INVITATION TO BID
17064

CONSTRUCTION

Kwigillingok Rural Power System Upgrade (RPSU) Distribution System
On behalf of
The City of Kwigillingok, Alaska

February 2017

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ALASKA ENERGY AUTHORITY

INVITATION TO BID

for Construction Contract

Date 02/02/2017

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

Location of Project:	Kwigillingok, Alaska
Contracting Officer:	Rich S. Wooten, CDT, CPSM
Issuing Office:	ALASKA ENERGY AUTHORITY (AUTHORITY)

State Funded [x] Federal Aid [ ]

Description of Work:

This project consists of a general contract to furnish all labor, materials, equipment, consumables, supervision, transportation, freight, subsistence, expertise and incidentals necessary to complete the Kwigillingok Rural Power System Upgrade Project.

The Engineer's Estimate is between **$2,000,000 and $2,500,000**
All work shall be substantially completed by**: August 31, 2018**
Interim Completion dates, if applicable, will be shown in the General Requirements.

Bidders are invited to submit sealed bids, in single copy, for furnishing all labor, equipment, and materials and for performing all work for the project described above. Bids will be opened publicly at 2:00 pm local time, in the Willow conference room, 813 West Northern Lights Blvd., Anchorage, Alaska on February 24, 2016.

SUBMISSION OF BIDS

ALL BIDS INCLUDING ANY AMENDMENTS OR WITHDRAWALS MUST BE RECEIVED PRIOR TO BID OPENING. BIDS SHALL BE SUBMITTED ON THE FORMS FURNISHED AND MUST BE IN A SEALED ENVELOPE MARKED AS FOLLOWS:

Bid for Project: **Kwigillingok Rural Power System Upgrade (RPSU) Distribution System** **Project Number:17064**	**ATTN: Contracts** **Alaska Energy Authority** **813 West Northern Lights Blvd.** **Anchorage, AK 99503**

Bids, amendments or withdrawals transmitted by mail must be received in the above specified post office box no later than 7 hours prior to the scheduled time of bid opening. Hand-delivered bids, amendments or withdrawals must be received by the **Front Desk of the Alaska Energy Authority**, prior to the scheduled time of bid opening. Faxed/emailed bid amendments must be addressed to **Rich Wooten, CDT, CPSM** Fax number: (907) 771-3044, Email: rwooten@aidea.org.

A bid guaranty is required with each bid in the amount of 5% of the amount bid. (Alternate bid items as well as supplemental bid items appearing on the bid schedule shall be included as part of the total amount bid when determining the amount of bid guaranty required for the project.)

The Authority hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this Invitation, Disadvantaged Business Enterprises (DBEs) will be afforded full opportunity to submit bids and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

NOTICE TO BIDDERS

Bidders are hereby notified that data to assist in preparing bids is available as follows:

See attached Special Notice to Bidders for this project.

Electronic Plans and Specifications may be ordered, for the price of **$0.00** from:

Alaska Energy Authority
813 West Northern Lights Blvd.
Anchorage, AK 99503

Phone: (907) 771-3019

All questions relating to design features, constructability, quantities, or other technical aspects of the project should be directed to the following. Bidders requesting assistance in viewing the project must make arrangements at least 48 hours in advance with:

Alan Fetters Phone: (907) 771-3063 Fax: (907) 771-3044

3
All questions concerning bidding procedures should be directed to:

Rich Wooten, CDT, CPSM.
Contracting Officer
813 West Northern Lights Blvd.
Anchorage, AK 99503

Phone: (907) 771-3019

The Bid Calendar, Planholder lists, and Bid Results information are available on the Internet at: www.aidea.org under Procurement Opportunities.

Reminder: 3 AAC 109.220 requires all Bidders to have a valid Alaska Business License and an Alaska Contractor's Certificate of Registration prior to award. To qualify as an Alaska bidder under 3 AAC 109.220, a bidder shall have a valid Alaska business license at time designated in the invitation to bid for bid opening.

Special Notice to Bidders

1. A non-mandatory pre-bid meeting is scheduled for February 8, 2017, 2:00pm in the Willow Conference room.

ALASKA ENERGY AUTHORITY

INFORMATION TO BIDDERS

The Authority is concerned over the manner in which bids are submitted. Bidders are requested to study and follow the bid assembly instructions as to the method and form for submitting bids so there will be no reason to reject a bid.

EXAMINATION OF CONTRACT REQUIREMENTS

Bidders are expected to examine carefully the plans, specifications and all other documents incorporated in the contract to determine the requirements thereof before preparing bids.

Any explanation desired by bidders regarding the meaning or interpretation of drawings and specifications must be requested in writing and with sufficient time allowed for a reply to reach them before the submission of their bids. Oral explanations or instructions given before the award of the contract will not be binding. Any interpretation made will be in the form of an addendum to the specifications or drawings and will be furnished to all bidders and its receipt by the bidder shall be acknowledged.

CONDITIONS AT SITE OF WORK

Bidders are expected to visit the site to ascertain pertinent local conditions such as the location, accessibility and character of the site, labor conditions, the character and extent of the existing work within or adjacent thereto, and any other work being performed thereon.

PREPARATION OF BIDS

(a) Bids shall be submitted on the forms furnished, and must be manually signed in ink. The person signing the proposal must initial any erasures or changes made to the bid.

(b) The bid schedule will provide for quotation of a price or prices for one or more pay items which may include unit price or lump sum items and alternative, optional or supplemental price schedules or a combination thereof which will result in a total bid amount for the proposed construction.

Where required on the bid form, bidders must quote on all items and THEY ARE WARNED that failure to do so will disqualify them. When quotations on all items are not required, bidders should insert the words "no bid" in the space provided for any item not requiring a quotation and for which no quotation is made.

(c) The bidder shall specify the price or prices bid in figures. On unit price contracts the bidder shall also show the products of the respective unit prices and quantities written in figures in the column provided for the purpose and the total amount of the proposal obtained by adding the amounts of the several items. All the figures shall be in ink or typed.

(d) Neither conditional nor alternative bids will be considered unless called for.

(e) Unless specifically called for, telegraphic or telefacsimile bids will not be considered.

(f) Bid Schedule form should be enclosed in a separate sealed envelope and enclosed with all other bidding forms required at the opening.

BID SECURITY

All bids shall be accompanied by a bid security in the form of an acceptable Bid Bond (Form 25D-14), or a certified check, cashier's check or money order made payable to the Alaska Energy Authority. The amount of the bid security is specified on the Invitation To Bid.

Bid Bonds must be accompanied by a legible Power of Attorney.

If the bidder fails to furnish an acceptable bid security with the bid, the bid shall be rejected as non-responsive. Telegraphic notification of execution of Bid Bond does not meet the requirements of bid security accompanying the bid. An individual surety will not be accepted as a bid security.

The Authority will hold the bid securities of the two lowest bidders until the Contract has been executed, after which they will be returned. All other bid securities will be returned as soon as practicable.

BIDDERS QUALIFICATIONS

Before a bid is considered for award, the bidder may be requested by the Authority to submit a statement of facts, in detail, as to his previous experience in performing comparable work, his business and technical organization, financial resources, and plant available to be used in performing the contemplated work.

SUBMISSION OF BIDS

Bids must be submitted as directed on the Invitation To Bid. Do not include in the envelope any bids for other work.

ADDENDA REQUIREMENTS

The bid documents provide for acknowledgement individually of all addenda to the drawings and/or specifications on the signature page of the Proposal. All addenda shall be acknowledged on the Proposal or by telegram prior to the scheduled time of bid opening. If the bidder received no addenda, the word "None" should be shown as specified.

Every effort will be made by the Authority to insure that Contractors receive all addenda when issued. Addenda will be issued to the individual or company to whom bidding documents were issued. Addenda may be issued by any reasonable method such as hand delivery, mail, telefacsimile, telegraph, courier, and in special circumstances by phone. Addenda will be issued to the address, telefacsimile number or phone number as stated on the planholder's list unless picked up in person or included with the bid documents. It is the bidder's responsibility to insure that he has received all addenda affecting the Invitation To Bid. No claim or protest will be allowed based on the bidder's allegation that he did not receive all of the addenda for an Invitation To Bid.

WITHDRAWAL OR REVISION OF BIDS

A bidder may withdraw or revise a bid after it has been deposited with the Authority, provided that the request for such withdrawal or revision is received by the designated office, in writing, by telegram, or by telefacsimile, before the time set for opening of bids.

Emailed or telefacsimile modifications shall include both the modification of the unit bid price and the total modification of each item modified, but shall not reveal the amount of the total original or revised bids. Form 25D-16 shall be used to submit such modifications.

RECEIPT AND OPENING OF BIDS

(a) The Authority must receive all bids, including any amendment or withdrawal prior to the scheduled time of bid opening. Any bid, amendment, or withdrawal that has not actually been received by the Authority prior to the time of the scheduled bid opening will not be considered.

(b) No responsibility will be attached to any officer or employee of the Authority for the premature opening of, or failure to open, a bid improperly addressed or identified.

(c) The Authority reserves the right to waive any technicality in bids received when such waiver is in the interest of the State.

BIDDERS PRESENT

At the time fixed for bid opening, bids will be publicly opened and read for the information of bidders and others properly interested, who may be present either in person or by representative. The amount of the bid and the name of the bidder shall be compiled and distributed as soon as possible after bid opening. Bids are not open for public inspection until after the Notice of Intent to Award is issued.

BIDDERS INTERESTED IN MORE THAN ONE BID

If more than one bid is offered by any one party, by or in the name of his or their clerk or partner, all such bids will be rejected. A party who has quoted prices to a bidder is not thereby disqualified from quoting prices to other bidders or from submitting a bid directly for the work.

REJECTION OF BIDS

The Authority reserves the right to reject any and all bids when such rejection is in the best interest of the State; to reject the bid of a bidder who has previously failed to perform properly, or complete on time, contracts of a similar nature; to reject the bid of a bidder who is not, in the opinion of the Contracting Officer, in a position to perform the contract; and to reject a bid as non-responsive where the bidder fails to furnish the required documents, fails to complete required documents in the manner directed, or makes unauthorized alterations to the bid documents.

AWARD OF CONTRACT

(a) The letter of award, if the contract is to be awarded, will be issued to the lowest responsible and responsive bidder as soon as practical and usually within 40 calendar days after opening of proposals.

(b) The successful bidder will be notified of the Authority's intent to award the contract and requested to execute certain documents, including the contract form and bonds.

(c) The contract will be awarded to the successful bidder following receipt by the Authority of all required documents, properly executed, within the time specified in the intent to award. Failure to enter into a contract within the specified time shall be grounds for forfeiture of the bid security and consideration of the second low bidder for award.

ALASKA ENERGY AUTHORITY

SUPPLEMENTARY INFORMATION TO BIDDERS

This document modifies or adds to the provisions of Alaska Energy Authority's form 25D-3, INFORMATION TO BIDDERS.

Following subject area "REJECTION OF BIDS", add the following subject area:

"CONSIDERATION OF PROPOSALS

After the Proposals are opened and read, they will be compared on the basis identified on the bid schedule and the apparent low Bidder announced. The apparent low Bidder shall, within 5 working days following identification as the apparent low Bidder, submit a list of all firms with which the prime CONTRACTOR intends to execute subcontracts for the performance of the Contract. The list shall include the name, business address, Alaska business license number and contractor's registration number of each proposed Subcontractor.

Upon confirmation of the contents of the proposal the low Bidder will be identified by the AUTHORITY in writing. If the low Bidder differs from the apparent low Bidder then the requirements for Subcontractor listing, as noted above, shall become effective upon the low Bidder at the time of identification.

If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of Work and the value of that Work is in excess of one-half of one percent of the total bid, the Bidder agrees that it shall be considered to have agreed to perform that portion of Work without the use of a Subcontractor and to have represented that the Bidder is qualified to perform the Work.

A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the Work required under the Contract, violates this section.

If a Contract is awarded to a Bidder who violates this section, the Bidder agrees that the Contracting Officer may:

(1) cancel the Contract without any damages accruing to the State; or

(2) after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the Subcontract at issue.

