry County Commissioners, Henry County Ohio**, (the “Owner”) and _____, a duly licensed Ohio contractor authorized by law to perform the work specified in the Contract (the “Contractor”) (collectively, the “Parties”).

WITNESSETH: That the Contractor has agreed and by these presents does agree with the Owner for the consideration herein written and contained in the Contractor’s Proposal, dated, _____, 20____, and under penalty expressed in a Bond contained in said Proposal, to complete at Contractor’s own proper cost and expense and deliver to the Owner, ***SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction*** (the “Project”), all as specified herein or as required for completion of the Project in full and complete accordance with the Specifications for ***SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT - Construction*** for **Henry County - City of Napoleon, Ohio**, prepared by Encompass Engineers and Architects, Inc., Project No. 18-0352, dated March, 2020, (the “Specifications”) also in accordance with the Specifications for this Contract as herein set forth, subject to such changes as may be made, from time to time, in accordance with Section 12 of the General Conditions set forth in said Specifications, and also in full accord and compliance with the following:

Article 1 The following terms shall have the meanings set forth below when used with initial capitalization in the Agreement:

Agreement means this Agreement, dated as of the date first set forth above, by and between the **Henry County Commissioners, Henry County, Ohio** and _____
_____.

Contract means those documents acknowledged in writing by both Parties as constituting comprising the defining the mutual obligations of the Contractor and the Owner with respect to the Project, and specifically includes the following documents, which are by this reference each incorporated herein as though fully set forth and made an integral part of the Contract:

- a. The Specifications, including the General Conditions (Division III), the Special Conditions (Division IV) and the Detailed Specifications (Division V) and the Drawings identified in the Index to Drawings contained in the Specifications;
- b. The Proposal;
- c. The Bond;
- d. The Legal Notice;
- e. The Information for and Instructions to Bidders;
- f. Supplementary Plans, furnished by the Contract and approved by the A & E in accordance with the General Conditions; and
- g. Changes in the Work embodied in a subsidiary written agreement entered into, subsequent to the execution of this Agreement, between the Owner and the Contractor in accordance with Section 13 of the General Conditions.

Specifications means the Specifications for ***SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT – Construction*** for **Henry County - City of Napoleon, Ohio**, prepared by Encompass Engineers and Architects, Inc. Project No. 18-0352 dated March, 2020.

General Conditions means the General Conditions set forth in Division III of the Specifications.

Special Conditions means the Special Conditions set forth in Division IV of the Specifications.

Detailed Specifications means the Detailed Specifications set for in Division V of the Specifications.

Legal Notice means the Legal Notice and Advertisement for Bids published by the **Henry County Engineer, Ohio** April 9, 2020 in the Northwest Signal, a newspaper of general circulation.

Information for and Instructions to Bidders means the Information for and Instructions to Bidders set forth in Division II of the Specifications.

Proposal means the Proposal submitted by Contractor to the Owner, dated _____, 20____, and accepted by the Owner.

Bond means the Bid Guaranty and Contract Bond submitted by the Contractor in connection with the Proposal.

Article 2 The Contractor shall begin work and shall prosecute the same with reasonable speed and diligence so as to ensure the completion of the work specified in the Contract, in accordance with the date stipulated in the Proposal and to the satisfaction of the Owner.

Article 3 The Owner agrees to pay, and the Contractor agrees to accept as full compensation for all work done, for all labor, equipment and material furnished, for all costs and expenses incurred, furnished or suffered, in the full and complete performance of all acts and requirements incidental and necessary for the completion of the work of this Contract in accordance with the terms, conditions, and provisions of the Contract, except for Changes In The Work which shall be paid for or credited against the Contract Price in accordance with one or more subsidiary agreement(s) which may be entered into in writing between the Owner and the Contractor subsequent to the date of the Agreement in accordance with Section 13 of the General Conditions, a sum equal to the following:

_____ (\$_____)

Said sum to be paid and payable in whole or in part in accordance with the payment procedure established by Section 10 of the General Conditions, and subject to the requirements of the General Conditions with respect to retainage.

Article 4 Section IV, the Special Conditions, is hereby amended to provide as follows:

The Contractor agrees to comply with the provisions and requirements of the Ohio Civil Rights Act (Ohio Revised Code Chapter 4112) and the correlative provisions of federal law prohibiting discrimination in employment, or with respect to participation in or receiving the benefits of any program or activity receiving federal funding, specifically including the Equal Pay Act, the Age Discrimination in Employment Act of 1967, Titles VI and VII of the Civil Rights Act of 1964, the Americans with Disabilities Act and implementing regulations pertaining thereto.

Article 5 If the Contractor shall fail to comply with any of the terms, conditions, provisions, or stipulations of this Contract according to the true intent and meaning, then the Owner may avail itself of any or all remedies provided in that behalf in the Contract, and shall have the right and power to proceed in accordance with the provisions thereof.

Article 6 The name and address of each person, firm or company in the Contract is:

IN WITNESS WHEREOF: The Parties have, intending to be bound to the Contract and acting through their respective and duly authorized representatives (which authorization is expressly

represented and warranted by the signatures appearing below) hereunto set their hands and seals as of the day and year first above stated.

Henry County Commissioners

Glenn A. Miller, President

Robert E. Hastedt, Commissioner

Jeff R Mires, Commissioner

Attest:

Kristi Schultheis, Clerk

Address

WITNESS

Address

Address

CONTRACTOR

Address

By _____

Title _____

(If the Contractor is a corporation, there shall be attached a sealed resolution of the Directors empowering the officer signing to so act in behalf of the corporation.)

(To be executed in Duplicate.)

CONTRACT BOND

(Used if 10% Bid Guaranty Check was submitted with Bid; not required if 100% Bid Guaranty and Contract Bond was submitted with Bid.)

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, the undersigned _____
 _____ as Principal _____
 _____ and _____
 _____ as

Sureties, and hereby held and firmly bound unto the _____
 in the penal sum of _____ Dollars (\$ _____), for the payment of
 which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs,
 executors, administrators, successors, and assigns.

Signed this _____ day of _____, 20____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named
 Principal did on the _____ day of _____, 20____, enter into a Contract with
 _____ for _____
 Contract No. _____ which said Contract is made a part of this Bond, and same as though set forth
 herein.

NOW, if the said _____
 shall well and faithfully do and perform the things agree by _____
 to be done and performed according to the terms of said Contract, including the provision regarding
 maintenance and workmanship as specified under "Guarantee" and "Retained," we agreeing and
 assenting that this undertaking shall be for the benefit of any materialman or laborer having a just
 claim, as well as for the Obligee herein, then this obligation shall be void, otherwise the same shall
 remain in full force and effect, it being expressly understood and agreed that the liability of the
 surety for any and all claims hereunder shall in no event exceed the penal amount this obligation
 as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to
 the plans or specifications therefore shall in any way affect the obligation of said surety of its
 Bond.

Signed, sealed, and acknowledged in the presence of:

(Contractor)

(Surety)

COUNTY AUDITOR CERTIFICATE

I hereby certify that the money, viz: _____ Dollars (\$ _____),
for the Contract herein described is in the treasury of the **Henry County, Ohio**, and placed to the
credit of the proper fund and not appropriated for any other purposes.

Dated _____, 20____

Signed _____
Kevin Garringer
Henry County Auditor

CERTIFICATE OF LEGAL ADVISOR

I hereby certify that I have examined the Contract herein and the form thereof is approved.

Dated _____, 20____

Signed _____
Gwen Howe-Gebers
Henry County Prosecuting Attorney

DIVISION II

INFORMATION FOR AND INSTRUCTIONS TO BIDDERS

NOTE: The information and requirements set forth in "Information for and Instructions to Bidders" are neither inclusive nor exclusive and a Bidder shall not claim lack of notice because information or requirements are stated in the body of the Contract or specifications and not included herein.

Information as to time and place of receiving proposals, the requirements of the Bidder's check, the methods of obtaining plans and specifications and other pertinent facts are given in the Legal Notice (Advertisement for Bids) bound herein.

1. **RESPONSIBILITY**

Each Bidder shall familiarize himself with these "Instructions to Bidders" including attached forms, general conditions, specifications, and addenda in order that he may be able to assume the responsibility of complying with all requirements.

2. **DIVISION OF SPECIFICATIONS**

For purposes of clarification, these specifications consist of the following divisions:

Division I	-	Document Section
Division II	-	Information for and Instructions to Bidders
Division III	-	General Conditions
Division IV	-	Special Conditions
Division V	-	Detailed Specifications

3. **PROPOSALS**

Sealed proposals for this work, in duplicate, on separate forms, provided with these specifications, will be received at the office of the Henry County Commissioners, until date and time as set forth in the Legal Notice at which hour the bids will be publicly opened and read. Each proposal must contain the full name of the party or parties making the proposal and of all persons interested therein.

No withdrawal or modification of the proposal will be permitted after it has been submitted.

Prices, stated in both writing and figures, shall be entered in the space provided in the Proposal Form of this specification. In case of a discrepancy between the prices indicated in words and figures, the written words shall govern and shall be used for comparison of proposals.

Failure to have performed satisfactorily any contract previously awarded to the Bidder by the Owner may be considered sufficient cause for the rejection of his bid. Persons bidding for the first time must submit written documentation proving sufficient financial and performance capabilities.

The proposals, with all papers contained therein, must be deposited, un mutilated, and without any change in the items or conditions which are stipulated in the Proposal Form. This requirement shall not operate to debar a Bidder from filing with his proposal a separate statement of any desired effect, which statement will be considered on its merits. Exceptions must be listed separately and will be evaluated as such.

Signature to Proposal - If the bid is made by a firm or partnership, the name and place of residence of each member of the firm or partnership must be given. If made by a corporation, the person signing shall state under the laws of what state the corporation was chartered and the name and title of officer, or officers, having authority under the by-laws or regulations to sign contracts. Anyone signing a proposal as "agent" must file with it legal evidence of his authority to do so.

4. **AFFIDAVITS**

Each Bidder who is a foreign corporation, that is, a corporation not chartered in Ohio but licensed to do business in Ohio, is required to submit with his bid an affidavit duly executed by an authorized officer of the corporation stating that said corporation has, in accordance with the Provisions of the Revised Code of the State of Ohio, obtained a certificate authorizing it to do business in the State of Ohio. These certificates or certified copies thereof are obtainable from the Secretary of State, Columbus, Ohio.

Each bid shall be accompanied by a properly executed non-collusion affidavit using the form provided in the documents.

5. **BID GUARANTY AND CONTRACT BOND**

Each Proposal shall be accompanied by an approved Bid Guaranty in accordance with Section 153.571 of the Ohio Revised Code. The Bid Guaranty shall be in the form of a bond in the sum of 10 percent (10%) of the amount of the bid, or a certified check, cashier's check, or letter of credit payable to the Owner in the sum of ten percent (10%) of the total amount of the bid. If the Bidder is awarded the Contract and subsequently fails to enter into a Contract with, and furnish the required documents within ten (10) days after notice of acceptance of the Proposal is made, the Bid Guaranty shall be forfeited and the bonding company liable for a sum equal to ten percent (10%) of the total amount of the bid.