A Bidder may replace a listed Subcontractor who:

(1) fails to comply with AS 08.18;

(2) files for bankruptcy or becomes insolvent;

(3) fails to execute a contract with the Bidder involving performance of the Work for which the Subcontractor was listed and the Bidder acted in good faith;

(4) fails to obtain bonding;

(5) fails to obtain insurance acceptable to the State;

(6) fails to perform the Contract with the Bidder involving Work for which the Subcontractor was listed;

(7) must be substituted in order for the prime CONTRACTOR to satisfy required State and Federal affirmative action requirements;

(8) refuses to agree or abide with the bidder's labor agreement; or

(9) is determined by the Contracting Officer to be nonresponsive."

Modify subject area "AWARD OF CONTRACT" as follows:

Subparagraph (a) substitute the word "generally" for the phrase "as soon as practical and"

Subparagraph (b) delete and substitute the following:

"All Bidders will be notified of the AUTHORITY's intent to Award the Contract and the successful Bidder will be requested to execute certain documents, including the Contract form and bonds."

SECTION 00115

ITEM G-115 WORKER MEALS AND LODGING, OR PER DIEM

DESCRIPTION

115-1.1 This item consists of complying with the Alaska Department of Labor and Workforce Development (DOLWD) requirements for Worker Meals and Lodging, or Per Diem; as described in their May 10, 2013 memo WHPL #197(A4) and the State Laborer's and Mechanic's Minimum Rates of Pay (current issue).

Ensure subcontractors comply with the DOLWD requirements. The direct internet address is http://www.labor.state.ak.us/lss/pamp600.htm.

Ensure facilities meet the Alaska Administrative Code 8 AAC 61.1010 and 8 AAC 61.1040 *Occupational Safety and Health Standards*, 18 AAC 31 *Alaska Food Code*, and U. S. Code of Federal Regulations 29 CFR Section 1910.142 *Temporary Labor Camps*.

Do not consider the cost of Meals and Lodging or Per Diem in setting wages for the worker or in meeting wage requirements under AS 23.10.065 or AS 36.05.

METHOD OF MEASUREMENT

115-2.1 Worker Meals and Lodging, or Per Diem will not be measured.

BASIS OF PAYMENT

115-3.1 Payment for Worker Meals and Lodging, or Per Diem is subsidiary to the contract.

ALASKA ENERGY AUTHORITY

REQUIRED DOCUMENTS

REQUIRED FOR BID. Bids will not be considered if the following documents are not completely filled out and submitted at the time of bidding:

1. **Bid Form (Form 25D-9)**
2. **Bid Schedule**
3 **Bid Security**
4. Any bid revisions must be submitted by the bidder prior to bid opening on the following form:

   Bid Modification (Form 25D-16)

REQUIRED AFTER NOTICE OF APPARENT LOW BIDDER. The apparent low bidder is required to complete and submit the following document within 5 working days after receipt of written notification:

1. **Subcontractor List (Form 25D-5)**

REQUIRED FOR AWARD. In order to be awarded the contract, the successful bidder must completely fill out and submit the following documents within the time specified in the intent to award letter:

1. **Construction Contract (Form 25D-10A)**
2. **Payment Bond (Form 25D-12)**
3. **Performance Bond (Form 25D-13)**
4. **Contractor's Questionnaire (Form 25D-8)**
5. **Certificate of Insurance** (from carrier)

ALASKA ENERGY AUTHORITY

PROPOSAL

of

NAME _____

ADDRESS _____

_____

To the CONTRACTING OFFICER, ALASKA ENERGY AUTHORITY:

In compliance with your Invitation To Bid dated **February 2, 2017**, the Undersigned proposes to furnish and deliver all the materials and do all the work and labor required in the construction of Project:

Project Name

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

Project No. 17064

Located at **Kwigillingok, Alaska**, according to the plans and specifications and for the amount and prices named herein as indicated on the Bid Schedule consisting of **2** sheet(s), which is made a part of this Bid.

The Undersigned declares that he has carefully examined the contract requirements and that he has made a personal examination of the site of the work; that he understands that the quantities, where such are specified in the Bid Schedule or on the plans for this project, are approximate only and subject to increase or decrease, and that he is willing to perform increased or decreased quantities of work at unit prices bid under the conditions set forth in the Contract Documents.

The Undersigned hereby agrees to execute the said contract and bonds within fifteen calendar days, or such further time as may be allowed in writing by the Contracting Officer, after receiving notification of the acceptance of this proposal, and it is hereby mutually understood and agreed that in case the Undersigned does not, the accompanying bid guarantee shall be forfeited to the Alaska Energy Authority, as liquidated damages, and the said Contracting officer may proceed to award the contract to others.

The Undersigned agrees to commence the work within 10 calendar days after the effective date of Notice to Proceed and to substantially complete the work by **August 31, 2018**, unless extended in writing by the Contracting Officer. Final inspection and completion shall be on or before **October 2, 2018**, unless extended in writing by the Contracting Officer.

The Undersigned proposes to furnish Payment Bond in the amount of 100% (of the contract) and Performance Bond in the amount of 100% (of the contract), as surety conditioned for the full, complete and faithful performance of this contract.

The Undersigned acknowledges receipt of the following addenda to the drawings and/or specifications (give number and date of each).

Addendum Number	Date Issued	Addendum Number	Date Issued	Addendum Number	Date Issued

NON-COLLUSION AFFIDAVIT

The Undersigned declares, under penalty of perjury under the laws of the United States, that neither he nor the firm, association, or corporation of which he is a member, has, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

The Undersigned has read the foregoing proposal and hereby agrees to the conditions stated therein by affixing his signature below:

_____
Signature

_____
Name and Title of Person Signing

_____
Telephone Number

_____
Fax Number

BID SCHEDULE

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System
Project No. 17064

Bidders Please Note: Before preparing this bid schedule, read carefully, "Information to Bidders", and the following:

The Bidder shall insert a fixed price in figures opposite each pay item that appears in the bid schedule to furnish all labor, material, equipment, supervision and provide all work for each item listed. No price is to be entered or tendered for any item not appearing in the bid schedule.

Contract award shall be made on the basis of the total Base Bid plus additive alternates as selected by Alaska Energy Authority. If Bid Alternates are included in the Bid Documents, the Alaska Energy Authority reserves the right to award some, none, or all of the alternates. Alternates may be awarded in any order in the best interest of the Alaska Energy Authority.

Conditioned or qualified bids will be considered non-responsive.

Base Bid

Item	Description	Lump Sum Price
1	Construct Base Bid	$
	Total Base Bid	

Additive Alternates:

Item	Description	Lump Sum Price
1A	Furnish Materials for Additive Alternate 1 Area	$
1B	Install New System Components in Additive Alternate 1 Area	$
2A	Furnish Materials for Additive Alternate 2 Area	$
2B	Install New System Components in Additive Alternate 2 Area	$
3A	Furnish Materials for Additive Alternate 3 Area	$
3B	Install New System Components in Additive Alternate 3 Area	$
TOTAL BID: SUM OF BASE BID AND ADDITIVE ALTERNATES		$

Bidder is required to bid on all bid items, including all Additive Alternates.
See Specification Section 01100 Summary of Work for detailed descriptions of each bid item and additive alternate.

_____
Contractor's Name (Printed)

_____ _____
Alaska Contractor's Registration # Expires

_____ _____
Alaska Business License # Expires

ALASKA ENERGY AUTHORITY

BID BOND

For

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

DATE BOND EXECUTED: _____

PRINCIPAL (Legal name and business address):	TYPE OF ORGANIZATION:
	[ ] Individual [ ] Partnership [ ] Joint Venture [ ] Corporation
	STATE OF INCORPORATION:

SURETY(IES) (Name and business address):

A.	**B.**	**C.**
PENAL SUM OF BOND:		DATE OF BID:

We, the PRINCIPAL and SURETY above named, are held and firmly bound to the State (State of Alaska), in the penal sum of the amount stated above, for the payment of which sum will be made, we bind ourselves and our legal representatives and successors, jointly and severally, by this instrument.

THE CONDITION OF THE FOREGOING OBLIGATION is that the Principal has submitted the accompanying bid in writing, date as shown above, on the above-referenced Project in accordance with contract documents filed in the office of the Contracting Officer, and under the Invitation To Bid therefore, and is required to furnish a bond in the amount stated above.

If the Principal's bid is accepted and he is offered the proposed contract for award, and if the Principal fails to enter into the contract, then the obligation to the State created by this bond shall be in full force and effect.

If the Principal enters into the contract, then the foregoing obligation is null and void.

PRINCIPAL

Signature(s)	**1.**	**2.**	**3.**
Name(s) & Title(s) (Typed)	**1.**	**2.**	**3.**

Corporate Seal

See Instructions on Reverse

CORPORATE SURETY(IES)

Surety A	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety B	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety C	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

INSTRUCTIONS

1. This form shall be used whenever a bid bond is submitted.
2. Insert the full legal name and business address of the Principal in the space designated. If the Principal is a partnership or joint venture, the names of all principal parties must be included (e.g., "Smith Construction, Inc. and Jones Contracting, Inc. DBA Smith/Jones Builders, a joint venture"). If the Principal is a corporation, the name of the state in which incorporated shall be inserted in the space provided.
3. Insert the full legal name and business address of the Surety in the space designated. The Surety on the bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. Individual sureties will not be accepted.
4. The penal amount of the bond may be shown either as an amount (in words and figures) or as a percent of the contract bid price (a not-to-exceed amount may be included).
5. The scheduled bid opening date shall be entered in the space marked Date of Bid.
6. The bond shall be executed by authorized representatives of the Principal and Surety. Corporations executing the bond shall also affix their corporate seal.
7. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.
8. The states of incorporation and the limits of liability of each surety shall be indicated in the spaces provided.
9. The date that bond is executed must not be later than the bid opening date.

ALASKA ENERGY AUTHORITY

BID MODIFICATION

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

Modification Number: _____

Note: All revisions shall be made to the unadjusted bid amount(s).
Changes to the adjusted bid amounts will be computed by the Authority.

PAY ITEM NO.	PAY ITEM DESCRIPTION	REVISION TO UNIT BID PRICE +/-	REVISION TO BID AMOUNT +/-

TOTAL REVISION: $_____

_____
Name of Bidding Firm

_____
Responsible Party Signature **Date**

This form may be duplicated if additional pages are needed.

ALASKA ENERGY AUTHORITY

SUBCONTRACTOR LIST

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

The apparent low bidder shall complete this form and submit it so as to be received by the Contracting Officer prior to the close of business on the fifth working day after receipt of written notice from the Authority.

Failure to submit this form with all required information by the due date will result in the bidder being declared nonresponsive and may result in the forfeiture of the Bid Security.

Scope of work must be clearly defined. If an item of work is to be performed by more than one firm, indicate the portion or percent of work to be done by each.

Check as applicable:

[ ] All Work on the above-referenced project will be accomplished without subcontracts greater than ½ of 1% of the contract amount.

or

[ ] Subcontractor List is as follows:

LIST FIRST TIER SUBCONTRACTORS ONLY

FIRM NAME, ADDRESS, PHONE NO.	AK BUSINESS LICENSE NO., CONTRACTOR'S REGISTRATION NO.	SCOPE OF WORK TO BE PERFORMED

CONTINUE SUBCONTRACTOR INFORMATION ON REVERSE

For projects with federal-aid funding, I hereby certify Alaska Business Licenses and Contractor's Registrations will be valid for all subcontractors prior to award of the subcontract. For projects without federal-aid funding (State funding only), I hereby certify the listed Alaska Business Licenses and Contractor's Registrations were valid at the time bids were opened for this project.