Where the Bid Guaranty is in the form of a certified check, cashier's check, or letter of credit, the Bidder shall, after notice of acceptance of the Proposal is made, and at the time he enters into the Contract, provide a Contract Bond in the sum of 100 percent (100%) of the amount of the Contract for the faithful performance and completion of the Contract.

The Bond shall be executed by a satisfactory surety, guaranty or trust company or companies, authorized to do business in the State of Ohio and having an Ohio agent with authority to execute said Bond. The bonding company shall furnish a copy of Power of Attorney, bearing the seal of the company, evidencing such agent's authority to execute the particular type of bond to be furnished.

The sufficiency of the security offered shall be determined by the Owner and in the event such is declared unsatisfactory by the Owner, the Contractor shall immediately furnish a new bond meeting the Owner's requirements.

6. CHANGES DURING BIDDING

During the bidding period, Bidders may be furnished addendum for changes, interpretation, or alternations of the plans and specifications. These changes or corrections, if any, shall be included in the work covered by the bid and shall become a part of the Contract Documents.

If any prospective Bidder figuring the work is in doubt as to the true meaning of any part of the plans or specifications or any other Contract Documents, he may submit to the A & E a written request for an interpretation.

Any interpretation of the plans and specifications or contract documents will be made by the addenda, copies of which will be mailed or delivered to each prospective Bidder who has obtained a copy of the plans and specifications.

The A & E or the Owner will not be responsible for any other interpretation. Failure of the Bidder to receive any addenda or interpretations shall not relieve the Bidder of any responsibility as all such addenda shall be on file in the office of the Owner and the A & E. No addenda will be issued in the last seventy-two (72) hours immediately preceding the bid due date.

All addenda shall become a part of the Contract Documents and shall be acknowledged on the page provided in the document section.

7. CERTIFICATE OF APPROPRIATIONS

The Contract, or any agreement subsidiary thereto, shall not be binding or of any force unless the Owner's Treasurer shall endorse thereon his certificate that there remains unexpended or in process of collection and unapplied, an appropriation or fund applicable thereto and sufficient to pay the estimated expenses of completing this Contract or subsidiary agreement, as certified by the officers making the same.

8. COMPARISON OF PROPOSALS AND BASIS OF AWARD

The award will be based on a comparison of the relative merits of each offering. The Owner reserves the explicit right to select the successful Bidder on the basis of the best bid considering the pertinent factors. Each Bidder is invited to include with his Proposal such additional information or data as he may desire to substantiate the quality and merits of his offering.

9. NOTICE OF AWARD AND CONTRACT EXECUTION

Notification will be sent by mail to the successful Bidder at which time he shall have ten (10) days to enter into a Contract. The address in the Proposal Form shall be used for this mailing.

If the successful Bidder is a corporate body, he shall furnish at the time of execution of the Contract a resolution of the directors of the corporation, sealed with the corporation seal, and authorizing the officer signing to execute the Contract upon behalf of the corporation. A copy of the above documents shall be attached to each copy of the Contract.

Award and execution will be made within ninety (90) days of the date on which Proposals are opened. Failure to award and execute a Contract within this time will invalidate the entire bid procedures and all bids submitted, unless the time for awarding and executing the Contract is extended by mutual consent of the Owner or his representative, and the Bidder whose Proposal the Owner accepts and with whom the Owner subsequently awards and executes a Contract. The three (3) best bids and Bid Guaranty will be retained until a Contract is signed.

10. SUBCONTRACTORS LIST AND OTHER MANUFACTURERS

With his Proposal, each Bidder shall submit a list of subcontractors he intends to employ on the work together with pertinent qualifications thereof.

With his Proposal, each Bidder shall submit a list of components and devices, other than incidental hardware, etc., which he intends to use as part of his equipment and which is not of his own manufacture.

This list shall be considered as part of his Proposal and shall not be subject to change except with the consent of the Owner.

11. NOTICE TO PROCEED

The Contractor, after execution of the Contract and upon his request, is entitled to a notice to proceed from the Owner or the A & E.

12. **ARRANGEMENT DRAWINGS**

Where equipment is to be furnished by the Bidder, he shall provide with his Proposal arrangement drawings showing the equipment he intends to furnish.

13. **DOCUMENTS**

The following documents are required with the Proposal:

- a. Proposal Form
- b. Subcontractor List, Qualifications
- c. Affidavit of Authority to do Business in State of Ohio (Foreign corporation per Paragraph 4)
- d. Affidavit of Non-collusion
- e. Personal Property Tax Affidavit
- f. Bid Guaranty and Contract Bond
- g. Bidder's Qualifications
- h. Legal Evidence of Authority of Signing Officer
- i. Equipment and Performance Data
- j. Any Addenda and Acknowledgement of Receipt.

The following additional documents are required prior to signing the Contract:

- a. Program of Delivery and/or Removal
- b. Contract Performance Bond including Power of Attorney, Certificate of Authority to do Business in Ohio for Bonding Company, and Financial Statement for Bonding Company (*unless Contract Bond was submitted with Proposal*)
- c. Contract
- d. Certificate of Legal Advisor
- e. Affidavit of Availability of Funds (Certificate of County Auditor)
- f. Certificate of Clerk

These documents shall be executed in Duplicate and a sufficient number of copies shall be provided to the Contractor.

14. **TIME OF COMPLETION**

The Owner requires the work in this Contract to be completed in as short a time period as possible. The Contractor shall indicate the total number of calendar days, after award of Contract, to complete this work.

Work is to be completed no later than December 1st, 2020. Each Calendar day beyond this date shall incur a penalty of \$500/day until completion of the project. Changes in schedule due to weather and other unforeseen events must be documented and signed off on by the Owner and Engineer.

15. BIDDER'S QUALIFICATIONS

The Bidders shall submit with their Proposal satisfactory evidence of qualifications and experience showing that they have a practical knowledge and experience record for the project as specified. Only those Bidders having adequate financial and performance experience, in the opinion of the A & E, shall be considered, and the A & E's judgment shall be final. Experience and qualifications shall include evidence of the following:

- a. The Prime Bidder shall show complete and satisfactory evidence of his experience in the fabrication and manufacturer of the items bid.
- b. No bid will be considered from any Prime Bidder that is not actively engaged in the work or supply of the items specified in the project.
- c. Subcontractors shall also list their experience and qualifications under "Bidder's Qualifications."

16. STANDARDS – SUBSTITUTIONS

With his Proposal, each Bidder shall submit a list of any major item of equipment which he proposes to furnish.

With his Proposal, each Bidder shall submit a list of any substitution of devices, component parts, materials which he proposes for consideration where such device, component part or material is not specified.

17. ENGINEER'S ESTIMATE

The Engineer's Estimate is a calculation of quantities of various items of work and expenses likely to be incurred for the project. This estimate is meant to represent a fair and reasonable value for the work described in the package. The Engineer's Estimate shall be considered information for the project and shall not be used by the contractor to submit his bid. The Engineer's Estimate for this project is \$400,000.00.

DIVISION III

GENERAL CONDITIONS

1. DEFINITIONS

The Contract Documents consist of the Agreement, the Drawings and Specifications, including General and Special Conditions, and including all modifications thereof incorporated in the documents before their execution. These form the Contract.

The Owner, Contractor, and the Architect-Engineer (A & E) are those mentioned as such in the Agreement. They are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

The term "Subcontractor" or "Equipment Supplier," as employed herein, includes only those having a direct contract with the Contractor or purchase order or other legal forms for providing to the Contractor major items of equipment to be used in the project.

The term "Materials and Equipment," as employed herein, includes component parts of the major items. Generally, these shall be of the same manufacturer as manufactures the major items; however, this is not required for all such component parts.

Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by certified mail to the last business address known to him who gives the notice.

The term "work" of the Contractor or Subcontractor includes labor or materials or both.

The time limits for completion and delivery are the essence of the Contract and shall be given consideration in the determining of the lowest and best bid.

2. STATUS OF ARCHITECT-ENGINEER (A & E)

The A & E will be the Owner's representative during the contract period.

3. EXAMINATION OF THE PROJECT

It is expected that each Bidder will make himself thoroughly familiar with the drawings and/or specifications, and will, by careful examination, satisfy himself as to the nature of the work, and that the equipment or service he is providing will properly satisfy the project requirements.

4. **DRAWINGS AND SPECIFICATIONS**

The Contract Documents are complementary, and what is called for by 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.

5. **ASSIGNMENT**

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

6. **SUBMITTALS REQUIRED BY THE CONTRACTORS**

All shop drawing submittals shall go through two (2) stages. Stage 1 being the APPROVAL process and Stage 2, the CERTIFIED/RECORD process. *(Please note that no payments will be issued for any equipment until the entire shop drawing process is completed.)*

STAGE 1 - APPROVAL. The Contractors shall be required to submit a minimum of five (5) copies of detailed shop drawings for approval of the A & E. (No disk copy is required at this stage.) The submittals shall include one-line diagrams, schematic or elementary diagrams, wiring diagrams, and mechanical details for installation or erection.

If the Drawings and/or Submittals are inadequate, incomplete or are not in compliance with the requirements, the A & E will request such additional information of the Contractor as may be necessary to determine compliance or will return to the Contractor, one (1) print of the Drawings for revisions with notations thereon, and the Contractor shall then furnish additional information or revise the Drawings, without undue delay, until found satisfactory and until they are approved.

STAGE 2 - CERTIFIED/RECORD. Once all shop drawings have been approved by the A & E, the Contractor shall then submit the final certified/record drawings. A minimum of five (5) paper copies plus a disk copy (in Autocad 2014 only) is required. If a disk copy is not possible, then the Contractor shall submit one (1) reproducible set in place of the disk copy.

7. **OPERATING AND MAINTENANCE INSTRUCTIONS**

The Contractor shall submit to the A & E five (5) complete sets of operating and maintenance instructions for all the major items of equipment furnished under his Contract. Included in the submittals shall be the manufacturer's Spare Parts List.

8. **FORFEITURE OF CONTRACT AND COMPLETION BY OWNER**

If the work of this Contract shall be abandoned, or assigned, or sublet or unduly delayed without written consent of the Owner, or if the Contractor is willfully violating any of the provisions of this Contract, then the Owner shall have the right to declare the whole or any part of the Contract forfeited and shall notify the Contractor and his surety of such forfeiture; but such forfeiture shall in no way relieve the surety or affect the liability of the Contractor and his surety for breach of any conditions of said Contract.

Upon service of a declaration of forfeiture, the Contractor shall discontinue the work in whole or in part as directed, whereupon the surety may at its option assume the Contract and proceed to perform the same, provided that the surety shall exercise its option within two (2) weeks after the date of service of notice of forfeiture.

In case the surety does not exercise its right and option to assume the Contract within two (2) weeks, then the Owner shall have the right to complete, or otherwise as it may determine, the work in default, and for such completion, the Owner may take possession of and use or cause to be used any materials, machinery, equipment or tools provided by the Contractor for his work, and may procure other material, machinery, equipment or tools for the completion of the work and the cost and expense thereof shall be charged to the Contractor or the surety.

All expense, including those of re-letting incurred under the foregoing clauses shall be deducted from any moneys then due or to become due the Contractor under this Contract. In case the expense should exceed the amount which would have been due the Contractor, then the balance shall be paid by the surety. If the expense is less than the amount which would have been due the Contractor, then he shall receive the difference after all the obligations have been satisfied, but shall not be entitled to damages for not being allowed to complete the work himself.