Signature of Authorized Company Representative | **Title**

Company Name | **Company Address (Street or PO Box, City, State, Zip)**

Date | ( ) **Phone Number**

FIRM NAME, ADDRESS, PHONE NO.	AK BUSINESS LICENSE NO., CONTRACTOR'S REGISTRATION NO.	SCOPE OF WORK TO BE PERFORMED

ALASKA ENERGY AUTHORITY

CONSTRUCTION CONTRACT

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

This CONTRACT, between the ALASKA ENERGY AUTHORITY, herein called the Authority, acting by and through its Contracting Officer, and

_____

Company Name

_____

Company Address (Street or PO Box, City, State, Zip)

a/an [ ] Individual [ ] Partnership [ ] Joint Venture [ ] Sole Proprietorship [ ] Corporation incorporated under the laws of the State of _____, its successors and assigns, herein called the Contractor, is effective the date of the signature of the Contracting Officer on this document.

WITNESSETH: That the Contractor, for and in consideration of the payment or payments herein specified and agreed to by the Department, hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work and labor required in the construction of the above-referenced project at the prices bid by the Contractor for the respective estimated quantities aggregating approximately the sum of

_____ Dollars

(**$**_____), and such other items as are mentioned in the original Bid, which Bid and prices named, together with the Contract Documents are made a part of this Contract and accepted as such.

It is distinctly understood and agreed that no claim for additional work or materials, done or furnished by the Contractor and not specifically herein provided for, will be allowed by the Authority, nor shall the Contractor do any work or furnish any material not covered by this Contract, unless such work is ordered in writing by the Authority. In no event shall the Authority be liable for any materials furnished or used, or for any work or labor done, unless the materials, work, or labor are required by the Contract or on written order furnished by the Authority. Any such work or materials which may be done or furnished by the Contractor without written order first being given shall be at the Contractor's own risk, cost, and expense and the Contractor hereby covenants and agrees to make no claim for compensation for work or materials done or furnished without such written order.

The Contractor further covenants and agrees that all materials shall be furnished and delivered and all labor shall be done and performed, in every respect, to the satisfaction of the Authority, on or before: _____ or within _____ calendar days. It is expressly understood and agreed that in case of the failure on the part of the Contractor, for any reason, except with the written consent of the Authority, to complete the furnishing and delivery of materials and the doing and performance of the work before the aforesaid date, the Authority shall have the right to deduct from any money due or which may become due the Contractor, or if no money shall be due, the Authority shall have the right to recover _____ Dollars (**$**_____) per day for each calendar day elapsing between the time stipulated for the completion and the actual date of completion in accordance with the terms hereof; such deduction to be made, or sum to be recovered, not as a penalty but as liquidated damages.

The bonds given by the Contractor in the sum of $_____ Payment Bond, and $_____ Performance Bond, to secure the proper compliance with the terms and provisions of this Contract, are submitted herewith and made a part hereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contract and hereby agree to its terms and conditions.

CONTRACTOR

Company Name

Signature of Authorized Company Representative

Typed Name and Title

Date

(Corporate Seal)

ALASKA ENERGY AUTHORITY

Signature of Contracting Officer

Typed Name

Date

ALASKA ENERGY AUTHORITY

PERFORMANCE BOND

Bond No. _____

For

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

KNOW ALL WHO SHALL SEE THESE PRESENTS:

That _____

of _____ as Principal,

and _____

of _____ as Surety,

firmly bound and held unto the State of Alaska in the penal sum of

_____ Dollars

($_____) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the _____ of _____ A.D., 20_____, for construction of the above-named project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall well and truly perform and complete all obligations and work under said contract and if the Principal shall reimburse upon demand of the Alaska Energy Authority any sums paid him which exceed the final payment determined to be due upon completion of the project, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at _____, _____ this _____ day of _____ A.D., 20_____.

Principal: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

Surety: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

The offered bond has been checked for adequacy under the applicable statutes and regulations:

_____ _____

Alaska Energy Authority Authorized Representative **Date**

See Instructions on Reverse

INSTRUCTIONS

1. This form shall be used whenever a performance bond is required. There shall be no deviation from this form without approval from the Contracting Officer.

2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.

3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.

4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.

5. The bond shall be signed by authorized persons. Where such person is signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.

ALASKA ENERGY AUTHORITY

PAYMENT BOND

Bond No. _____

For

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

NOW ALL WHO SHALL SEE THESE PRESENTS:

That _____

of _____ as Principal,

and _____

of _____ as Surety,

firmly bound and held unto the State of Alaska in the penal sum of

_____ Dollars

($_____) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the _____ of _____ A.D., 20_____, for construction of the above-referenced project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall comply with all requirements of law and pay, as they become due, all just claims for labor performed and materials and supplies furnished upon or for the work under said contract, whether said labor be performed and said materials and supplies be furnished under the original contract, any subcontract, or any and all duly authorized modifications thereto, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at _____, _____ this _____ day of _____ A.D., 20_____.

Principal: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

Surety: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

The offered bond has been checked for adequacy under the applicable statutes and regulations:

_____ _____

Alaska Energy Authority Authorized Representative **Date**

See Instructions on Reverse

INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required. There shall be no deviation from this form without approval from the Contracting Officer.

2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.

3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.

4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.

5. The bond shall be signed by authorized persons. Where such persons are signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.

ALASKA ENERGY AUTHORITY

CONTRACTOR'S QUESTIONNAIRE

Kwigillingok Rural Power System Upgrade (RPSU)
Distribution System

A. FINANCIAL

1. Have you ever failed to complete a contract due to insufficient resources?
   [ ] No [ ] Yes If YES, explain:

_____

_____

_____

_____

_____

2. Describe any arrangements you have made to finance this work: _____

_____

_____

B. EQUIPMENT

1. Describe below the equipment you have available and intend to use for this project.

ITEM	QUAN.	MAKE	MODEL	SIZE/ CAPACITY	PRESENT MARKET VALUE

2. What percent of the total value of this contract do you intend to subcontract? _____ %

3. Do you propose to purchase any equipment for use on this project?
[ ] No [ ] Yes If YES, describe type, quantity, and approximate cost:

_____

_____

_____

4. Do you propose to rent any equipment for this work?
[ ] No [ ] Yes If YES, describe type and quantity:

_____

_____

_____

5. Is your bid based on firm offers for all materials necessary for this project?
[ ] Yes [ ] No If NO, please explain:

_____

_____

_____

C. EXPERIENCE

1. Have you had previous construction contracts or subcontracts with the Authority?
[ ] Yes [ ] No

Describe the most recent or current contract, its completion date, and scope of work:

_____

_____

_____

_____

2. List, as an attachment to this questionnaire, other construction projects you have completed, the dates of completion, scope of work, and total contract amount for each project completed in the past 12 months.

I hereby certify that the above statements are true and complete.

Name of Contractor	**Name and Title of Person Signing**
Signature	**Date**

ALASKA ENERGY AUTHORITY
SECTION 00700
GENERAL CONDITIONS

.

ARTICLE 1 - DEFINITIONS

Wherever used in the Contract Documents the following terms, or pronouns in place of them, are used, the intent and meaning, unless a different intent or meaning is clearly indicated, shall be interpreted as set forth below.

The titles and headings of the articles, sections, and subsections herein are intended for convenience of reference.

Terms not defined below shall have their ordinary accepted meanings within the context which they are used. Words which have a well-known technical or trade meaning when used to describe work, materials or equipment shall be interpreted in accordance with such meaning. Words defined in Article 1 are to be interpreted as defined.

Addenda - All clarifications, corrections, or changes issued graphically or in writing by the AUTHORITY after the Advertisement but prior to the opening of Proposals.

Advertisement - The public announcement, as required by law, inviting bids for Work to be performed or materials to be furnished.

Application for Payment - The form provided by the AUTHORITY which is to be used by the CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

Approved or Approval - Means written approval by the Contracting Officer or his authorized representative as defined in Article 2.1. **'**Approved' or 'Approval' as used in this contract document shall mean that the Authority has received a document, form or submittal from the Contractor and that the Authority has taken "No exceptions" to the item submitted. Unless the context clearly indicates otherwise, approved or approval shall not mean that the Authority approves of the methods or means, or that the item or form submitted meets the requirements of the contract or constitutes acceptance of the Contractor's work. Where approved or approval means acceptance, then such approval must be set forth in writing and signed by the contracting officer or his designee.

A.S - Initials which stand for Alaska Statute.

Authority - The Alaska Energy Authority (AEA). References to "Contracting Agency" means the AUTHORITY. The AUTHORITY is acting as an agent for Owner.

Award - The acceptance, by the AUTHORITY, of the successful bid.

Bid Bond - A type of Proposal Guaranty.

Bidder - Any individual, firm, corporation or any acceptable combination thereof, or joint venture submitting a bid for the advertised Work.

Calendar Day - Every day shown on the calendar, beginning and ending at midnight.

Change Order - A written order by the AUTHORITY directing changes to the Contract Documents, within their general scope.

Consultant - The person, firm, or corporation retained directly by the AUTHORITY to prepare Contract Documents, perform construction administration services, or other Project related services. References to Authority's Consultants shall include Engineer.

Contingent Sum Work Item - When the bid schedule contains a Contingent Sum Work Item, the Work covered shall be performed only upon the written Directive of the Project Manager. Payment shall be made as provided in the Directive.

Contract - The written agreement between the AUTHORITY and the CONTRACTOR setting forth the obligations of the parties and covering the Work to be performed, all as required by the Contract Documents.

Contract Documents - The Contract form, Addenda, the bidding requirements and CONTRACTOR's bid (including all appropriate bid tender forms), the bonds, the Conditions of the Contract and all other Contract requirements, the Specifications, and the Drawings furnished by the AUTHORITY to the CONTRACTOR, together with all Change Orders and documents approved by the Contracting Officer, for inclusion, modifications and supplements issued on or after the Effective Date of the Contract.

Contracting Officer - The person authorized by the Executive Director to enter into and administer the Contract on behalf of the AUTHORITY; who has authority to make findings, determinations and decisions with respect to the Contract and, when necessary, to modify or terminate the Contract. The Contracting Officer is identified on the construction Contract.

Contractor - The individual, firm, corporation or any acceptable combination thereof, contracts with the AUTHORITY for performance of the Work.

Contract Price - The total moneys payable by the AUTHORITY to the CONTRACTOR under the terms of the Contract Documents.

CONTRACTOR's Release – CONTRACTOR's written notification to the AUTHORITY specifying final payment due and releasing the AUTHORITY of any and all claims.

Contract Time - The number of Calendar Days following issuance of Notice-to-Proceed in which the project shall be rendered Substantially Complete, or if specified as a calendar date, the Substantial Completion date specified in the Contract Documents.

Controlling Item - Any feature of the Work on the critical path of a network schedule.

Defective - Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents.

Directive - A written communication to the CONTRACTOR from the Contracting Officer interpreting or enforcing a Contract requirement or ordering commencement of an item of Work.

Drawings - The Drawings which show the character and scope of the Work to be performed and which have been furnished by the AUTHORITY and are by reference made a part of the Contract Documents.

Engineer - The person, firm, or corporation retained directly by the AUTHORITY to prepare Contract Documents, perform construction administration services, or other Project related services.

Equipment - All machinery together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of the work.

Final Completion - The Project has progressed to the point that all required Work is complete..

Furnish - To procure, transport, and deliver to the project site materials, labor, or equipment, for installation or use on the project.

General Requirements - Sections of Division l of the Specifications which contain administrative and procedural requirements as well as requirements for temporary facilities which apply to Specification Divisions 2 through l6.

Holidays - In the State of Alaska, Legal Holidays occur on:

l. New Years Day - January l
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
l0. Thanksgiving Day - Fourth Thursday in November
11. Christmas Day - December 25
l2. Every Sunday
l3. Every day designated by public proclamation by the President of the United States or the Governor of the State as a legal Holiday.

If any Holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal Holidays. If the Holiday should fall on a Sunday, except (l2) above, Sunday and the following Monday are both legal Holidays. See Title 44, Alaska Statutes.

Install - Means to build into the Work, ready to be used in complete and operable condition and in compliance with Contract Documents.

Interim Work Authorization - A written order by the Project Manager initiating changes to the Contract within its general scope, until a subsequent Change Order is executed.

Invitation for Bids - A portion of the bidding documents soliciting bids for the Work to be performed.

Materials - Any substances specified for use in the construction of the project.

Notice of Intent to Award - The written notice by the AUTHORITY to all Bidders identifying the apparent successful Bidder and establishing the AUTHORITY's intent to execute the Contract when all conditions required for execution of the Contract are met.

Notice to Proceed - A written notice to the CONTRACTOR to begin the Work and establishing the date on which the Contract Time begins.

Onsite Project Representative - The Engineer's authorized representative assigned to make detailed observations relating to contract performance.

Owner – Means Grantee for whom the ALASKA ENERGY AUTHORITY is acting as an agent of.

Payment Bond - The security furnished by the CONTRACTOR and his Surety to guarantee payment of the debts covered by the bond.

Performance Bond - The security furnished by the CONTRACTOR and his Surety to guarantee performance and completion of the Work in accordance with the Contract.

Pre-construction Conference - A meeting between the CONTRACTOR, Project Manager and the Engineer, and other parties affected by the construction, to discuss the project before the CONTRACTOR begins work.

Project Manager - The authorized representative of the Contracting Officer who is responsible for administration of the Contract.

Procurement Manager/Officer - The person authorized by the Contracting Officer to administer the Contract on behalf of the AUTHORITY; who has authority to make findings, determinations and decisions with respect to the Contract and, when necessary present such to the Contracting Officer, to modify or terminate the Contract.

Project - The total construction, of which the Work performed under the Contract Documents, is the whole or a part, where such total construction may be performed by more than one CONTRACTOR.

Proposal - The offer of a Bidder, on the prescribed forms, to perform the Work at the prices quoted.

Proposal Guaranty - The security furnished with a Proposal to guarantee that the bidder will enter into a Contract if his Proposal is accepted by the AUTHORITY.

Quality Assurance (QA) - Where referred to in the technical specifications (Divisions 2 through 16), Quality Assurance refers to measures to be provided by the CONTRACTOR as specified.

Quality Control (QC) - Tests and inspections by the CONTRACTOR to insure the acceptability of materials incorporated into the work. QC test reports are used as a basis upon which to determine whether the Work conforms to the requirements of the Contract Documents and to determine its acceptability for payment.

Regulatory Requirements - Laws, rules, regulations, ordinances, codes and/or orders.

Schedule of Values - Document submitted by the CONTRACTOR and reviewed by the Contracting Officer, which shall serve as the basis for computing payment and for establishing the value of separate items of Work which comprise the Contract Price.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the CONTRACTOR to illustrate

material, equipment, fabrication, or erection for some portion of the Work. Where used in the Contract Documents, “Shop Drawings” shall also mean “Submittals”.

Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative and procedural details applicable thereto.

Subcontractor - An individual, firm, or corporation to whom the CONTRACTOR or any other Subcontractor sublets part of the Contract.

Substantial Completion - Although not fully completed, the Work (or a specified part thereof) has progressed to the point where it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended. The terms "Substantially Complete" and "Substantially Completed" as applied to any Work refer to Substantial Completion thereof.

Supplemental Agreement - A written agreement between the CONTRACTOR and the AUTHORITY covering work that is not within the general scope of the Contract.

Supplementary Conditions - The part of the Contract Documents which amends or supplements these General Conditions.

Supplier - A manufacturer, fabricator, distributor, material man, or vendor of materials or equipment.

Surety - The corporation, partnership, or individual, other than the CONTRACTOR, executing a bond furnished by the CONTRACTOR.

Unit Price Work - Work to be paid for on the basis of unit prices.

Utility - The privately, publicly or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway or street drainage, and other similar commodities, including publicly owned fire and police signal systems, street lighting systems, and railroads which directly or indirectly serve the public or any part thereof. The term "utility" shall also mean the utility company, inclusive of any wholly owned or controlled subsidiary.”

Work - Work is the act of, and the result of, performing services, furnishing labor, furnishing and incorporating materials and equipment into the Project and performing other duties and obligations, all as required by the Contract Documents. Such Work, however incremental, will culminate in the entire completed Project, or the various separately identifiable parts thereof.

ARTICLE 2 – AUTHORIZATION AND LIMITATIONS

2.1 Authorities and Limitations

2.1.1 The Contracting Officer alone shall have the power to bind the AUTHORITY and to exercise the rights, responsibilities, authorities and functions vested in the Contracting Officer by the Contract Documents. The Contracting Officer shall have the right to designate in writing authorized representatives to act for him. Wherever any provision of the Contract Documents specifies an individual or organization, whether governmental or private, to perform any act on behalf of or in the interest of the AUTHORITY that individual or organization shall be deemed to be the Contracting Officer's authorized representative under this Contract but only to the extent so specified.

2.1.2 The CONTRACTOR shall perform the Work in accordance with any written order (including but not limited to instruction, direction, interpretation or determination) issued by an authorized representative in accordance with the authorized representative's authority to act for the Contracting Officer. The CONTRACTOR assumes all the risk and consequences of performing the Work in accordance with any order (including but not limited to instruction, direction, interpretation or determination) of anyone not authorized to issue such order, and of any order not in writing.

2.1.3 The performance or nonperformance of the Contracting Officer or his authorized representative, shall not give rise to any contractual obligation or duty to the CONTRACTOR, any Subcontractor, any Supplier, or any other organization performing any of the Work or any Surety representing them.

2.2 Evaluations by Contracting Officer:

2.2.1 The Contracting Officer or his authorized representative will decide all questions which may arise as to:

a. Quality and acceptability of materials furnished;

b. Quality and acceptability of Work performed;

c. Compliance with the schedule of progress;

d. Interpretation of Contract Documents;

e. Acceptable fulfillment of the Contract on the part of the CONTRACTOR.

2.2.2 In order to avoid cumbersome terms and confusing repetition of expressions in the Contract Documents the terms "as ordered", "as directed", "as required", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used it shall be understood as if the expression were followed by the words "the Contracting Officer".

When such terms are used to describe a requirement, direction, review or judgment of the Contracting Officer as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise).

2.2.3 The use of any such term or adjective shall not be effective to assign to the AUTHORITY any duty of authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraphs 2.3 or 2.4.

2.3 Means & Methods:

The means, methods, techniques, sequences or procedures of construction, or safety precautions and the program incident thereto, and the failure to perform or furnish the Work in accordance with the Contract Documents are the sole responsibility of the CONTRACTOR.

2.4 Visits to Site/Place of Business:

The Contracting Officer will make visits to the site and approved remote storage sites at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. The Contracting Officer may, at reasonable times, inspect that part of the plant or place of business of the CONTRACTOR or Subcontractor that is related to the performance of the Contract. Such observations or the lack of such observations shall in no way relieve the CONTRACTOR from his duty to perform the Work in accordance with the Contract Documents.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Incomplete Contract Documents:

The submission of a bid by the Bidder is considered a representation that the Bidder examined the Contract Documents to make certain that all sheets and pages were provided and that the Bidder is satisfied as to the conditions to be encountered in performing the Work. The AUTHORITY expressly denies any responsibility or liability for a bid submitted on the basis of an incomplete set of Contract Documents.

3.2 Copies of Contract Documents:

The AUTHORITY shall furnish to the CONTRACTOR up to six copies of the Contract Documents. Additional copies will be furnished, upon request, at the cost of reproduction.

3.3 Scope of Work:

The Contract Documents comprise the entire Contract between the AUTHORITY and the CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the Regulatory Requirements of the place of the Project.

It is specifically agreed between the parties executing this Contract that it is not intended by any of the provisions of the Contract to create in the public or any member thereof a third party benefit, or to authorize anyone not a party to this Contract to maintain a suit pursuant to the terms or provisions of the Contract.

3.4 Intent of Contract Documents:

3.4.1 It is the intent of the Contract Documents to describe a functionally complete Project to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied, without any adjustment in Contract Price or Contract Time, whether or not specifically called for.

3.4.2 Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Regulatory Requirements of any governmental authority, whether such reference be specific or by implication, shall mean the edition stated in the Contract Documents or if not stated the latest standard specification, manual, code or Regulatory Requirements in effect at the time of Advertisement for the Project (or, on the Effective Date of the Contract if there was no Advertisement). However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the AUTHORITY and the CONTRACTOR, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the AUTHORITY or any of the AUTHORITY's Consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraphs 2.3.

3.5 Discrepancy in Contract Documents:

3.5.1 Before undertaking the Work, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures, and dimensions shown thereon and all applicable field measurements. Work in the area by the CONTRACTOR shall imply verification of figures, dimensions and field measurements. If, during the above study or during the performance of the Work, the CONTRACTOR finds a conflict, error, discrepancy or omission in the Contract Documents, or a discrepancy between the Contract Documents and any standard specification, manual, code, or Regulatory Requirement which affects the Work, the CONTRACTOR shall promptly report such discrepancy in writing to the Contracting Officer. The CONTRACTOR shall obtain a written interpretation or clarification from the Contracting Officer before proceeding with any Work affected thereby. Any adjustment made by the CONTRACTOR without this determination shall be at his own risk and expense. However, the CONTRACTOR shall not be liable to the AUTHORITY for failure to report any conflict, error or discrepancy in the Contract Documents unless the CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

3.5.2 Discrepancy - Order of Precedence:

When conflicts errors or discrepancies within the Contract Documents exist, the order of precedence from most governing to least governing will be as follows:

Contents of Addenda
Supplementary Conditions
General Conditions
General Requirements
Technical Specifications
Drawings
Recorded dimensions will govern over scaled dimensions
Large scale details over small scale details

Schedules over plans
Architectural drawings over structural drawings Structural drawings over mechanical and electrical drawings

3.6 Clarifications and Interpretations:

The Contracting Officer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as the Contracting Officer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

3.7 Reuse of Documents:

Neither the CONTRACTOR nor any Subcontractor, or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the AUTHORITY shall have or acquire any title to or ownership rights in any of the Contract Documents (or copies thereof) prepared by or for the AUTHORITY and they shall not reuse any of the Contract Documents on extensions of the Project or any other project without written consent of the Contracting Officer.

Contract Documents prepared by the CONTRACTOR in connection with the Work shall become the property of the AUTHORITY.

ARTICLE 4 - LANDS AND PHYSICAL CONDITIONS

4.I Availability of Lands:

The AUTHORITY 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 use of the CONTRACTOR in connection with the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the AUTHORITY, unless otherwise provided in the Contract Documents. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. The CONTRACTOR shall provide all waste and disposal areas, including disposal areas for hazardous or contaminated materials, at no additional cost to the AUTHORITY.

4.2 Visit to Site:

The submission of a bid by the CONTRACTOR is considered a representation that the CONTRACTOR has visited and carefully examined the site and is satisfied as to the conditions to be encountered in performing the Work and as to the requirements of the Contract Documents.

4.3 Explorations and Reports:

Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by the AUTHORITY in preparation of the Contract Documents. The CONTRACTOR may for his

purposes rely upon the accuracy of the factual data contained in such reports, but not upon interpretations or opinions drawn from such factual data contained therein or for the completeness or sufficiency thereof. Except as indicated in the immediately preceding sentence and in paragraphs 4.4 and 9.9, CONTRACTOR shall have full responsibility with respect to surface and subsurface conditions at the site.

4.4 Utilities:

4.4.1 The horizontal and vertical locations of known underground utilities as shown or indicated by the Contract Documents are approximate and are based on information and data furnished to the AUTHORITY by the owners of such underground utilities.

4.4.2 The CONTRACTOR shall have full responsibility for:

a. Reviewing and checking all information and data concerning utilities.

b. Locating all underground utilities shown or indicated in the Contract Documents which are affected by the Work.

c. Coordination of the Work with the owners of all utilities during construction.

d. Safety and protection of all utilities as provided in paragraph 6.17.

e. Repair of any damage to utilities resulting from the Work in accordance with 4.4.4 and 4.5.

4.4.3 If Work is to be performed by any utility owner, the CONTRACTOR shall cooperate with such owners to facilitate the Work.

4.4.4 In the event of interruption to any utility service as a result of accidental breakage or as result of being exposed or unsupported, the CONTRACTOR shall promptly notify the utility owner and the Project Manager. If service is interrupted, repair work shall be continuous until the service is restored. No Work shall be undertaken around fire hydrants until provisions for continued service has been approved by the local fire authority.