Should, by virtue of this section, a part or parts of the Contract be forfeited, the Contractor shall continue the remainder of the work in conformity with the terms of the Contract, and shall in no way interfere with the operation of the Owner or of others designated to complete the work forfeited.

9. **OWNER'S RIGHT TO TERMINATE CONTRACT**

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor or his surety, seven (7) days written notice, terminate the employment of the Contractor.

10. **THE CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT**

If the work should be stopped under an order of any court, or other public authority, for a period of thirty (30) days, through no act or fault of the Contractor or of anyone employed by him, then the Contractor may, upon seven (7) days written notice to the Owner, terminate this Contract and recover from the Owner payment for all work executed and any proven loss sustained upon any plant or materials and reasonable profit and damages.

11. **PAYMENT PROCEDURE**

SUBMITTING APPLICATIONS FOR PAYMENT

Applications for Payment shall be due **IN THE OFFICE OF THE A & E** (to the attention of *Contract Administrator*) at the first of each month, and shall be acted upon within seven (7) days. After approval by the A & E and the Owner, payment shall be made within thirty (30) days of certification by the A & E.

Equipment Supplier - Payment Procedure for Equipment

The Contractor shall make current estimates, as Application for Payment, for the equipment in accordance with the value thereof.

Upon delivery of all of the equipment of each bid item received F.O.B. by the Owner, in undamaged condition, then 92 percent (92%) of the Contract price for the bid items delivered shall become due and payable to the Contractor. No partial payments shall be made for partial shipment of any individual bid item as listed in the Proposal Forms.

The balance or remaining 8 percent (8%) of the total Contract price shall become due and payable upon the satisfactory energizing and upon acceptance of the total system by the Owner.

12. **CHANGES IN THE WORK**

Any increase or decrease in the scope of work shall be performed by the Contractor but only subsequent to and in accordance with a subsidiary agreement between the Owner and the Contractor, in which agreement, the prices and method of payment and doing the work shall be fixed and agreed upon. Any changes made in the price of the Contract shall in no wise annul, release or affect the liability and surety on the bond given by the Contractor.

13. **PAYMENTS WITHHELD**

Payment may be withheld, or, on account of subsequently discovered evidence, nullified in whole or part to such extent as may be necessary to protect the Owner from loss on account of:

1. Defective work not remedied.
2. Equipment and/or component parts not complying with the specifications and documents.

14. DAMAGES

Should either party to this Contract suffer damages because of any wrongful act or neglect of the other party or of anyone employed by him, claim shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement or arbitration.

15. CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor shall promptly remove from the premises all work failing to conform to the Contract, whether incorporated or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed by such removal or replacement.

If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten (10) days time thereafter, the Owner may, upon ten (10) days written notice, sell such material at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

16. CORRECTION OF WORK AFTER FINAL PAYMENT

The Contractor shall remedy any defects due to faulty materials or workmanship and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of acceptance and in accordance with the terms of any special guarantees provided in the Contract. Neither the foregoing nor any provision in the Contract Documents, nor any special guarantee time limit, shall be held to limit the Contractor's liability for defects, to less than the legal limit of liability in accordance with the law of the place of building. The Owner shall give notice of observed defects with reasonable promptness.

17. DEDUCTIONS FOR UNCORRECTED WORK

If the Owner deems it inexpedient to correct work damaged or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

18. ARBITRATION

All disputes, claims or questions subject to arbitration under this Contract shall be submitted to arbitration in accordance with the provisions, then obtaining, of the Standard Form of Arbitration Procedure of the American Institute of Architects, and this Agreement shall be specifically enforceable under the prevailing arbitration law, and judgment upon the award rendered may be entered in the court of the forum, state or federal, having jurisdiction. It is mutually agreed that the decision of the arbitrators shall be in a condition precedent to any right of legal action that either party may delay of the work during any arbitration proceedings, except by agreement with the Owner.

Notice of the demand for arbitration of a dispute shall be filed in writing with the other party to the Contract. The demand for arbitration shall be made within a reasonable time after the dispute has arisen; in no case, however, shall the demand be made later than the time of final payment, except as otherwise expressly stipulated in the Contract.

The arbitrators, if they deem that the case requires it, are authorized to award to the party whose contention is sustained, such sums as they or a majority of them shall deem proper to compensate him for the time and expense incident to the proceeding and, if the arbitration was demanded without reasonable cause, they may also award damages for delay. The arbitrators shall fix their own compensation, unless otherwise provided by agreement, and shall assess the costs and charges of the proceedings upon either or both parties.

19. PATENTS

The Contractor shall pay all royalties and license fees and shall hold and save the Owner and its officers, agents, servants and employees harmless from liability of any nature or kind, including cost and expenses, for or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner unless otherwise specifically stipulated in the Contract Documents. In this respect, the Contractor shall defend all suits or claims for infringement of any patent or license rights.

20. EXPERIMENTAL METHODS, EQUIPMENT AND MATERIALS PROHIBITED

The use of any experimental or untried methods, or the use or installation of any experimental or untried materials or equipment or any combination of either or both shall not be allowed. Each bidder shall, if required, submit ample proof that the method of doing any of the work contemplated under these specifications has been successfully used for like work for a period of at least one (1) year; or that the materials or equipment or any combination of either or both proposed to be used on, or furnished for such contemplated work, is of a reliable make and is of a type that has been successfully used in practical service outside of the builder's works, for a period of not less than one (1) year.

21. STANDARDS - SUBSTITUTIONS

Those articles, devices, materials, forms of construction, fixtures, etc. named in the specifications to denote the kind and quality required, whether or not the words "or equal" are used, shall be known as "Standards" and all proposals shall be based on the same.

Where two or more "Standards" are named together, the successful bidder may furnish any one of the "Standards" named, but shall indicate in his bid which he intends to furnish. No deviation from such listing will be permitted after award of a Contract.

Bidders desiring consideration for the use of material, equipment, etc. not named in the Specifications may submit proposals for the substitution of same for "Standards" as specified, using the "Substitution Sheet" attached to the Proposal Form and listing, for each proposed change: (1) the "Standards" specified, (2) the Substitution, and (3) the change in bid price (or "No Change"). Complete specifications and description of any proposed substitution being considered for acceptance shall be furnished the A & E promptly upon request. The offering of a substitution shall be construed as including all necessary modifications to design required appurtenances, etc., necessary for proper functioning of said substitution.

Where the bidder is required to name suppliers or subcontractors in his proposal, no deviation will be permitted from such listings after award of the Contract.

The lowest and best bid will be determined from the total bid on the "Standards" or required alternates which are selected, but the Contract award may include any substitutions selected by the Owner.

22. GUARANTY

The Contractor for the work herein specified, in consideration of the price bid and received guarantees that the workmanship and material furnished under these specifications and used in the said improvement are in all respects first class, and if, at any time before or within a period of twelve (12) months after the acceptance of the whole work hereunder, any of the work constructed under this Contract shall require any repairs due to defects in material or workmanship, or for any other cause which may be attributed to the work which is being done or which has been done by the Contractor, as determined by the Owner, the Owner will notify the Contractor to make repairs so required. If the Contractor shall neglect to start on the repair work within five (5) days from the date of the notification, or if the repair work is not made in a manner satisfactory to the Owner, or, if in the opinion of the Owner, the issuance of said notice and the wait for action by the Contractor would cause unacceptable delay, then the Owner shall have the right to employ such other person or persons as he may deem proper to make the same, and to pay the expense thereof out of the moneys then due, or which may thereafter become due to the Contractor, or out of the amount retained for that purpose by the Owner, or if such moneys are not sufficient to meet said expense, the additional moneys shall be furnished by the Contractor, and if he refuses or neglects to provide the necessary moneys, they shall be provided by his sureties.

DIVISION IV

SPECIAL CONDITIONS

1. DEFINITIONS

<i>Owner</i>	The Henry County Commissioners -City of Napoleon, Ohio in the County of Henry, acting through their duly authorized representatives.
<i>A & E</i>	The firm of Encompass Engineers and Architects, Inc., Consulting Engineers, employed for this work and as representative of the Owner and as further defined in the General Conditions.
<i>Contract</i>	All covenants, terms and stipulations contained in all the contract documents.
<i>Contractor</i>	The Party of the Second Part entering into contract with the Owner for performance of this work or his properly authorized agent.
<i>Approved Equal</i>	Approved by the A & E.
<i>Work</i>	Labor or Materials or both.
<i>Substantial Completion</i>	The date of substantial completion of the project is the date when the construction is sufficiently completed, in accordance with the plans and specifications, as modified by any change orders agreed to by the parties, so that the Owner may conveniently use the facility.

2. STANDARDS

All equipment, materials, and labor required to complete the work specified in the Contract Documents shall be in strict accordance with the applicable requirements of the latest editions and interim amendments of the following standards:

ASTM	The American Society for Testing Materials
AIA	The American Institute of Architects
ASME	The American Society of Mechanical Engineers

IEEE	Institute of Electrical and Electronic Engineers
NEMA	National Electrical Manufacturers Association
AWS	American Welding Society
NEC	National Electric Code
NESC	National Electric Safety Code
ANSI	American National Standards Institute
AASHO	American Association of State Highway Officials
SAE	Society of Automotive Engineers
IPCEA	Insulated Power Cable Engineers Association
API	American Petroleum Institute
AWWA	American Water Works Association
UL	Underwriters' Laboratories
ACI	American Concrete Institute
SODTCMS	State of Ohio Department of Transportation Construction and Material Specifications
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
SSPC	Steel Structures Painting Council
NBFU	National Board of Fire Underwriters
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Association
EPA	Environmental Protection Agency

3. **LIQUIDATED DAMAGES**

See "TIME OF COMPLETION" in the "Information for and Instructions to Bidders", Division II - Article 14.

4. **NON-DISCRIMINATION**

The Contractor agrees that he will comply with the provisions of:

Executive Order 11246, September 24, 1965, relating to equal employment opportunities and with applicable rules, regulations, and procedures prescribed pursuant thereto.

Title VI of the Civil Rights Act of 1964 (78 Stat. 25; Public Law 88-352), providing that no person in the United States shall, because of race, color, or national origin, be excluded from participating in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance (Sec. 601), and to the implementing regulation issued by the Secretary of the Interior with the approval of the President (43 CFR Part 17).

5. **FEDERAL REGULATIONS**

Social Security Act

Each Contractor shall be and remain an independent Contractor with respect to all services performed hereunder and agrees to and does hereby accept full and exclusive liability for the payment of any and all contributions or taxes for social security, unemployment insurance, or old age retirement benefits, pensions, or annuities new or hereafter imposed under any State or Federal law which are measured by the wages, salaries, or other remuneration paid to persons employed by each Contractor on work performed under the terms of this contract, and further agrees to obey all lawful rules and regulations and to meet all lawful requirements which are now or hereafter may be issued or promulgated under said respective laws by any duly authorized State or Federal officials; and each said Contractor also agrees to indemnify and save harmless the Owner, from any such contributions or taxes or liability therefore.