4.5 Damaged Utilities:

When utilities are damaged by the CONTRACTOR, the utility owner shall have the choice of repairing the utility or having the CONTRACTOR repair the utility. In the following circumstances, the CONTRACTOR shall reimburse the utility owner for repair costs or provide at no cost to the utility owner or the AUTHORITY, all materials, equipment and labor necessary to complete repair of the damage:

a. When the utility is shown or indicated in the Contract Documents.

b. When the utility has been located by the utility owner.

c. When no locate was requested by the CONTRACTOR for utilities shown or indicated in the Contract Documents.

d. All visible utilities.

e. When the CONTRACTOR could have, otherwise, reasonably been expected to be aware of such utility.

4.6 Utilities Not Shown or Indicated:

If, while directly performing the Work, an underground utility is uncovered or revealed at the site which was not shown or indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.19) identify the owner of such underground utility and give written notice thereof to that owner and to the Project Manager. The Project Manager will promptly review the underground utility to determine the extent to which the Contract Documents and the Work should be modified to reflect the impacts of the discovered utility. The Contract Documents will be amended or supplemented in accordance with paragraph 9.2 and to the extent necessary through the issuance of a change document by the Contracting Officer. During such time, the CONTRACTOR shall be responsible for the safety and protection of such underground utility as provided in paragraph 6.l7. The CONTRACTOR may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are directly attributable to the existence of any underground utility that was not shown or indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of.

4.7 Survey Control:

The AUTHORITY will identify sufficient horizontal and vertical control data to enable the CONTRACTOR to survey and layout the Work. All survey work shall be performed under the direct supervision of a registered land surveyor when required by paragraph 7.8. Copies of all survey notes shall be provided to the AUTHORITY at an interval determined by the Project Manager. The Project Manager may request submission on a weekly or longer period at his discretion. Any variations between the Contract Documents and actual field conditions shall be identified in the survey notes. Survey notes are to be in a format acceptable to the AUTHORITY.

ARTICLE 5 - BONDS, INSURANCE, AND INDEMNIFICATION

5.1 Delivery of Bonds:

When the CONTRACTOR delivers the executed Contract to the Contracting Officer, the CONTRACTOR shall also deliver to the Contracting Officer such bonds as the CONTRACTOR may be required to furnish in accordance with paragraph 5.2.

5.2 Bonds:

5.2.1 The CONTRACTOR shall furnish Performance and Payment Bonds, each in an amount as shown on the Contract as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These bonds shall remain in effect for one year after the date of Final Acceptance and until all obligations under this Contract, except special guarantees as per 12.7, have been met. All bonds shall be furnished on forms provided by the AUTHORITY (or copies thereof) and shall be executed by such Sureties as are authorized to do business in the State of Alaska. The Contracting Officer may at his option copy the Surety with notice of any potential default or liability.

5.3 Replacement of Bond and Surety:

If the Surety on any bond furnished in connection with this Contract is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.2, or otherwise becomes unacceptable to the AUTHORITY, or if any such Surety fails to furnish reports as to his financial condition as requested by the AUTHORITY, the CONTRACTOR shall within five days thereafter substitute another bond and Surety, both of which must be acceptable to AUTHORITY.

An individual Surety may be replaced by a corporate Surety during the course of the Contract period. If the Surety desires to dispose of the collateral posted, the AUTHORITY may, at its option, accept substitute collateral.

5.4 Insurance Requirements:

5.4.1 The CONTRACTOR shall provide evidence of insurance with a carrier or carriers satisfactory to the AUTHORITY covering injury to persons and/or property suffered by the Alaska Energy Authority or a third party, as a result of operations which arise both out of and during the course of this Contract by the CONTRACTOR or by any Subcontractor. This coverage will also provide protection against injuries to all employees of the CONTRACTOR and the employees of any Subcontractor engaged in Work under this Contract.

5.4.2 The CONTRACTOR shall maintain in force at all times during the performance of Work under this agreement the following policies and minimum limits of liability. Where specific limits and coverages are shown, it is understood that they shall be the minimum acceptable. The requirements of this paragraph shall not limit the CONTRACTOR's responsibility to indemnify under paragraph 5.5. Additional insurance requirements specific to this Contract are contained in the Supplementary Conditions, when applicable.

a. Workers' Compensation Insurance: The Contractor shall provide and maintain, for all employees of the Contractor engaged in work under this contract, Workers' Compensation Insurance as required by AS 23.30.045. The Contractor shall be responsible for Workers' Compensation Insurance for any subcontractor who provides services under this contract, to include:

1. Waiver of subrogation against the Authority and Employer's Liability Protection in the amount of $500,000 each accident/$500,000 each disease.

2. If the Contractor directly utilizes labor outside of the State of Alaska in the prosecution of the work, "Other States" endorsement shall be required as a condition of the contract.

3. Whenever the work involves activity on or about navigable waters, the Workers' Compensation policy shall contain a United States Longshoreman's and Harbor Worker's Act endorsement, and when appropriate, a Maritime Employer's Liability (Jones Act) endorsement with a minimum limit of $1,000,000.

b. Commercial General Liability Insurance: on an occurrence policy form covering all operations by or on behalf of the CONTRACTOR with combined single limits not less than:

1. If the CONTRACTOR carries a *Comprehensive General Liability* policy, the limits of liability shall not be less than a Combined Single Limit for bodily injury, property damage and Personal Injury Liability of:

   $1,000,000 each occurrence
   $2,000,000 aggregate

2. If the CONTRATOR carries a *Commercial General Liability* policy, the limits of liability shall not be less than:

   $1,000,000 each occurrence (Combined Single Limit for bodily injury and property damage)
   $1,000,000 for Personal Injury Liability

   $2,000,000 aggregate for Products-Completed Operations
   $2,000,000 general aggregate

The Authority and the Owner shall be named as “Additional Insured” under all liability coverages listed above.

c. Automobile Liability Insurance: covering all vehicles used by the Contractor in the performance of services under this agreement with combined single limits not less than:

   $1,000,000 each occurrence

d. Builder’s Risk Insurance: Coverage shall be on an “All Risk” completed value basis including “quake and flood” and protect the interests of the AUTHORITY, the CONTRACTOR and Subcontractors at all tiers. Coverage shall include all materials, supplies and equipment that are intended for specific installation in the Project while such materials, supplies and equipment are located at the Project site, in transit from port of arrival to job site, or while temporarily located away from the Project site.

   In addition to providing the above coverages the CONTRACTOR shall require that all indemnities obtained from any SUBCONTRACTORS be extended to include the Authority and Owner as an additional named indemnitees. CONTRACTOR shall further require that the Authority and the Owner be named as additional insured on all liability insurance policies maintained by all SUBCONTRACTORS under their contracts with CONTRACTOR, and that an appropriate waiver of subrogation in favor of the Authority be obtained with respect to all other insurance policies.

e. Other Coverages: As specified in the Supplementary Conditions, if required.

5.4.3 a. In addition to providing the above coverages the Contractor shall, in any contract or agreement with subcontractors performing work, require that all indemnities and waivers of subrogation it obtains, and that any stipulation to be named as an additional insured it obtains, also be extended to waive rights of subrogation against the AUTHORITY and the Owner and to add the ALASKA ENERGY AUTHORITY and the Owner as additional named indemnitees and as additional insured.

b. Evidence of insurance shall be furnished to the AUTHORITY prior to the award of the contract. Such evidence, executed by the carrier's representative and

issued to the AUTHORITY, shall consist of a certificate of insurance or the policy declaration page with required endorsements attached thereto which denote the type, amount, class of operations covered, effective (and retroactive) dates, and dates of expiration. Acceptance by the AUTHORITY of deficient evidence does not constitute a waiver of contract requirements.

c. When a certificate of insurance is furnished, it shall contain the following statement:
"This is to certify that the policies described herein comply with all aspects of the insurance requirements of (Project Name and Number)."

5.5 Indemnification:

The CONTRACTOR shall indemnify, save harmless, and defend the AUTHORITY, the OWNER its agents and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from the CONTRACTOR or SUBCONTRACTOR's performance of WORK under this Contract; however, this provision has no effect if, but only if, the sole proximate cause of the injury or damage is the AUTHORITY's negligence.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.l Supervision of Work:

The CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. All Work under this Contract shall be performed in a skillful and workmanlike manner. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

6.2 Superintendence by CONTRACTOR:

The CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent. The Project Manager shall be advised in writing of the superintendent's name, local address, and telephone number. This written advice is to be kept current until Final Acceptance by the AUTHORITY. The superintendent will be the CONTRACTOR's representative at the site and shall have full authority to act and sign documents on behalf of the CONTRACTOR.

All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall cooperate with the Project Manager in every way possible.

6.3 Character of Workers:

The CONTRACTOR shall provide a sufficient number of competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site. The Project Manager may, in writing, require the CONTRACTOR to remove from the Work any employee the Project Manager deems incompetent, careless, or otherwise detrimental to the progress of the Work, but the Project Manager shall have no duty to exercise this right.

6.4 CONTRACTOR to Furnish:

Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance testing, start-up and completion of the Work.

6.5 Materials and Equipment:

All materials and equipment shall be of specified quality and new, except as otherwise provided in the Contract Documents. If required by the Project Manager, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to the AUTHORITY or any of the AUTHORITY's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 2.3.

6.6 Anticipated Schedules:

6.6.1 Prior to submitting the CONTRACTOR's first Application for Payment the CONTRACTOR shall submit to the Project Manager for review an anticipated progress schedule indicating the starting and completion dates of the various stages of the Work.

6.6.2 Prior to submitting the CONTRACTOR's first Application for Payment, the CONTRACTOR shall submit to the Project Manager for review:

Anticipated schedule of Shop Drawing submissions; and

Anticipated Schedule of Values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by the CONTRACTOR at the time of submission.

6.7 Finalizing Schedules:

Prior to processing the first Application for Payment the Project Manager and the CONTRACTOR will finalize schedules required by paragraph 6.6. The finalized progress schedule will be acceptable to the AUTHORITY as providing information related to the orderly progression of the Work to completion within the Contract Time; but such acceptance will neither impose on the AUTHORITY nor relieve the CONTRACTOR from full responsibility for the progress or scheduling of the Work. If accepted, the finalized schedule of Shop Drawing and other required submissions will be acknowledgment by the AUTHORITY as providing a workable arrangement for processing the submissions. If accepted, the finalized Schedule of Values will be acknowledgment by the AUTHORITY as an approximation of anticipated value of Work accomplished over the anticipated Contract Time. Receipt and acceptance of a schedule submitted by the CONTRACTOR shall not be

construed to assign responsibility for performance or contingencies to the AUTHORITY or relieve the CONTRACTOR of his responsibility to adjust his forces, equipment, and work schedules as may be necessary to insure completion of the Work within prescribed Contract Time. Should the prosecution of the Work be discontinued for any reason, the CONTRACTOR shall notify the Project Manager at least 24 hours in advance of resuming operations.

6.8 Adjusting Schedules:

Upon substantial changes to the schedule or upon request the CONTRACTOR shall submit to the Project Manager for acceptance (to the extent indicated in paragraph 6.7 and the General Requirements) adjustments in the schedules to reflect the actual present and anticipated progress of the Work.

6.9 Substitutes or "Or-Equal" Items:

6.9.1 Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that substitution is limited or not permitted, materials or equipment of other Suppliers may be accepted by the Project Manager only if sufficient information is submitted by the CONTRACTOR which clearly demonstrates to the Project Manager that the material or equipment proposed is equivalent or equal in all aspects to that named. The procedure for review by the Project Manager will include the following as supplemented in the General Requirements.

6.9.2 Requests for review of substitute items of material and equipment will not be accepted by the Project Manager from anyone other than the CONTRACTOR.

6.9.3 If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the Project Manager for Approval thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as the specified. The application will state that the evaluation and Approval of the proposed substitute will not delay the CONTRACTOR's timely achievement of Substantial or Final Completion, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the AUTHORITY for Work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.

6.9.4 All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the AUTHORITY in evaluating the proposed substitute. The AUTHORITY may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute. The Project Manager may reject any substitution request which the Project Manager determines is not in the best interest of the OWNER.

6.9.5 Substitutions shall be permitted during or after the bid period as allowed and in accordance with Document 00020 - Invitation for Bids, Document 00700 – General Conditions, and Document 01630 - Product Options and Substitutions.

6.10 Substitute Means and Methods:

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the Project Manager, if the CONTRACTOR submits sufficient information to allow the Project Manager to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by the Project Manager will be similar to that provided in paragraph 6.9 as applied by the Project Manager and as may be supplemented in the General Requirements.

6.11 Evaluation of Substitution:

The Project Manager will be allowed a reasonable time within which to evaluate each proposed substitute. The Project Manager will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the Contracting Officer's prior written Approval which will be evidenced by either a Change Order or a Shop Drawing Approved in accordance with Sections 6.20 and 6.21. The Contracting Officer may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other Surety with respect to any substitute.

6.12 Dividing the Work:

The divisions and sections of the Specifications and the identifications of any Drawings shall not control the CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.13 Subcontractors:

The CONTRACTOR may utilize the services of appropriately licensed Subcontractors on those parts of the Work which, under normal contracting practices, are performed by Subcontractors, in accordance with the following conditions:

6.13.1 The CONTRACTOR shall not award any Work to any Subcontractor without prior written Approval of the Contracting Officer. This Approval will not be given until the CONTRACTOR submits to the Contracting Officer a written statement concerning the proposed award to the Subcontractor which shall contain required Equal Employment Opportunity documents, evidence of insurance whose limits are acceptable to the CONTRACTOR, and an executed copy of the subcontract. All subcontracts shall contain provisions for prompt payment, release of retainage, and interest on late payment amounts and retainage as specified in AS 36.90.210. Contracts between subcontractors, regardless of tier, must also contain these provisions.

6.13.2 The CONTRACTOR shall be fully responsible to the AUTHORITY for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with

CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions.

6.13.3 All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate written agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the AUTHORITY and contains waiver provisions as required by paragraph 13.17 and termination provisions as required by Article 14.

6.13.4 Nothing in the Contract Documents shall create any contractual relationship between the AUTHORITY and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of the AUTHORITY to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Regulatory Requirements. The AUTHORITY will not undertake to settle any differences between or among the CONTRACTOR, Subcontractors, or Suppliers.

6.13.5 The CONTRACTOR and Subcontractors shall coordinate their work and cooperate with other trades so to facilitate general progress of Work. Each trade shall afford other trades every reasonable opportunity for installation of their work and storage of materials. If cooperative work of one trade must be altered due to lack of proper supervision or failure to make proper provisions in time by another trade, such conditions shall be remedied by the CONTRACTOR with no change in Contract Price or Contract Time.

6.13.6 The CONTRACTOR shall include on his own payrolls any person or persons working on this Contract who are not covered by written subcontract, and shall ensure that all Subcontractors include on their payrolls all persons performing Work under the direction of the Subcontractor.

6.14 Use of Premises:

The CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project limits and approved remote storage sites and lands and areas identified in and permitted by Regulatory Requirements, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against the AUTHORITY by any such owner or occupant because of the performance of the Work, the CONTRACTOR shall hold the AUTHORITY harmless.

6.15 Structural Loading:

The CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.16 Record Documents:

The CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Directives, Change Orders, Supplemental Agreements,

and written interpretations and clarifications (issued pursuant to paragraph 3.6) in good order and annotated to show all changes made during construction. These record documents together with all Approved samples and a counterpart of all Approved Shop Drawings will be available to the Project Manager for reference and copying. Upon completion of the Work, the annotated record documents, samples and Shop Drawings will be delivered to the Project Manager. Record documents shall accurately record variations in the Work which vary from requirements shown or indicated in the Contract Documents.

6.17 Safety and Protection:

The CONTRACTOR alone shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.17.l All employees on the Work and other persons and organizations who may be affected thereby;

6.17.2 All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.17.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

The CONTRACTOR shall comply with all applicable Regulatory Requirements of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the CONTRACTOR with no change in Contract Price or Contract Time except as stated in 4.6, except damage or loss attributable to unforeseeable causes beyond the control of and without the fault or negligence of the CONTRACTOR, including but not restricted to acts of God, of the public enemy or governmental authorities. The CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until Final Acceptance (except as otherwise expressly provided in connection with Substantial Completion).

6.18 Safety Representative:

The CONTRACTOR shall designate a responsible safety representative at the site. This person shall be the CONTRACTOR's superintendent unless otherwise designated in writing by the CONTRACTOR to the Project Manager.

6.19 Emergencies:

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization

from the AUTHORITY, is obligated to act to prevent threatened damage, injury or loss. The CONTRACTOR shall give the Project Manager prompt written notice if the CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the AUTHORITY determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a change will be authorized by one of the methods indicated in Paragraph 9.2, as determined appropriate by the Project Manager.

6.20 Shop Drawings and Samples:

6.20.l After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the Project Manager for review and Approval in accordance with the accepted schedule of Shop Drawing submissions the required number of all Shop Drawings, which will bear a stamp or specific written indication that the CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as the Project Manager may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable the Project Manager to review the information as required.

6.20.2 The CONTRACTOR shall also submit to the Project Manager for review and Approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that the CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.20.3 Before submission of each Shop Drawing or sample the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.20.4 At the time of each submission the CONTRACTOR shall give the Project Manager specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to the Project Manager for review and Approval of each such variation. All variations of the proposed Shop Drawing from that specified will be identified in the submission and available maintenance, repair and replacement service will be indicated. The submittal will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such variation, including costs of redesign and claims of other Contractors affected by the resulting change, all of which shall be considered by the AUTHORITY in evaluating the proposed variation. If the variation may result in a change of Contract Time or Price, or Contract responsibility, and is not minor in nature; the CONTRACTOR must submit a written request for Change Order with the variation to notify the AUTHORITY of his intent. The AUTHORITY may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed variation. The Project Manager may reject any variation request which the Project Manager determines is not in the best interest of the AUTHORITY.

6.21 Shop Drawing and Sample Review:

6.21.1 The Project Manager will review with reasonable promptness Shop Drawings and samples, but the Project Manager's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review of a separate item as such will not indicate acceptance of the assembly in which the item functions. The CONTRACTOR shall make corrections required by the Project Manager and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review. The CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by the Project Manager on previous submittals.

6.21.2 The Project Manager's review of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless the CONTRACTOR has in writing advised the Project Manager of each such variation at the time of submission as required by paragraph 6.20.4. The Contracting Officer if he so determines, may give written Approval of each such variation by Change Order, except that, if the variation is minor and no Change Order has been requested a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample review comments shall suffice as a modification. Approval by the Contracting Officer will not relieve the CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.20.3.

6.21.3 The AUTHORITY shall be responsible for all AUTHORITY review costs resulting from the initial submission and the resubmittal. The CONTRACTOR shall, at the discretion of the AUTHORITY, pay all review costs incurred by the AUTHORITY as a result of any additional re-submittals.

6.21.4 Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to the Project Manager's review and Approval of the pertinent submission will be the sole expense and responsibility of the CONTRACTOR.

6.22 Maintenance During Construction:

The CONTRACTOR shall maintain the Work during construction and until Substantial Completion, at which time the responsibility for maintenance shall be established in accordance with paragraph 13.10.

6.23 Continuing the Work:

The CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the AUTHORITY. No Work shall be delayed or postponed pending resolution of any disputes, disagreements, or claims except as the CONTRACTOR and the Contracting Officer may otherwise agree in writing.

6.24 Consent to Assignment:

The CONTRACTOR shall obtain the prior written consent of the Contracting Officer to any proposed assignment of any interest in, or part of this Contract. The consent to any assignment or transfer shall not operate to relieve the CONTRACTOR or his Sureties of any of his or its obligations under this Contract or the Performance Bonds. Nothing herein contained shall be construed to hinder, prevent, or affect an assignment of monies due, or to become due hereunder, made for the benefit of the CONTRACTOR's creditors pursuant to law.

6.25 Use of Explosives:

6.25.1 When the use of explosives is necessary for the prosecution of the Work, the CONTRACTOR shall exercise the utmost care not to endanger life or property, including new Work and shall follow all Regulatory Requirements applicable to the use of explosives. The CONTRACTOR shall be responsible for all damage resulting from the use of explosives.

6.25.2 All explosives shall be stored in a secure manner in compliance with all Regulatory Requirements, and all such storage places shall be clearly marked. Where no Regulatory Requirements apply, safe storage shall be provided not closer than 1,000 feet from any building, camping area, or place of human occupancy.

6.25.3 The CONTRACTOR shall notify each public utility owner having structures in proximity to the site of his intention to use explosives. Such notice shall be given sufficiently in advance to enable utility owners to take such steps as they may deem necessary to protect their property from injury. However, the CONTRACTOR shall be responsible for all damage resulting from the use of the explosives, whether or not, utility owners act to protect their property.

6.26 CONTRACTOR's Records:

6.26.l Records of the CONTRACTOR and Subcontractors relating to personnel, payrolls, invoices of materials, and any and all other data relevant to the performance of this Contract, must be kept on a generally recognized accounting system. Such records must be available during normal work hours to the Contracting Officer for purposes of investigation to ascertain compliance with Regulatory Requirements and provisions of the Contract Documents.

6.26.2 Payroll records must contain the name and address of each employee, his correct classification, rate of pay, daily and weekly number of hours of work, deductions made, and actual wages paid. The CONTRACTOR and Subcontractors shall make employment records available for inspection by the Contracting Officer and representatives of the U.S. and/or State Department of Labor and will permit such representatives to interview employees during working hours on the Project.

6.26.3 Records of all communications between the AUTHORITY and the CONTRACTOR and other parties, where such communications affected performance of this Contract, must be kept by the CONTRACTOR and maintained for a period of three years from Final Acceptance. The AUTHORITY or its assigned representative may perform an audit of these records during normal work hours after written notice to the CONTRACTOR.

6.27 Load Restrictions

The CONTRACTOR shall comply with all load restrictions as set forth in the

"Administrative Permit Manual", and Title 17, Chapter 25, of the Alaska Administrative Code in the hauling of materials on public roads, beyond the limits of the project, and on all public roads within the project limits that are scheduled to remain in use upon completion of the project.

Overload permits may, at the discretion of the State, be issued for travel beyond the project limits for purposes of mobilization and/or demobilization. Issuance of such a permit will not relieve the CONTRACTOR of liability for damage which may result from the moving of equipment.

The operation of equipment of such weight or so loaded as to cause damage to any type of construction will not be permitted. No overloads will be permitted on the base course or surface course under construction. No loads will be permitted on a concrete pavement, base or structure before the expiration of the curing period. The CONTRACTOR shall be responsible for all damage done by his equipment.

ARTICLE 7 - LAWS AND REGULATIONS

7.I Laws to be Observed

The CONTRACTOR shall keep fully informed of all federal and state Regulatory Requirements and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the Work, or which in any way affect the conduct of the Work. The CONTRACTOR shall at all times observe and comply with all such Regulatory Requirements, orders and decrees; and shall protect and indemnify the AUTHORITY and its representatives against claim or liability arising from or based on the violation of any such Regulatory Requirement, order, or decree whether by the CONTRACTOR, Subcontractor, or any employee of either. Except where otherwise expressly required by applicable Regulatory Requirements, the AUTHORITY shall not be responsible for monitoring CONTRACTOR's compliance with any Regulatory Requirements.

7.2 Permits, Licenses, and Taxes

7.2.1 The CONTRACTOR shall procure all permits and licenses, pay all charges, fees and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the Work. As a condition of performance of this Contract, the CONTRACTOR shall pay all federal, state and local taxes incurred by the CONTRACTOR, in the performance of this Contract. Proof of payment of these taxes is a condition precedent to final payment by the AUTHORITY under this Contract.

7.2.2 The CONTRACTOR's certification that taxes have been paid (as contained in the *Release of Contract*) will be verified with the Department of Revenue and Department of Labor, prior to final payment.