6. **SCOPE OF WORK**

Scope of Work for All Divisions

The work described in the Detailed Specifications, Division V, consists of furnishing all of the labor, appliances, and services necessary to complete the work shown or reasonably inferred on the drawings and/or described in the specifications, and all materials and equipment to be incorporated in the construction for a complete and operable installation

for the Owner's use. All excess materials, containers, etc. shall be removed from the job site at the completion of the work.

7. **TEMPORARY FACILITIES, USE OF SITE AND SITE CONDITIONS**

Field Facilities

The Contractor shall be responsible for the following:

Provide and maintain an adequate number of hand fire extinguishers and take all precautions necessary to prevent fires.

Temporary sanitary facilities for the use of all contractors and in compliance with all Local and State of Ohio Health Codes. They shall remove same at the completion of work.

A telephone on the site for their own use. All long distance calls will be paid by the caller.

A temporary office with necessary space for drawings, files, etc. Provide storage trailer or shed.

All utility consumption costs including gas and electricity will be paid by this Contractor.

Temporary electric power service at the site for construction purposes. This Contractor shall be responsible for the maintenance and removal of this service.

The Contractor will be responsible for providing their own drinking water.

Watchman

The Contractor shall bear any necessary expense for a watchman if such becomes necessary to protect their work, or to protect the public from hazardous conditions arising from their work.

Dust, Unnecessary Noise, and Burning

The movement and use of machinery and equipment and the handling of materials and conduct of the work shall be such as to avoid and eliminate unnecessary noise, dirt, and dust.

No burning of refuse or other materials shall be permitted on the site.

Existing Structures

The Contract Drawings indicate the existing surface and underground structures insofar as they have been determined, but the information is not guaranteed to be correct or complete. Unless otherwise indicated on the Contract Drawings or unless otherwise taken care of by the Owner thereof, all utilities and all structures of any nature, whether below or above ground, that may be affected by the work shall be protected and maintained by the

Contractor and shall not be disturbed or damaged by them during the progress of the work; provided that should the Contractor disturb, disconnect, or damage any utility or any structure, all expenses of whatever nature arising from such disturbance or the replacement or repair thereof shall be borne by the Contractor.

Use of Premises

Roads shall be used by the Contractors and Suppliers as directed by the A & E. Damage of the grounds, resulting from hauling, storage of materials, or other activity connected with the work, shall be repaired by the Contractor concerned, at their expense, and to the satisfaction of the A & E.

Handling of Materials

The Contractor shall make their own arrangements for the handling of materials. The Owner will not accept deliveries for or sign for Contractor's equipment. This will be the sole responsibility of the Contractor.

The Contractor shall make arrangements for unloading equipment delivered to the site as purchased by the Owner for installation by this Contractor. The Contractor shall accept and sign for deliveries of all Owner-purchased, Contractor-installed equipment.

Protecting Work and Materials

Materials and equipment stored at the site or elsewhere shall be protected at all times from physical injury and from weather, dirt and water. Housing platforms and racks shall be used for the proper storage of such materials. The Contractor shall take all precautions to protect all work from any condition of weather.

8. **CLEAN UP**

Cleaning Up

The Contractor shall be responsible for the collection and removal of all rubbish, debris, cartons, etc.

Cleaning up shall be as required by the A & E or Owner.

At the completion of the work, the Contractor shall remove all minor rubbish that has accumulated, and shall leave the grounds in their work area rake or broom clean.

9. MISCELLANEOUS PROVISIONS

State, Federal and Local Taxes

The Contractor shall verify with Owner about the State, Federal and Local taxes on this project.

Drawings

The drawings accompanying this specification indicate the general arrangement expected, which may be modified to a greater or lesser extent by the proposal drawings of the successful bidder. The A & E may request material revision to the detailed design drawings submitted by the Contractor to secure better access, operation or maintenance. Where such changes affect the cost of the work, the price shall be adjusted as indicated hereinbefore.

Standards-Substitutions

Those articles, devices, materials, forms of construction, fixtures, etc., named in the specifications to denote the kind and quality required, whether or not the words "or equal" are used, shall be known as "Standards" and all proposals shall be based on the same. Where the bidder is required to name supplier or subcontractors in his proposal, no deviation will be permitted from such listings after award of the Contract.

Prosecution of the Work

The work covered by these specifications shall be performed at such times, in such manner, and with such force, as to expedite the work and avoid interruptions or restrictions of service to the electric system customers.

It is not anticipated that overtime work will be necessary for the completion of the work covered by this Contract. However, if due to an emergency, overtime work will be duly authorized by the Owner. The Contractor shall provide, at such times a force or staff of sufficient number to permit continuous progress of the work in consecutive eight (8) hour shifts as required.

10. SAFETY REGULATIONS AND RESTRICTIONS

Safety Regulations

During the progress of the Work, this Contractor shall be responsible for the protection of their personnel and all other persons from injuries which may result from Work under this Contract.

All Work performed for this Contract shall conform to the Owner's requirements and federal, state or local safety requirements whichever are more stringent. Temporary safety construction requirements shall be maintained until no longer required and then removed by this Contractor.

Whenever the Work of this Contract requires the use of oxyacetylene and/or electric equipment for welding or cutting, the Contractor shall exercise precautions in accordance with NFPA Standard 51B, "Standard for Fire Protection in Use of Cutting and Welding Processes."

Noise Restrictions

Operating Equipment:

Sound levels attributable to the components of the equipment shall comply with OSHA requirements for permissible noise exposure except for an eight (8) hour duration in which case the overall sound emanation shall not exceed 85 dBA over its operating load range as measured three (3) feet from any surface of the equipment.

During Construction:

Contractor shall comply with OSHA requirements and all other applicable laws, rules and regulations, pertaining to the control of noise.

11. COORDINATION

Notifications

The Contractor shall be responsible to contact all utilities whose installations may be encountered during the excavation and construction and to locate such utilities whether or not they are identified in the specification or on the drawings. The Contractor shall be responsible for damages and required repairs to all utilities as a result of their Work.

Notify the following Agencies and/or utilities in advance of excavation or construction in areas in which other utilities may be encountered.

- a. Ohio Utilities Protection Services (Ohio) 1-800-362-2764
- b. Gas Utilities
- c. Telephone
- d. Electric Utilities
- e. Cable Television Companies
- f. Fiber Optic Companies
- g. Highway Department
- h. Street Department
- i. City Engineering for Sewer and Water Pipelines
- j. Industries with Underground Pipe Lines

Protection

Contractor's Furnished Material and Equipment:

Equipment shall be boxed, crated or otherwise suitably protected during shipment, handling and storage in accordance with manufacturer's recommendations.

Finished surfaces shall be protected against impact, abrasion, discoloration, and other damage. Surfaces which are damaged shall be repaired.

All equipment and materials shall be protected against moisture and water damage.

Machine surfaces, bearings, unfinished surfaces and like items shall be thoroughly cleaned and coated with rust preventative compound and fully protected with wood, metal, or other substantial covering.

Owner's Facilities:

During the construction of the Work, the Contractor shall be responsible for the proper protection of the Owner's facilities and equipment, and for damage which is caused by this Contractor or their subcontractors.

Laying Out and Field Measurements

Take all measurements. Lay out all Work. Field verify and be responsible for all dimensions.

Dimensions shown on the drawings locating existing work are for guidance only and are to be checked in the field and verified before fabrication of material for construction.

Minor deviations from dimensions or arrangements shown shall be accounted for as part of this Work.

Exercise special care in checking existing construction to endure proper connection to the existing work and equipment and to avoid interferences.

Any interferences disclosed by field measurements and detailing shall be reported to the City for correction before fabrication of the Work. All extra costs incurred to correct any interferences appearing after the fabrication of the Work shall be borne by this Contractor.

12. FIELD INSPECTION

Provide field inspection, as required by codes, by inspection agencies acceptable to the Owner's insurer.

13. PROJECT RECORD DOCUMENTATION

Maintain at the job site a separate set of the A & E's drawings which shall be marked daily to show all changes or revisions occurring during construction. Changes shall be dated when identified during construction. Upon completion of the project, this marked record set shall be given to the A & E.

The manufacturer's shop drawings for equipment and devices being furnished under other contracts shall be marked to indicate any and all changes made under this Contract to the equipment. All drawings including all marked field changes, shall be returned to the A & E upon completion of the project.

14. GUARANTEES

Personnel Protection

The Contractor shall agree not to solicit or recruit the Owner's personnel during the term of this Contract.

The Contractor shall agree that any former employee of the Owner that becomes employed by the Contractor during the term of this Contract shall not be used on this project.

15. INSURANCE

Contractor's Liability Insurance

The Contractor shall purchase and maintain such insurance as will protect them from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by themselves or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts of any of them may be liable:

- claims under worker's compensation, disability benefit, and other similar employee benefit acts,
- claims for damages because of bodily injury, occupational sickness, or disease or death of their employees,
- claims for damages because of bodily injury, sickness or disease, or death of any person other than their employees,
- claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person.
- claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

The insurance required under this Contract shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations.

Builder's Risk Insurance (Property Insurance)

Each Contractor shall take out and maintain during the life of the Contract, comprehensive builder's risk insurance with extended coverage and coverage for vandalism and malicious mischief providing coverage for an amount equal to his Contract price. The insurance shall protect the Owner and the Contractors, and shall include coverage, but not by way of limitations, for damage or loss to the work and to appurtenances, all materials, supplies, equipment, construction plant, and temporary structures arising from fire, explosion, wind, earthquake, smoke, aircraft, and lightning. No exclusions shall be authorized except that the policy may be made subject to the standard nuclear clause. The policy of insurance or certified copy 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 until at least fifteen (15) days prior written notice has been given to the Owner.

Owner's Liability Insurance

The Owner shall be responsible for purchasing and maintaining their own liability insurance and, at their option, may purchase and maintain such insurance as will protect them against claims which may arise from operations under the Contract.

Loss of Use Insurance

The Owner, at their option, may purchase and maintain such insurance as will insure them against loss of use of their property due to fire or other hazards, however caused.

16. PAYMENT PROCEDURE

SUBMITTING APPLICATIONS FOR PAYMENT

Applications for Payment should be sent to **Encompass Engineers and Architects, Inc.** (attention of *Contract Administrator*), and will be acted upon within seven (7) days. After approval by the A&E and the Owner, payment will be made within thirty (30) days of certification by the A & E.

With the **final** Application for Payment, the Contractor must submit waivers of mechanics liens from subcontractors, sub-subcontractors or suppliers who were involved with the performance of work

17. WAGE RATES

The prevailing wage rates are issued in Appendix A.

NOTE: ADDITIONAL OHIO PREVAILING WAGES: Electrical Local 71 Outside Utility Power, LCN01-2018FBLOC7 is available for use on this project.

DIVISION V
DETAILED SPECIFICATIONS

Voltage Upgrade – **SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT – Construction**

For
HENRY COUNTY – CITY OF NAPOLEON, OH

GENERAL

The Contractor shall carefully read the Information for Bidders, General and Special Conditions which, with the following specifications, shall govern all work under this heading. This Contractor shall carefully read and study all sections of the specifications and drawings so as to be aware of the full implications and requirements of the project and the methods under which their portion of the work will coordinate into the complete project.

The intent of these specifications is to provide detailed descriptions of all major items.

Under this contract, the Contractor shall furnish all major items as described and all miscellaneous items or material such as bolts, nuts, cables, connectors, etc., necessary for providing a complete system.