7.2.3 If any federal, state or local tax is imposed, charged, or repealed after the date of bid opening and is made applicable to and paid by the CONTRACTOR on the articles or supplies herein contracted for, then the Contract shall be increased or decreased accordingly by a Change Order.

7.3 Patented Devices, Materials and Processes

If the CONTRACTOR employs any design, device, material, or process covered by letters of patent, trademark or copyright, the CONTRACTOR shall provide for such use by suitable legal agreement with the patentee or owner. The CONTRACTOR and the Surety shall indemnify and save harmless the AUTHORITY, any affected third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the AUTHORITY for any costs, expenses, and damages which it may be obliged to pay by reason of any infringement, at any time during the prosecution or after the completion of the Work.

7.4 Compliance of Specifications and Drawings:

If the CONTRACTOR observes that the Specifications and Drawings supplied by the AUTHORITY are at variance with any Regulatory Requirements, CONTRACTOR shall give the Project Manager prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 9.2. as determined appropriate by the Project Manager. If the CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Regulatory Requirements, and without such notice to the Project Manager, the CONTRACTOR shall bear all costs arising there from; however, it shall not be the CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings supplied by the AUTHORITY are in accordance with such Regulatory Requirements.

7.5 Accident Prevention:

The CONTRACTOR shall comply with AS l8.60.075 and all pertinent provisions of the Construction Code Occupational Safety and Health Standards issued by the Alaska Department of Labor.

7.6 Sanitary Provisions:

The CONTRACTOR shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees and AUTHORITY representatives as may be necessary to comply with the requirements of the State and local Boards of Health, or of other bodies or tribunals having jurisdiction.

7.7 Business Registration:

Comply with AS 08.18.011, as follows: "it is unlawful for a person to submit a bid or work as a contractor until he has been issued a certificate of registration by the Department of Commerce. A partnership or joint venture shall be considered registered if one of the general partners or ventures whose name appears in the name under which the partnership or venture does business is registered."

7.8 Professional Registration and Certification:

All craft trades, architects, engineers and land surveyors, electrical administrators, and explosive handlers employed under the Contract shall specifically comply with applicable provisions of AS 08.18, 08.48, 08.40, and 08.52. Provide copies of individual licenses within seven days following a request from the Contracting Officer.

7.9 Local Building Codes:

The CONTRACTOR shall comply with AS 35.l0.025 which requires construction in accordance with applicable local building codes to include the obtaining of required permits.

7.10 Air Quality Control:

The CONTRACTOR shall comply with all applicable provisions of AS 46.03.04 as pertains to Air Pollution Control.

7.11 Archaeological or Paleontological Discoveries:

When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, or paleontological remains, such as shell heaps, land or sea mammal bones or tusks, the CONTRACTOR shall cease operations immediately and notify the Project Manager. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the Contracting Officer order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra Work, such shall be covered by an appropriate Contract change document.

7.12 Applicable Alaska Preferences: Not Applicable.

7.l3 Preferential Employment: Not Applicable.

7.14 Wages and Hours of Labor:

7.14.1 One certified copy of all payrolls shall be submitted weekly to the State Department of Labor and, upon request, to the Contracting Officer to assure to assure compliance with AS 36.05.040, *Filing Schedule of Employees Wages Paid and Other Information*. The CONTRACTOR shall be responsible for the submission of certified copies of payrolls of all Subcontractors. The certification shall affirm that the payrolls are current and complete, that the wage rates contained therein are not less than the applicable rates referenced in these Contract Documents, and that the classification set forth for each laborer or mechanic conforms to the Work performed. The CONTRACTOR and his Subcontractors shall attend all hearings and conferences and produce such books, papers, and documents all as requested by the Department of Labor. Should federal funds be involved, the appropriate federal agency shall also receive a copy of the CONTRACTOR's certified payrolls. Regardless of project funding source, copies of all certified payrolls supplied to the State Department of Labor by the CONTRACTOR shall be supplied also to the Project Manager upon request, including submittals made by, or on behalf of, subcontractors.

7.14.2 The following labor provisions shall also apply to this Contract:

a. The CONTRACTOR and his Subcontractors shall pay all employees unconditionally and not less than once a week;

b. wages may not be less than those stated under AS 36.05.010, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors;

c. the scale of wages to be paid shall be posted by the CONTRACTOR in a prominent and easily accessible place at the site of the Work;

d. the AUTHORITY shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the CONTRACTOR or Subcontractors the difference between

1. the rates of wages required by the Contract to be paid laborers, mechanics, or field surveyors on the Work, and

2. the rates of wages in fact received by laborers, mechanics or field surveyors.

7.14.3 Within three calendar days of award of a construction contract, the CONTRACTOR shall file a "Notice of Work" with the Department of Labor and shall pay all related fees. The Contracting Officer will not issue Notice to Proceed to the CONTRACTOR until such notice and fees have been paid to the Department of Labor. Failure of the CONTRACTOR to file the Notice of Work and pay fees within this timeframe shall not constitute grounds for an extension of contract time or adjustment of contract price.

7.l5 Overtime Work Hours and Compensation:

Pursuant to 40 *U.S.C. 327-330* and AS 23.10.060 -.110, the CONTRACTOR shall not require nor permit any laborer or mechanic in any workweek in which he is employed on any Work under this Contract to work in excess of eight hours in any Calendar Day or in excess of forty hours in such workweek on Work subject to the provisions of the *Contract Work Hours and Safety Standards Act* unless such laborer or mechanic receives compensation at a rate not less than one and one half times his basic rate of pay for all such hours worked in excess of eight hours in any Calendar Day or in excess of forty hours in such workweek whichever is the greater number of overtime hours. In the event of any violation of this provision, the CONTRACTOR shall be liable to any affected employee for any amounts due and penalties and to the AUTHORITY for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of this provision in the sum of $l0.00 for each Calendar Day on which such employee was required or permitted to be employed on such Work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by this paragraph.

7.16 Covenant Against Contingent Fees:

The CONTRACTOR warrants that no person or selling agent has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the CONTRACTOR for the purpose of securing business. For breach or violation of this warrant, the DEPARTMENT shall have the right to annul this Contract without liability or, in its discretion, to deduct price of consideration from the Contract or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

7.17 Officials Not to Benefit:

No member of or delegate to the U.S. Congress, the Alaska State Legislature or other state official shall be admitted to any share or part of this Contract, nor to any benefit that may arise there from. However, this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

7.18 Personal Liability of Public Officials:

In carrying out any of the provisions thereof, or in exercising any power or authority granted to the Contracting Officer by the Contract, there will be no liability upon the Contracting Officer nor upon AUTHORITY employees authorized as his representatives, either personally or as officials of the AUTHORITY, it being always understood that in such matters they act as agents and representatives of the AUTHORITY.

ARTICLE 8 - OTHER WORK

8.l Related Work at Site:

8.1.1 The AUTHORITY reserves the right at any time to contract for and perform other or additional work on or near the Work covered by the Contract.

8.1.2 When separate contracts are let within the limits of the Project, the CONTRACTOR shall conduct his Work so as not to interfere with or hinder the work being performed by other contractors. The CONTRACTOR when working on the same Project with other contractors shall cooperate with such other contractors. The CONTRACTOR shall join his Work with that of the others in an acceptable manner and shall perform it in proper sequence to that of others.

8.1.3 If the fact that other such work is to be performed is identified or shown in the Contract Documents the CONTRACTOR shall assume all liability, financial or otherwise, in connection with this Contract and indemnify and save harmless the AUTHORITY from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by the CONTRACTOR because of the presence and operations of other contractors.

8.1.4 If the fact that such other work is to be performed was not identified or shown in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work. If the CONTRACTOR believes that such performance will require an increase in Contract Price or Contract Time, the CONTRACTOR shall notify the Project Manager of such required increase within fifteen (15) calendar days following receipt of the Contracting Officer's notice. Should the Project Manager find such increase(s) to be justified, a Change Order will be executed.

8.2 Access, Cutting, and Patching:

The CONTRACTOR shall afford each utility owner and any other contractor who is a party to such a direct contract with the AUTHORITY (or the AUTHORITY, if the AUTHORITY is performing the additional work with the AUTHORITY's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with the work of others. The CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work, the CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter such other work with the written consent of the Project Manager. The duties and responsibilities of the CONTRACTOR under this paragraph are for the benefit of other contractors to the extent that there are comparable provisions for the benefit of the CONTRACTOR in said direct contracts between the AUTHORITY and other contractors.

8.3 Defective Work by Others:

If any part of the CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor, utility owner, or the AUTHORITY, the CONTRACTOR shall inspect and promptly report to the Project Manager in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to so report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

8.4 Coordination:

If the AUTHORITY contracts with others for the performance of other work at the site, Project Manager will have authority and responsibility for coordination of the activities among the various prime contractors.

ARTICLE 9 - CHANGES

9.1 AUTHORITY's Right to Change

Without invalidating the Contract and without notice to any Surety, the AUTHORITY may, at any time or from time to time, order additions, deletions or revisions in the Work within the general scope of the Contract, including but not limited to changes:

9.1.1 In the Contract Documents;

9.1.2 In the method or manner of performance of the Work;

9.1.3 In Authority-furnished facilities, equipment, materials, services, or site;

9.1.4 Directing acceleration in the performance of the Work.

9.2 Authorization of Changes within the General Scope.

Additions, deletions, or revisions in the Work within the general scope of the Contract as specified in 9.1 shall be authorized by one or more of following ways:

9.2.1 Directive (pursuant to paragraph 9.3)

9.2.2 A Change Order (pursuant to paragraph 9.4)

9.2.3 AUTHORITY's acceptance of Shop Drawing variations from the Contract Documents as specifically identified by the CONTRACTOR as required by paragraph 6.20.4.

9.3 Directive

9.3.1 The Contracting Officer shall provide written clarification or interpretation of the Contract Documents (pursuant to paragraph 3.6).

9.3.2 The Project Manager may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents.

9.3.3 The Project Manager may order the Contractor to correct Defective Work or methods which are not in conformance with the Contract Documents.

9.3.4 The Project Manager may direct the commencement or suspension of Work or emergency related Work (as provided in paragraph 6.19).

9.3.5 Upon the issuance of a Directive to the CONTRACTOR by the Project Manager, the CONTRACTOR shall proceed with the performance of the Work as prescribed by such Directive.

9.3.6 If the CONTRACTOR believes that the changes noted in a Directive may cause an increase in the Contract Price or an extension of Contract Time, the CONTRACTOR shall immediately provide written notice to the Project Manager depicting such increases before proceeding with the Directive, except in the case of an emergency. If the Project Manager finds the increase in Contract Price or the extension of Contract Time justified, a Change Order will be issued. If however, the Project Manager does not find that a Change Order is justified, the Project Manager may direct the CONTRACTOR to proceed with the Work. The CONTRACTOR shall cooperate with the Project Manager in keeping complete daily records of the cost of such Work. If a Change Order is ultimately determined to be justified, in the absence of agreed prices and unit prices, payment for such Work will be made on a "cost of the work basis" as provided in 10.4

9.4 Change Order

A change in Contract Time, Contract Price, or responsibility may be made for changes within the scope of the Work by Change Order. Upon receipt of an executed Change Order, the CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents except as otherwise specifically provided. Changes in Contract Price and Contract Time shall be made in accordance with Articles 10 and 11. A Change Order shall be considered executed when it is signed by the AUTHORITY.

9.5 Shop Drawing Variations

Variations by shop drawings shall only be eligible for consideration under 9.4 when the conditions affecting the price, time, or responsibility are identified by the CONTRACTOR in writing and a request for a Change Order is submitted as per 6.20.4.

9.6 Changes Outside the General Scope; Supplemental Agreement

Any change which is outside the general scope of the Contract, as determined by the Project Manager, must be authorized by a Supplemental Agreement signed by the appropriate representatives of the AUTHORITY and the CONTRACTOR.

9.7 Unauthorized Work:

The CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in this Article 9, except in the case of an emergency as provided in paragraph 6.19 and except in the case of uncovering Work as provided in paragraph 12.4.2.

9.8 Notification of Surety:

If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any bond to be given to a Surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable bond will be adjusted accordingly.