Samples of materials and components and detailed shop drawings, including illustrations, schedules, performance data, manufacturer's brochures and other data prepared by the Contractor, their subcontractors or suppliers, and illustrating the items of the work shall be submitted by the Contractor as required by the Contract Documents or as subsequently established by the Engineer. Submission shall be made in quintuplicate. Shop drawings shall be submitted for Items described in the Detailed Specifications.

The Contractor shall review such submissions and submit to the Engineer with reasonable promptness so as to not delay the work. Submission shall constitute representation that the Contractor has reviewed the specifications, determined and verified all field measurements, field construction criteria, materials, catalog numbers, or will do so, and that they have checked and coordinated each shop drawing or sample with the requirements of the work and of the Contract Documents. They shall inform the Engineer in writing of any deviation from the Contract Documents of any drawings or samples they submit.

The Engineer will review all submissions with reasonable promptness but approval shall constitute only acceptance as conforming to the general design concept of the project. The approval of a separate item shall not constitute approval of the assembly within which the item functions. At their discretion, the Engineer may check dimensions in more or less detail in order to assist the Contractor in coordinating and expediting the work, but such checking shall not be construed as placing responsibility on the Engineer or the City for the accuracy, functioning or performance of the work.

The Contractor on this work shall employ only competent and skillful workers who are fully qualified and capable of performing the work or functions to which they are assigned.

BASIS OF BIDDING

1. The bid prices for the total contract, as indicated in the Form of Proposal, shall include all material, equipment, licensing and software costs. The materials, equipment and supplies shall conform to the quality and methods written in the specifications, or in the absence of specific specifications, the equipment, materials and supplies shall conform to the best quality and methods in accordance to modern practices.
2. All bidders are required to submit prices (written in ink) for the unit bid items and total prices set forth in the Form of Proposal.
3. Exclusive, Required and Desired Specifications
 - a. As part of the Contract Documents, the Engineer has prepared a Bill of Materials that identifies the anticipated amount of material required for the project. The material quantities listed are the Engineer's best estimate of the project.
 - b. The Bidder shall be responsible for confirming the quantities required and providing a complete system.
 - c. The Bill of Materials also has the required vendors of the major items to be used in the project. Should contractor vary from the vendors or models listed, when identified, Contractor shall request specific approval of the replacement from the Engineer.

SCOPE

The Contractor shall furnish all the material, labor, supervision, and equipment as described in these specifications and drawings. All internal interconnection wiring shall be furnished with each component plus all necessary drawings and information for installation of the equipment. It is the intent of these specifications and the responsibility of the bidder to provide all necessary miscellaneous items for providing a complete and operable piece of equipment or facilities ready for installation or use.

SCHEDULE

The Project Schedule is driven by the need to relocate utilities for a new round-a-bout on the northern side of the new bridge being built. A 69kV transmission circuit and two 12.47kV distribution circuits are to be relocated along with communications. Project work must be completed by December 1st, 2020.

Project milestones affecting the distribution line installations as presently known are indicated below:

- A. Bid due date of Contract April 30th, 2020
- B. Approximate Award date of Contract May 5th, 2020
- C. All line distribution work complete and fully operational December 1st, 2020

**SECTION 5-1
SUMMARY OF WORK**

**BID ITEM: SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT –
Construction Package**

1. GENERAL

1.1.A DESCRIPTION:

- 1.1A General: The work to be completed under this contract is to consist of the work associated with the relocation of one 69kV circuit, two 12kV circuits, and multiple communication lines in Napoleon, OH. These lines are to be moved from the south side of East Riverview Dr. to the north side within right of way limits.

2. SCOPE OF WORK:

This Contract shall include removal of existing and installation of multiple new power circuits. The Scope of Work shall include the Contractor performing the following work:

Contractor shall remove and expose of all existing poles, transformers, cutouts, lightning arresters, and other miscellaneous equipment. The contractor will arrange with city to bring removed conductor to their warehouse for recycling. Contractor shall install all poles, foundations for steel poles, transformers, lightning arresters, brackets, grounding materials, connections, conductors, hardware, tools, labor, and miscellaneous materials necessary for safe, reliable operation of distribution lines, as described herein. Contractor shall be available at the time all lines are energized. All line work shall be planned, scheduled, reviewed, and performed in such a manner as to minimize any service outages.

The Contractor will provide all materials for the project unless specifically stated otherwise. This includes, but is not limited to, all poles, conductors, transformers, cutouts, ground wire, lightning arresters, etc. The Contractor shall also provide misc. "stock" hardware, such as nuts, bolts, ties, crimp connectors, squeeze connectors and the like.

Note: Furnished by the Communication Companies – Materials for transferring facilities. Steel Poles will be bid separately. Foundations for these poles will need to part of this bid package.

3. SITE VISIT:

All bidders prior to submitting a bid for work described herein are required to schedule a site visit which includes looking at the entire route of the Utility Relocation – SYSTEM UTILITY RELOCATION FOR NEW BRIDGE PROJECT – Construction Project, so as to adequately be acquainted with extent of work involved. Subject site visit shall be scheduled with Henry County Engineer and City of Napoleon Electric personnel. As a part of each bid, the bidder shall identify in detail line section outages required and estimated required duration of same.

4. PERSONNEL SAFETY:

This project requires close proximity work on or adjacent to existing energized overhead electrical pole line distribution circuits. In conjunction with the installation of all new equipment/facilities required by this project, it shall be this Contractors' responsibility to use extreme care and caution to insure complete personnel safety. This shall include having prior approval from the City's electrical personnel before operation, disconnection, removal or energization of any new or existing equipment/facilities. Additionally, the Contractor shall follow recognized lockout and tagging procedures and physically verify with appropriately rated voltage measurement equipment that each electrical apparatus is de-energized prior to any access or related work is preformed thereon.

5. RIGHT-OF-WAY

For the purpose of modifying/installing the lines prescribed herein, City of Napoleon owns and/or maintains right-of-way. The line contractor shall review locations, routing, and access to the line(s) right-of-way, so as to not infringe upon any adjacent property owners. The City and the Engineer will not be liable for any claims filed against the Contractor by personal property owners. Any materials or equipment stored or left along the right-of-way during construction is the responsibility of the Contractor. During construction, the condition of right-of-way shall be maintained reasonably free of trash and clutter. At completion, line construction routes must be totally free of any trash, debris or foreign materials.

6. CONSTRUCTION SPECIFICATIONS

All construction work shall be completed in a neat and workman-like manner and shall comply with these specifications/drawings, the National Electric Safety Code (ANSI C2) and The National Electric Code - latest editions and any local regulations that may take precedence.

7. STRUCTURE LOCATIONS

Structures, guys, etc., shall be placed in locations determined by the Engineer as are shown on the Drawings. Contractor shall be responsible for staking poles, anchors and other structures as shown on drawings. PRIOR to construction, Contractor must have approval from the Engineer to begin construction. This approval does not relieve the Contractor of responsibilities associated with placing structures outside of the City's Right of Way.

Structures, guys, etc., shall not be erected in any other location without prior approval of the Engineer. The Contractor shall be responsible for field checking all pole and guy locations. Any discrepancies found shall be reported to the Engineer three (3) working days prior to drilling holes for poles or anchors. Failure to notify the Engineer at least three (3) working days prior to drilling shall cause the Contractor to bear all costs in correcting the problem, if any shall be demonstrated.

In addition to structure and guy placement, the Contractor shall advise the Engineer relative to any concerns over electrical clearances or structural integrity, etc., as early as possible.

8. INSTALLATION

- 8.1. A The Contractor shall be responsible for installing all poles, transformers, conductors and accessories shown on the Contract Drawings and specified herein, subject to other applicable Specifications and requirements of the Contract.
- 8.1. B The work to be performed and the materials and equipment to be used are defined in the Contract Documents.
- 8.1. C 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 shall be stacked on supports well above the ground line and protected from the elements as appropriate, and with due regard to public safety.
- 8.1. D Conductors shall be handled carefully at all times to avoid damage, and shall not be dragged across the ground, fences or sharp projections. Care shall be exercised to avoid excessive bending of the conductor.
- 8.1. E A brief description of the major items of work included in this Specification is as follows:
- (1) Installation of Steel Pole Foundations
 - (2) Installation and Retirement of Poles
 - (3) Installation and Retirement of Transformers
 - (4) Re-connection to Grounding System
 - (5) Installation and Retirement of Cutouts and Hardware
 - (6) Installation and Retirement of Lightning Arresters and Hardware
 - (7) Installation and Retirement of Conductors
 - (8) Relocation of Capacitor Bank

8.2 TRANSFORMERS

- 8.2. A The Contractor shall be responsible for installing and removing the transformers as shown on any contract drawings and as specified herein.

- 8.2. B Both the Contractor and the Owner's Representative shall inspect transformers received from the supplier. Damaged transformers shall be returned, and the damage shall be documented by both parties, along with any items missing from the shipment. Subsequent damage to transformers is the responsibility of the Contractor and shall be removed and replaced at no cost to the Owner.

No transformer deemed unacceptable by the Owner shall be installed; transformers rejected after installation shall be replaced at no cost to the Owner.

- 8.2. C Transformers shall be unloaded, loaded, and set by methods approved by the owner's Representative. Care shall be taken to avoid transformer damage during handling.

8.3 GROUNDING SYSTEM

- 8.3. A The Contractor shall re-connect all necessary equipment and hardware to the grounding system and install new grounding connections as indicated by the Contract Standards and drawings or any requirements of the Contract.

8.4 CUTOUTS AND HARDWARE

Cutouts shall be Type C-Polymer STANDARD Cutout

- 8.4. A The Contractor shall install all cutouts and hardware as shown by the Contract Standards and drawings or manufacturer's specs and as specified herein.
- 8.4. B The Contractor shall be responsible for properly locating the cutouts as defined on the drawings. All cutouts shall be installed to minimize the downtime required to changeout each transformer, or tap.

8.5 SURGE ARRESTERS AND HARDWARE

Pole Top Insulators and Pin Insulators Shall be POLYETHYLENE – Vise Top - PIN INSULATORS, Supplied by Hendrix Molded Products, Model Family HPI-15VT or Engineer approved equal.

- 8.5. A The Contractor shall exercise care at all times in the handling of individual insulators and insulator assemblies to prevent damage and breakage. Insulators that were found defective when received will be replaced by the Owner. Insulators that are stolen or are damaged by the neglect or carelessness of the Contractor, as determined by the Owner's Representative, shall be provided by the Contractor for

both the insulators and any costs associated with their replacement. The City (Owner) will not be responsible for defective material when received.

8.6 CLEARING AND USE OF RIGHT-OF-WAY

- 8.6.A The Owner shall be responsible for clearing the right of way of trees and brush within the right of way as established by the Owner.
- 8.6.B The Contractor shall notify Owner as soon as possible, if Contractor believes clearing is necessary in an area of planned work.
- 8.6.C The Contractor shall be liable for damage to other utilities such as sewers, water lines, gas lines, or overhead electric power, or communication lines due to negligence by the Contractor while working in the City's right of way or other designated project areas.
- 8.6.D Whenever lawns, shrubs or fences are damaged by the Contractor, during the progress of this project, the Contractor shall replace the damaged items or make proper restitution to the property owner.
- 8.6.E The Contractor shall take any necessary precautions to prevent the spilling or leaking of hydraulic fluids, fuels or other liquids likely to damage or destroy the appearance of the right of way.
- 8.6.F The Contractor shall remove all debris, excess earth, and rubbish that may accumulate during the course of the work. Streets, alleys and private property must be kept clear of rubbish at all times and must be left in a neat and orderly condition at the end of the day's work.
- 8.6.G The Contractor shall not park or drive vehicles or equipment or place equipment outside the right of way or work limits established by the Owner.

8.7 NOTIFICATION

- 8.7. A The Contractor shall bear in mind the Owner's concern of keeping all outages and customer complaints to a minimum. The Contractor will coordinate his work with any normal operations of the system the Owner feels is necessary to keep the system viable.
- 8.7. B The Contractor shall be responsible for the identification of all underground facilities prior to the performance of the work. The Contractor shall be liable for any repairs made necessary as the result of damaging such facilities. Known underground facilities have been indicated on the plans but are not to be taken as complete nor accurate as to location and must be verified by the Contractor.

- 8.7. C The Contractor shall notify highway and railroad authorities in advance of all construction activities in their area and shall conform to all requirements of any acquired permits. Permit to be obtained by the Owner.
- 8.7. D The Contractor shall notify the Owner in advance of construction taking place in the vicinity of the Owner's electric facilities.
- 8.7. E The Contractor shall notify the Ohio Utilities Protection Services (OUPS) by calling 811 and any other utility that would have underground facilities in the work area, at least 48 hours before excavating work would start.
- 8.7. F The Contractor shall coordinate and work with all concerned utilities to facilitate the completion of the work.

8.8 CABLE

- 8.8. A Cable splices shall be of the prefabricated type, of the correct voltage rating and shall be made in accordance with the splice manufacturer's instructions. Splices that depend solely on tape for a moisture barrier shall not be used.
- 8.8.B Wire Identification: Wiring identification shall be furnished and installed in accordance with this section.
1. General: Identification shall include all color-coding tape, wire markers and nylon tie marker plates to identify at each termination of the wiring as outlined herein.
 2. Phase Wiring: Identify each phase wire at its termination where the wire jacket/insulation is not so colored by color coding type. The wiring shall be color coded as follows: Red - Phase A; Yellow - Phase B; and Blue - Phase C.
 - 3.

9. SELF SUPPORTING STEEL TRANSMISSION POLE

- 9.1 Three 70 foot, galvanized tapered tubular steel poles shall be provided by the supplier. The structures shall be designed by the power supplier for NESC heavy district loading. The structure shall provide support for one 69kV transmission circuit and two 12.47kV distribution circuits. The structure shall be capable of

supporting the transmission conductors and distribution circuits without the use of conventional guying. Reference drawings S-001, S-002, S-003

- 9.2 The transmission structure shall be pre-drilled for deadend insulators specified hereinand shall include all mounting hardware as necessary. In addition, the structures shall include support arms for the transmission deadends and crossarms for the distribution circuits, suitable for attachment of pin-type insulators for phase conductors. Pre-drilled holes for a neutral conductors and for attachment of joint use utilities such as fiber cable, phone and CATV shall be provided.
- 9.3 The transmission structures shall be shipped in sections for simple erection in the field.
- 9.4 Anchor bolts and anchor cage (with templates) shall be provided by the pole manufacturer for installation by others in the pole support foundation.
- 9.5 Design Requirements: Self-supporting pole shall be designed for NESC heavy loading district utilizing NESC conductor tension limits:
- 9.5.A Initial conductor loaded = 50%
 - 9.5.B Initial conductor unloaded tension = 35%
 - 9.5.C Final loaded tension at 60 degree F = 25%

10. INSPECTION AND CLEAN-UP

Upon completion of the distribution lines construction, the Contractor shall inspect the entire installation to ensure that all the lines are complete, safe and ready for energization.

At this time, all trash, debris and foreign material must be removed from the line right-of-ways.

11. AS-BUILT DRAWINGS

After energization of all lines and prior to final acceptance, the Contractor shall furnish to the Engineer neat and accurate "as-built" drawings representing the entire installation of all distribution lines.

12. WARRANTY

All distribution line material, equipment, and the installation of same shall have an eighteen (18) month warranty commencing on the date of initial energization. Warranty shall include replacement and reinstallation for any defective materials or equipment and correction of any faulty workmanship.

13. CONTRACTOR FURNISHED MATERIALS

13.1 WOOD POLES

13.1.A Standards - wood poles shall be furnished in compliance with:

ANSI Std. 05.1; Specification and Dimensions for Wood Poles

REA /RUS Bulletin 50-18, Spec. No. DT-5C (Electric) REA Specification for Wood Poles, Stubs and Anchor Logs

AWPA C4-81; Standard for Preservative Treatment of Poles by Pressure Processes.

13.1.B Description - Wood poles shall be seasoned, pentachlorophenol treated, Douglas Fir or Southern Yellow Pine with ultimate fiber stress rating of 8,000 psi.

13.1.C Sizes - Pole height and class shall be as indicated on the drawings.

13.1.D Marking - All poles shall be burn-branded legibly and permanently on the pole face and butt or provided with a non-corrosive tag affixed thereto displaying the following information:

1. Supplier code or trademark.
2. Plant location and year of treatment.
3. Code letters identifying pole species and preservative used.
4. Numerical identification of pole length and circumference class.

Larger poles may have two birthmarks – if the pole is set extra deep, at least one birthmark will still be visible for identification. Unless special circumstances prevail, always set every pole with the birthmark facing the street. Split the angle on curves

Quality Control - All poles shall be RUS WWC (wood quality control) poles.

13.1.E Storage and Handling - Handling of wood poles shall be in accordance with ATIS O5.1, except that pointed tools capable of producing indentations more than inch in depth shall not be used. Nails and holes are not permitted in top of poles.

13.2 WOOD CROSSARMS AND BRACES

13.2.A Standards - Bulletin 50-17, Spec. No. DT-5B (Electric) REA/RUS Specification for Wood Crossarms (Solid and Laminated), Transmission Timbers and Pole Keys. AWPA C1-82; Standard for Preservative Treatment by Pressure Process - all timber products.

- 13.2.B Description - Wood crossarms and braces shall be seasoned, pentachlorophenol treated, select Douglas-Fir members. Crossarms shall be machined, chamfered, trimmed, and bored for stud and bolt holes before pressure treatment. Factory drilling shall be provided for pole and brace mounting, for four pin or four vertical line-post insulators, and for four suspension insulators, except where otherwise indicated or required. Drilling shall provide required climbing space and wire clearances. Crossarms shall be straight and free of twists to within 1/10 inch per foot of length. Bend or twist shall be in one direction only.
- 13.2.C Sizes - Wood crossarms and braces shall be of the dimensions as indicated on the drawings, but shall be a minimum of the following:
 8' Crossarms: 3 5/8" X 4 5/8"
 10' Crossarms: 4" X 5"
 48" span by 18" drop braces for 8' crossarms
 60" span by 18" drop braces for 10' crossarms on tangent structures
 72" span by 30" drop braces for 10' crossarms on deadend structures
- 13.2.D Fittings - Fittings, clamps, hardware, etc. associated with braces shall be hot-dipped galvanized steel.
- 13.2.E Storage and Handling - Wood crossarms and braces shall be stored and handled in such a manner that no deformation, deterioration or physical damage occurs.

13.3 DISTRIBUTION DEAD-ENDS AND INSULATORS

- 13.3.A 69kV Horizontal Line Post Insulators
- 13.3.A.1 Construction – Horizontal post insulators shall be polymer type, either completely extruded or high-pressure injection molded type weathersheds. The insulators shall utilize a “2.5” diameter fiberglass rod and include a gain base and clamp type end fitting with top clamp included.
- 13.3.A.2 Size and Ratings – The insulators shall be center of gain of clamp dimension of not less than 38 inches and the following minimum rating:
- 13.3.A.2.A 60 HZ Flashover ANSI – 270kV Dry and 245kV Wet
 13.3.A.2.B Critical Flashover ANSI – 420kV Dry and 535kV Wet
 13.3.A.2.C Routine Cantilever Load Capability – 2500 lbs.
- 13.3.B 69kV Suspension Insulators
- 13.3.B.1 Construction – Suspension and Deadend Insulator shall be polymer type, either completely extruded or high-pressure injection molded type weathersheds. The insulators shall utilize a 7/8” diameter fiberglass rod and clevis end fittings for the ground side of the insulator, clevis end fittings for the line side of deadend insulators and ANSI Ball fittings on the line side of the suspension insulators.

13.3.B.2 Size and Ratings – The insulators shall have a section length of not less than 43” and a mechanical rating of 30,000 lbs. with a routine working load rating of 12,500 lbs. The following minimum electrical ratings shall also apply:

- 13.3.B.2.A Dry Arc Distance – 30.6 inches
- 13.3.B.2.B Leakage Distance – 75 inches
- 13.3.B.2.C 60 HZ Flashover ANSI – 310kV Dry and 290kV Wet
- 13.3.B.2.D Critical Flashover ANSI – 505kV Dry and 490kV Wet

13.3.C Standards - Distribution Dead-End insulators shall be furnished in compliance with ANSI standard C29.2; ANSI Class 52-1.

13.3.D Description - Distribution dead-end insulators shall be pin and clevis type polymer insulators with a mechanical strength rating of 15,000 lbs (maximum working load rating of 7,500 lbs) and electrical voltage rating of 15kV.

13.3.E Color - Insulator color shall be No. 70 Gray.

13.3.F Electrical Values - Insulator electrical characteristics shall be as follows:

1. Leakage Distance - 16"
2. Dry arcing distance - 8"
3. Low frequency dry flashover – 110 kV
4. Low frequency wet flashover – 75 kV
5. Impulse flashover, positive - 140 kV
6. Impulse flashover, negative - 160 kV
7. Radio influence voltage test RMS to ground – 15 kV
Radio influence voltage maximum RIV Microvolts at 100 kHz – less than 10.

13.4 FITTINGS AND HARDWARE – ALL ACSR

13.4.A Strength - All conductor and associated fittings, clamps, etc. shall have an ultimate strength rating of at least 9,000 lbs. All attachment and framing hardware shall also have an ultimate strength rating of at least 9,000 lbs. All guy wire fittings and associated components shall have an ultimate strength rating of at least 9,400 lbs.

- 13.4.B Material - All conductor associated fittings, preformed armor rod, clamps, etc. shall be of material compatible with the conductor to which attached. All attachment and framing hardware shall be hot-dipped galvanized after fabrication steel in accordance with ANSI standard C135.1-1979 and ASTM standard A153-73. Hardware shall be of the "static-proof" type where possible. Washers shall be installed under boltheads and nuts on wood surfaces and elsewhere as required. Washers used on through-bolts and double-arming bolts shall be approximately square 2-1/4 inches square and 3/16 inch thick. The diameter of holes in washers shall be the correct standard size for the bolt on which a washer is used. Washers for use under heads of carriage-bolts shall be of the proper size to fit over square shanks of bolts. Eye bolts, bolt eyes, eyenuts, strain-load plates, lag screws, guy clamps, fasteners, hooks, shims, and clevises shall be used wherever required to support and to protect poles, brackets, crossarms, guy wires, and insulators.
- 13.4.C Miscellaneous - All miscellaneous fittings, clamps, plates, bolts, nuts, washers, etc. required for a complete installation shall be furnished and installed as a part of this project, although said items may not specifically be shown on the drawings or indicated in these specifications. Pole attaching hardware shall be galvanized steel – no substitutions.

13.5 PHASE CONDUCTORS

- 13.5.A Overhead Size and Description – Phase conductors for 69kV circuits shall be 795ACSR with 26/7 stranding, code name “Drake”, with ultimate breaking strength of 30,500 lbs.
- 13.5.B Overhead Static Ground Size and Description – Static overhead ground wire shall be 3/8” Extra High Strength Galvanized Steel Stranded Cable, with ultimate breaking strength of 15,400 lbs.
- 13.5.C Overhead Size and Description – Main line Phase conductors for 12.47 kV circuits shall be 556 ACSR with 18/1 stranding, code name "Osprey", with ultimate breaking strength of 13,200 lbs. Neutral conductors shall be 4/0ACSR with 6/1 stranding, code name “Penguin”, with ultimate breaking strength of 7,690lbs.
- 13.5.D Line Tap Conductors - Line taps (spurs) phase and neutral conductors shall be 1/0 ACSR with 6/1 stranding, code name “Raven”, with ultimate breaking strength of 4,380 lbs. Neutral conductors shall be the same size as the phase conductors.
- 13.5.E Underground 15 kV Power Cables – Services (Feeds to Transformers) - Underground 15kV cables shall be jacketed, single conductor, Class B stranded 1/0 AWG copper with a concentric neutral. Three phase transformers shall be fed with 1/3 concentric neutral cable. Single Phase Conductors shall be fed with full concentric neutral cable. The cable insulation shall be an ethylene-propylene based (EPR) thermosetting compound that meets or exceeds the physical and electrical requirements of ICEA S-94-649. Cable insulation level shall be 133%. The overall

cable assembly shall have a Polyethylene jacket and a 105°C continuous operating temperature. 15 kV cable shall be UL listed (type MV-90), be moisture resistant, and be suitable for installation in conduit or underground ducts.

13.6 GUY WIRE

Guy wire for guying of line structures shall be 3/8" or 1/2" diameter, extra high strength (15,400 lb. and 26,900 lb. ultimate breaking strength, respectively) as detailed in staking sheets and pole drawings, weight "A" zinc coated, galvanized steel wire in accordance with ASTM Specification A-475.

13.7 ANCHORS

- 13.7.A Description - Anchors shall consist of a power driven screw type double helix with connecting rod and eyenut.
- 13.7.B Double Helix - Double helix shall be 8"/10" diameter - "A.B. Chance" #C1100385
Rod - Anchor rod shall be 7 feet in length, 1" diameter, "A.B. Chance" #12334P or approved equal with 3½ foot rod extensions #12338P.
- 13.7.C Eyenut - Eyenut shall be screw-on type for 1" diameter rod, "A.B. Chance" #12585 or approved equal.
- 13.7.D Holding Capacity - When installed with 2,000 ft-lbs or greater of torque, holding capacity of above anchor system shall be 20,000 lbs. (Note: Soil class is "6" and "7")

13.8 GROUNDING

Ground Wire Down Lead (wire from top to bottom of poles) – Ground wire shall be either #4AWG or an equivalent Copperweld bimetallic 40% IACS conductor. Transformer and arrestor grounding leads shall be #4 AWG solid copper. Grounding hardware shall consist of ground wire staples, bonding clips, connectors, and any miscellaneous items for properly grounding the circuit neutrals and pole line structures.

Poles with Transformers and Arrestors shall be grounded with 5/8" X 8' Galvanized ground rods (reference OH-38 in Appendix B). All other poles shall have Pole Butt plate type grounding devices, attached to the bottom of the pole with a minimum of four galvanized nails (reference OH-37 in Appendix B).

13.9 SURGE ARRESTERS

IEEE C62.11, metal oxide varistor, polymer housed, surge arresters arranged for Crossarm or Equipment mounting. Arrestors shall have a rated Voltage of 10kV and an MCOV of 8.4kV. Arresters shall be Distribution Class unless otherwise specified.

13.10 FUSE CUTOUTS

Cutouts shall conform to NEMA C37.42 and be rated as follows;
Continuous Current: 100A, Max Design Voltage: 15kV, Nominal System Voltage thru 14.4kV, BIL Rating: 110kV, Interrupt Capacity: 10k Asymmetrical Amps.
Fuses shall be Type T, conform to NEMA C37.42, and be sized according to drawings, staking sheets, and Appendix D within these specifications.

13.11 POLE TOP SWITCH

Pole top switch shall comply with IEEE C37.30, shall be horizontal type switches, three-pole gang operated, with a padlock arrangement for locking in both open and closed positions. Steel parts shall be hot-dip galvanized. Operating rods shall be isolated from the switch by an insulating link or section located as close to the switch as possible. Switch shall be unitized for direct pole mounting and for breaking a 3/8 inch coating of ice before contacts are opened or closed. Each switch shall be rated for 15 kV, with a continuous current rating and load-break rating of 900 amperes, and a momentary rating of 40,000 rms amperes asymmetrical.

13.12 ELECTRICAL TAPES

Tapes shall be UL listed for electrical insulation and other purposes in wire and cable splices. Terminations, repairs and miscellaneous purposes, electrical tapes shall comply with UL 510.

13.13 CAULKING COMPOUND

Compound for sealing of conduit risers shall be of a puttylike consistency workable with hands at temperatures as low as 2 degrees C 35 degrees F, shall not slump at a temperature of 150 degrees C (300 degrees F), and shall not harden materially when exposed to air. Compound shall readily calk or adhere to clean surfaces of the materials with which it is designed to be used. Compound shall have no injurious effects upon the workmen or upon the materials.

13.14 OVERHEAD TRANSFORMERS

13.14.A GENERAL

- 13.14.A.1 This specification covers the electrical and mechanical characteristics of 5 - 167 kVA Single-Phase Overhead Type Distribution Transformers. Transformers shall be new construction.
- 13.14.A.2 All characteristics, definitions, and terminology, except as specifically

covered in this specification, shall be in accordance with the latest revision of the following ANSI/IEEE, Department of Energy, and NEMA standards.

C57.12.00 - IEEE Standard for Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers

C57.12.31 - IEEE Standard for pole Mounted Equipment – Enclosure Integrity

C57.12.35 - IEEE Standard for Bar Coding for Distribution Transformers.

C57.12.90 - IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers

C57.12.91 - IEEE Guide for Loading Mineral-Oil Immersed Transformers

NEMA TR 1-1993 (R2000) – Transformers, Regulators and Reactors

10 CFR Part 431 – Department of Energy – Energy Conservation Program for Commercial Equipment: Distribution Transformers Energy Conservation Standards; Final Rule

13.14.B RATINGS

- 13.14.B.1 The transformer shall be designed in accordance with this specification and shall have one of the following kVA ratings: 5, 10, 15, 25, 37.5, 50, 75, 100, 167. The applicable kVA rating shall be as specified on the bid drawings and Staking Sheets in Appendix C.
- 13.14.B.2 Primary voltage shall be primary 12,470 grounded Y/7200 Volts and the basic insulation level (BIL) shall be 95kV.
- 13.14.B.3 The secondary voltage shall be one of the following. The basic insulation level (BIL) of the secondary voltage shall be 30 kV. It is the responsibility of the contractor to ensure the proper secondary voltage is used in accordance with existing secondary voltages.

120/240
240/480
120/277

13.14.C HIGH VOLTAGE BUSHING AND TERMINALS

13.14.C.1 The high-voltage bushings provided shall be in accordance with Table A.

Table A

Electrical Characteristics of Bushings

BIL Withstand (kV)	Creepage Distance*		60-Hz Dry 1-Minute Withstand (kV)	60-Hz Wet 10-Second Withstand (kV)
	Inches	Millimeters		
30	-	-	10	6
45	-	-	15	13
60	-	-	21	20
75	-	-	27	24
95	10½ ± ½	267 ± 13	35	30
150	17	432	60	50
Single-Phase Transformer Bushings Only				
95 †	16½ ± 1½	419 ± 38	35	30
125	16½ ± 1½	419 ± 38	42	36
200	26	660	80	75

* Creepage distances are minimum values where no tolerance is specified.

† For 16.34-kV rating only.

13.14.C.2 The High Voltage bushing terminals provided shall be tin plated to accommodate both aluminum and copper conductors. The size of these terminals shall be in accordance with Table B.

Table B

High-Voltage Terminal Sizes for Single-Phase Transformers

Size of Terminal Opening Inches Millimeters	AWG Size of Conductor Terminal will Accommodate	kVA Range for High-Voltage Rating of: 5 kV 7.2 kV And to below 34.5kV
5/16 7.9	No 8 Solid to No 2 Stranded	10-167 10-500
5/8 15.9	No 6 Solid to No 4/0-19 Stranded	250-500 -----

13.14.C.3 Unless otherwise specified, the color of the bushings shall match Light Gray Number 70, Munsell Notation 5BG7.0/0.4.

13.14.D LOW VOLTAGE BUSHINGS AND TERMINALS

- 13.14.D.1 The low-voltage bushings provided shall be in accordance with Table A.
- 13.14.D.2 The bushing terminals provided shall be tin plated to accommodate both aluminum and copper conductors. The size of the terminals shall be in accordance with Table C.

Table C
Low-Voltage Terminal Sizes for Single-Phase Transformers

Size of Terminal Opening Inches Millimeters		AWG Size of Conductor Terminal will Accommodate	Transformer Low Voltage Rating (volts)		
			120/240	240/480	277
5/16	7.9	No 8 Solid to No 2 Stranded	-	-	-
5/8	15.9	No 6 Solid to No 4/0-19 Stranded	10-15	10-25	10-25
13/16	20.6	No 2 Solid to 350 kcmil-19 Stranded	25-50	37 ½ - 100	37 ½ - 100
15/16	23.8	No 1/0 Solid to 500 kcmil-37 Stranded	75	-	-
1-1/4	31.8	No 2/0 Solid to 1000 kcmil-61 Stranded	100	-	-
Spade H		---	167-250	167-500	167-250

- 13.14.D.3 The internal secondary leads shall be permanently embossed with the letters A, B, C, and D per ANSI C57.12.00 and C57.12.20. This marking can be used as a means to locate such leads with respect to one another for internal reconnection.

13.14.E OVERCURRENT PROTECTION

- 13.14.E.1 The overcurrent protection scheme provided with the transformer shall be external. The transformer shall have no means of overcurrent protection supplied.

13.14.F TANK

- 13.14.F.1 The tank shall include a pressure relief device as a means to relieve pressure in excess of pressure resulting from normal operation. The venting and sealing characteristics shall be as follows:

Cracking Pressure: 10 psig ± 2 psig
Resealing Pressure: 6 psig minimum

Zero leakage from reseal pressure to -8 psig
Flow at 15 psig: 35 SCFM minimum

- 13.14.F.2 The tank coating shall meet all requirements in ANSI C57.12.31 including:
- Salt Spray Test per ASTM B117/D1654
Cross hatch adhesion test ASTM D3359
Humidity test per ASTM D4585 / D3363
Impact test per ASTM D2794 / B1117
UV accelerated weathering (QUV) test per ASTM G154/ D523
Abrasion resistance Taber abraser test per ASTM D4060 / B1117
- 13.14.F.3 The tank provided shall have a recessed tank bottom which offers protection when sliding over rough surfaces.
- 13.14.F.4 The tank shall have an internal mark, which indicates the proper oil level per Section 7.2.3 of ANSI C57.12.20.
- 13.14.F.5 The tank shall be provided with a mild steel cover ring with stainless steel cover ring loops and a stainless steel bolt. A bronze nut shall also be provided to eliminate corrosion problems and avoid galling.
- 13.14.F.6 The tank shall be complete with an anodized aluminum laser engraved nameplate. This nameplate shall meet ANSI Standard C57.12.00 for Nameplate A.
- 13.14.F.7 The tank shall include arrester mounting pads, grounding provisions, ANSI support lugs (hanger brackets) and lift lugs. The type of hanger brackets (single or double) shall be specified on the inquiry.

13.14.G ACCESSORIES

- 13.14.G.1 The following checked accessories shall be provided (If checked);
- 15 kV Insulated Cover
 - PVC Birdguards
 - Handwheel Birdguards
 - Extra Creep Bushings
 - Stainless Steel Hardware
 - Stainless Steel Cover
 - Total Stainless Steel Cover Ring
 - Drain / Sampling Device
 - Ground Connector on Double Bushing Units
 - R-Temp Less Flammable Fluid

13.14.H SHIPPING

13.14.H.1 Unit shall be sufficiently banded, blocked, or bolted to a suitable wood pallet.

13.14.I PRODUCTION TESTING

13.14.I.1 All units shall be tested for the following:

- No-Load (85°C or 20°C) losses at rated current
- Total (85°C) losses at rated current
- Percent Impedance (85°C) at rated current
 - Excitation current (100% voltage) test
- Winding resistance measurement tests
- Ratio tests using all tap settings
- Polarity and phase relation tests
- Induced potential tests
- Full wave and reduced wave impulse test

13.14.I.2 The manufacturer shall provide the guaranteed average no-load and load losses for the unit at 85°C. These losses will be subject to the tolerances listed in Table D.

**Table D
Tolerances for Single-Phase Transformer Losses**

Number of Units on One Order	Basis of Determination	No-Load Losses (%)	Total Losses (%)
1	1 unit	10	6
2 or more	Each Unit	10	6
2 or more	Average of all units	0	0

13.14.J BAR CODING

13.14.J.1 A temporary bar code label shall be attached to the exterior of the transformer in accordance with ANSI C57.12.35.

13.15 PAD MOUNTED TRANSFORMERS

13.15.A GENERAL

13.15.A.1 Pad mounted Transformers shall be rated as specified in Staking Sheets in APPENDIX C. Refer below for page numbers within Staking Sheets;

- 13.15.A.2 Transformers shall be compartment style, self-cooled, tamperproof, loop feed, and copper windings.
- 13.15.A.3 Enclosure shall be designed for outdoor pad mounted installation.
- 13.15.A.4 The average temperature rise of the transformer windings shall not exceed 65 degree C when the transformer is operated at full name plate rating. The transformers shall be capable of carrying 100% of name plate KVA rating in a 40 degree C max.; 30 degree C average ambient as defined by ANSI C57.12.00.

13.15.B STANDARDS COMPLIANCE

- 13.15.B.1 Transformers specified in this section shall comply with the following standards:

NEC Compliance: Comply with NEC as applicable to installation and construction of electrical power/distribution transformers.

NEMA Compliance: Comply with applicable portions of NEMA Std Pub Nos. TR 1 and TR 27 pertaining to power/distribution transformers.

ANSI Compliance: Comply with applicable ANSI standards pertaining to power/ distribution transformers.

ANSI/IEEE Compliance: Comply with applicable ANSI/IEEE standards pertaining to power/distribution transformers.

ANSI/UL Compliance: Comply with applicable portions of ANSI/UL 506; "Safety Standard for Specialty Transformers".

Provide distribution transformers which have been UL-listed and labeled.

13.15.C RATINGS

- 13.15.C.1 Transformers as identified on the drawings shall be KVA, rated as indicated in Staking Sheets. Impedance shall be ANSI C57.12 standard impedance. Primary and secondary BIL shall be 95 KV and 30 KV respectively.

13.15.D CONSTRUCTION

- 13.15.D.1 Provide full height, air filled, incoming and outgoing terminal compartments with hinged doors, separated by a steel barrier. Construction of unit shall be dead-front. Equip primary section with six 200-ampere bushing wells in accordance with ANSI Standard C119.1. Low voltage bushings shall be tinned; spade-type with 9/16" holes spaced on 1³/₄" centers, six holes per blade and have vertical bus supports for each bushing. Grounding shall be provided in both high and low voltage sections.
- 13.15.D.2 Enclosure of unit shall conform to ANSI Standard C57.12.28 for tamper resistance and coating.
- 13.15.D.3 The high voltage terminations and equipment shall be dead front and conform to ANSI C57.12.26 or C57.12.25 requirements.
- 13.15.D.4 The bases shall be constructed to permit rolling or skidding in any direction, and shall be equipped with jacking pads designed to be flush with the transformer enclosure.
- 13.15.D.5 Transformer shall be UL classified for installation per Article 45023 of the National Electric code.
- 13.15.D.6 The core shall be visibly grounded to the frame by means of a flexible grounding strap.
- 13.15.D.7 Provide lifting eyes and padlocking provisions.
- 13.15.D.8 Transformer shall be factory mutual rated.

13.15.E SUBMITTALS

- 13.15.E.1 Product Data: Submit manufacture's technical product data including rated KVA, frequency, primary and secondary voltages, percent taps, polarity, impedance and certification of transformer performance efficiency at indicated loads, percentage regulation at 100% and 80% power factor, no-load and full-load losses in watts, Percentage impedance at 75 degrees C hot-spot and average temperature rise above 40 degrees C ambient, sound level in decibels, and standard published data.
- 13.15.E.2 Shop Drawings: Submit manufacturer's drawings indicating above data, dimensions, and weight loadings for transformer installations, showing layout, mountings and supports, spatial relationship to associated equipment, and transformer connections to electrical equipment.

13.15.F ACCESSORIES

- 13.15.F.1 Transformer shall be equipped with oil-immersed current limiting fuse, sized by transformer manufacturer to particular transformer. Provide one complete set of spare fuses for owner.
- 13.15.F.2 Provide one (1) or three (3) 8.4 KV MCOV surge arrestor for each transformer.
- 13.15.F.3 1" drain valve with sampling device.
- 13.15.F.4 Dial type thermometer.
- 13.15.F.5 Liquid-level gauge.
- 13.15.F.6 Pressure vacuum gauge.
- 13.15.F.7 Pressure relief valve or other pressure relief device.
- 13.15.F.8 Equip transformer with pressure relief device rated at 15 PSI. Transformer tank shall be able to withstand internal pressure of 15 PSI without rupture.
- 13.15.F.9 Mounting provisions for low-voltage current transformers and potential transformers.
- 13.15.F.10 Two 2-1/2% full-capacity above normal and two 2-1/2% full-capacity below normal primary taps.

13.15.G STANDARDS AND TESTS

- 13.15.G.1 The transformer shall comply with all applicable portions of ANSI C57.12.00 and ANSI C57.12.26 (or C57.12.25).
- 13.15.G.2 Testing shall be done in accordance with ANSI C57.12.90. The vendor shall provide test reports. Tests shall include, the following:
- No-Load (85°C or 20°C) losses at rated current
 - Total (85°C) losses at rated current
 - Percent Impedance (85°C) at rated current
 - Excitation current (100% voltage) test
 - Winding resistance measurement tests
 - Ratio tests using all tap settings
 - Polarity and phase relation tests
 - Induced potential tests
 - Full wave and reduced wave impulse test
- 13.15.G.3 Finish: Coat interior and exterior surfaces of transformer, including

bolted joints, with manufacturer's standard color baked-on enamel.

- 13.15.G.4 The transformer shall be similar and equal to R.T.E./Cooper Power pad mounted transformer. Those manufactured by Siemens, Square D Howard Industries, and General Electric are also approved.

13.15.H INSTALLATION

- 13.15.H.1 Install transformers as indicated, complying with manufacturer's written instructions, applicable requirements of NEC, NEMA, ANSI and IEEE standards, and in accordance with recognized industry practices to ensure that products fulfill requirements.
- 13.15.H.2 Coordinate transformer installation work with electrical raceway and wire/cable work, as necessary for proper interface.
- 13.15.H.3 Install units on vibration mounts; comply with manufacturer's indicated installation method if any.
- 13.15.H.4 Connect transformer units to electrical wiring system; comply with requirements of other Electrical Work sections.

13.15.I GROUNDING

- 13.15.I.1 Provide equipment grounding connections, sufficiently tight to assure permanent and effective ground. Provide a separately derived grounding point for each transformer. Extend grounding conductor to an earth electrode and building steel. Where available, connect to a cold water main.

13.15.J. TESTING

- 13.15.J.1 Upon completion of installation of transformers, energize primary circuit at rated voltage and frequency from normal power source and test transformers, including, but not limited to, audible sound levels, to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at the site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with retesting. Test voltage and connect tap setting for an acceptable no load voltage level.

SECTION 5-2**CONDITIONS OF LANDS****1 GENERAL****1.01 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS**

- A. Availability of Lands: Owner shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of Contractor. Upon reasonable written request, Owner shall furnish Contractor with a correct statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's lien against such lands in accordance with applicable Laws and Regulations. Owner shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which Contractor will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by Owner, unless otherwise provided in the Contract Documents.

1.02 PHYSICAL CONDITIONS

- A. Notice of Differing Physical Conditions: If Contractor believes that any physical condition at or contiguous to the site that is revealed either:

If of such a nature as to require a change in Contract Documents, or Differs materially from that shown or indicated in the Contract Documents, or is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. Engineer's Review: Engineer will promptly review the pertinent conditions, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.
- B. Possible Contract Documents Change: If Engineer concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in paragraph A above in this section, a Work Change Directive or a Change Order will be issued to reflect and document the consequences of such change.

- C. Possible Price and Times Adjustments: An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of such uncovered or revealed condition causes an increase or decrease in Contractor's cost of, or time required for performance of, the Work; subject, however, to the following:
- 1 Such condition must meet any one or more of the categories described in the section CHANGES TO CONTRACT.
 - 2 A change in the Contract Documents pursuant "CHANGES TO CONTRACT" will not be an automatic authorization of, nor a condition precedent to entitlement to any such adjustment.
- D. Contractor shall not be entitled to any adjustment in the Contract Price or Times if:
- 1 Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner in respect of Contract Price and Contract Times by the submission of a bid or becoming bound under a negotiated contract; or
 - 2 The existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - 3 Contractor failed to give the written notice within the time and as required herein.

1.03 AGREEMENT OF ENTITLEMENT

If Owner and Contractor are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefore as provided in Div. III, item 17. However, Owner and Engineer shall not be liable to Contractor for any claims, costs, losses or damages sustained by Contractor on or in connection with any other project or anticipated project.

END OF SECTION