9.9 Differing Site Conditions:

9.9.1 The CONTRACTOR shall promptly, and before such conditions are disturbed (except in an emergency as permitted by paragraph 6.19), notify the Project Manager in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in the Contract, and which could not have been discovered by a careful examination of the site, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract. The Project Manager shall promptly investigate the conditions, and if the Project Manager finds that such conditions do materially so differ and cause an increase or decrease in the CONTRACTOR's cost of, or time required for, performance of this Contract, an equitable adjustment shall be made and the Contract modified in writing accordingly.

9.9.2 Any claim for additional compensation by the CONTRACTOR under this clause shall be made in accordance with Article 15. In the event that the Contracting Officer and the CONTRACTOR are unable to reach an agreement concerning an alleged differing site condition, the CONTRACTOR will be required to keep an accurate and detailed record which will indicate the actual "cost of the work" done under the alleged differing site condition. Failure to keep such a record shall be a bar to any recovery by reason of such alleged differing site conditions. The Project Manager shall be given the opportunity to supervise and check the keeping of such records.

9.10 **Interim Work Authorization**

An Interim Work Authorization may be used to establish a change within the scope of the Work; however, only a Change Order shall establish associated changes in Contract Time and Price. Work authorized by Interim Work Authorization shall be converted to a Change Order. The basis of payment shall be as stated in the Interim Work Authorization, unless it states that the basis of payment has not been established and is to be negotiated, in which case the Cost of the Work shall be documented pursuant to Article 10.4, to establish a basis for negotiating a lump sum price for the Change Order.

ARTICLE I0 - CONTRACT PRICE; COMPUTATION AND CHANGE

I0.I Contract Price:

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the CONTRACTOR shall be at his expense without change in the Contract Price. The Contract Price may only be changed by a Change Order or Supplemental Agreement.

I0.2 Claim for Price Change:

Any claim for an increase or decrease in the Contract Price shall be submitted in accordance with the terms of Article I5, and shall not be allowed unless notice requirements of this Contract have been met.

I0.3 Change Order Price Determination:

The value of any Work covered by a Change Order for an increase or decrease in the Contract Price shall be determined in one of the following ways:

I0.3.I Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of subparagraphs I0.9.I through I0.9.3, inclusive).

I0.3.2 By mutual acceptance of a lump sum price that includes overhead and profit. The following maximum rates of cost markup (to cover both overhead and profit of the CONTRACTOR) shall be used in the negotiation of a Lump Sum Change Order:

a. 17% - where a cost is borne directly by prime contractor (first tier contractor).

b. 10% - where a cost is borne by a subcontractor (lower tier contractor).

Where the cost is borne by a subcontractor acting as a first tier contractor, the allowable overhead and profit markup for lump sum change orders shall not exceed 17%. Any lower tier subcontractors, including the CONTRACTOR in this case, for whom the first tier subcontractor performs the work, shall be allowed an overhead and profit markup that does not exceed 10%.

I0.3.3 When 10.3.1 and 10.3.2 are inapplicable, on the basis of the "cost of the work" (determined as provided in paragraphs I0.4 and I0.5) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph I0.6).

10.3.4 Before a Change Order or Supplemental Agreement is approved, the CONTRACTOR shall submit cost or pricing data regarding the changed or extra Work. The CONTRACTOR shall certify that the data submitted is, to his best knowledge and belief, accurate, complete and current as of a mutually determined specified date and that such data will continue to be accurate and complete during the performance of the changed or extra Work.

I0.4 Cost of the Work:

The term "cost of the work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by the AUTHORITY, such costs shall be in amount no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in subparagraph I0.5:

I0.4.I Payroll costs for employees in the direct employ of the CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by the AUTHORITY and the CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise

and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include manual workers up through the level of foreman but shall not include general foremen, superintendents, and non-manual employees. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays shall be included in the above to the extent authorized by the AUTHORITY.

l0.4.2 Cost of all materials and equipment furnished and incorporated or consumed in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to the CONTRACTOR unless the AUTHORITY deposits funds with the CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to the AUTHORITY. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to the AUTHORITY, and the CONTRACTOR shall make provisions so that they may be obtained.

l0.4.3 Payments made by the CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by the AUTHORITY, CONTRACTOR shall obtain competitive quotes from Subcontractors or Suppliers acceptable to the CONTRACTOR and shall deliver such quotes to the AUTHORITY who will then determine which quotes will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of "cost of the work" plus a fee, the Subcontractor' "cost of the work" shall be determined in the same manner as the CONTRACTOR's "cost of work" as described in paragraphs 10.4 through 10.5; and the Subcontractor's fee shall be established as provided for under subparagraph 10.6.2 clause b. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

l0.4.4 Costs of special consultants (including but not limited to engineers, architects, testing laboratories, and surveyors) employed for services necessary for the completion of the Work.

l0.4.5 Supplemental costs including the following:

a. The proportion of necessary transportation, travel and subsistence expenses of the CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of the CONTRACTOR.

c. Rentals of all construction equipment and machinery and the parts thereof whether rented from the CONTRACTOR or others in accordance with rental agreements Approved by the AUTHORITY and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

For any machinery or special equipment (other than small tools) which has been authorized by the Project Manager, the CONTRACTOR shall receive the rental rates in the current edition and appropriate volume of the "Rental Rate Blue Book for Construction Equipment", published by Dataquest, Inc., 1290 Ridder Park Drive, San Jose, CA 95131.

Hourly rental rates shall be determined as follows:

The established hourly rental rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 176, and multiplied by the area adjustment factor, plus the estimated hourly operating cost.

The adjusted monthly rate is that resulting from application of the rate adjustment formula in order to eliminate replacement cost allowances in machine depreciation and contingency cost allowances.

Attachments shall not be included unless required for the time and materials work.

For equipment not listed in The Blue Book, the CONTRACTOR shall receive a rental rate as agreed upon before such work is begun. If agreement cannot be reached, the AUTHORITY reserves the right to establish a rate based on similar equipment in the Blue Book or prevailing commercial rates in the area.

These rates shall apply for equipment used during the CONTRACTOR's regular shift of 10 hours per day. Where the equipment is used more than 10 hours per day, either on the CONTRACTOR's normal work or on time and materials, and either on single or multiple shifts, an overtime rate, computed as follows, shall apply:

The hourly overtime rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 352, and multiplied by the area adjustment factor, plus the estimated hourly operating cost.

Equipment which must be rented or leased specifically for work required under this section shall be authorized in writing by the Project Manager. The CONTRACTOR shall be paid invoice price plus 15%.

When it is necessary to obtain equipment from sources beyond the project limits exclusively for time and materials, work, the actual cost of transferring the equipment to the site of the work and return will be allowed as an additional item of expense. Where the move is made by common carrier, the move-in allowance will be limited to the amount of the freight bill or invoice. If the CONTRACTOR hauls the equipment with his own forces, the allowance will be limited to the rental rate for the hauling unit plus operator wages. In the event that the equipment is transferred under its own power, the moving allowance will be limited to one-half of the normal hourly rental rate plus operator's wages. In the event that the move-out is to a different location, payment will in no instance exceed the amount of the move-in. Move-in allowance shall not be made for equipment brought to the project for time and materials work which is subsequently retained on the project and utilized for completion of contract items, camp maintenance, or related work.

Equipment ordered to be on a stand-by basis shall be paid for at the stand-by rental rate for the number of hours in the CONTRACTOR'S normal work shift, but not to exceed 8 hours per day. The stand-by rental rate shall be computed as follows:

The hourly stand-by rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 352, all multiplied by the area adjustment factor.

Time will be recorded to the nearest one-quarter hour for purposes of computing compensation to the CONTRACTOR for equipment utilized under these rates.

The equipment rates as determined above shall be full compensation, including overhead and profit, for providing the required equipment and no additional compensation will be made for other costs such as, but not limited to, fuels, lubricants, replacement parts or maintenance costs. Cost of repairs, both major and minor, as well as charges for mechanic's time utilized in servicing equipment to ready it for use prior to moving to the project and similar charges will not be allowed.

d. Sales, consumer, use or similar taxes related to the Work, and for which the CONTRACTOR is liable, imposed by Regulatory Requirements.

e. Deposits lost for causes other than negligence of the CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by the CONTRACTOR in connection with the performance and furnishing of the Work provided they have resulted from causes other than the negligence of the CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and Approval of the AUTHORITY. No such losses, damages and expenses shall be included in the "cost of the work" for the purpose of determining the CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and the CONTRACTOR is placed in charge thereof, the CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraphs 10.6.2.a and 10.6.2.b.

g. The cost of utilities, fuel and sanitary facilities at the site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

I. Cost of premiums for additional bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by the AUTHORITY in accordance with Article 5.

l0.5 Excluded Costs:

The term "cost of the work" shall not include any of the following:

10.5.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing agency, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph l0.4.l or specifically covered by paragraph l0.4.4 all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

10.5.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

10.5.3 Any part of CONTRACTOR's capital expenses including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

10.5.4 Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph l0.4.5.i above).

10.5.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

10.5.6 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph l0.4.

l0.6 CONTRACTOR's Fee:

The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows.

l0.6.l A mutually acceptable fixed fee; or if none can be agreed upon.

l0.6.2 A fee based on the following percentages of the various portions of the "cost of the work":

a. For costs incurred under paragraphs l0.4.l and l0.4.2, the CONTRACTOR's fee shall be twenty percent;

b. For costs incurred under paragraph l0.4.3, the CONTRACTOR's fee shall be ten percent; and if a subcontract is on the basis of "cost of the work" plus a fee, the maximum allowable to CONTRACTOR on account of overhead and profit of all Subcontractors and multiple tiers thereof shall be fifteen percent;

c. No fee shall be payable on the basis of costs itemized under paragraphs l0.4.4, l0.4.5 and l0.5;

d. The amount of credit to be allowed by the CONTRACTOR to the AUTHORITY for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in CONTRACTOR's fee by an amount equal to ten percent of the net decrease; and

e. When both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs l0.6.2.a through l0.6.2.d, inclusive.

I0.7 Cost Breakdown:

Whenever the cost of any Work is to be determined pursuant to paragraphs I0.4 and I0.5, the CONTRACTOR will submit in a form acceptable to the AUTHORITY an itemized cost breakdown together with supporting data.

I0.8 Cash Allowances:

It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to the Contracting Officer. CONTRACTOR agrees that:

I0.8.I The allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

I0.8.2 CONTRACTOR's cost for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

Prior to final payment, an appropriate Change Order will be issued to reflect actual amounts due the CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

I0.9 Unit Price Work:

I0.9.I Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by the CONTRACTOR will be made by the AUTHORITY in accordance with paragraph 10.10.

I0.9.2 Each unit price will be deemed to include an amount considered by the CONTRACTOR to be adequate to cover the CONTRACTOR's overhead and profit for each separately identified item. If the "Basis of Payment" clause in the Contract Documents relating to any unit price in the bid schedule requires that the said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the Contract Documents.

I0.9.3 Payment to the CONTRACTOR shall be made only for the actual quantities of Work performed and accepted or materials furnished, in conformance with the Contract Documents. When the accepted quantities of Work or materials vary from the quantities stated in the bid schedule, or change documents, the CONTRACTOR shall accept as payment in full, payment at the stated unit prices for the accepted quantities of Work and materials furnished, completed and accepted; except as provided below:

a. When the quantity of Work to be done or material to be furnished under any item, for which the total cost of the item exceeds 10% of the total Contract Price, is increased by more than 25 percent of the quantity stated in the bid schedule, or change documents, either party to the Contract, upon demand, shall be entitled to an equitable unit price adjustment on that portion of the Work above 125 percent of the quantity stated in the bid schedule.

b. When the quantity of Work to be done or material to be furnished under any major item, for which the total cost of the item exceeds 10% of the total Contract Price, is decreased by more than 25 percent of the quantity stated in the bid schedule, or change documents either party to the Contract, upon demand, shall be entitled to an equitable price adjustment for the quantity of Work performed or material furnished, limited to a total payment of not more than 75 percent of the amount originally bid for the item.

10.10 Determinations for Unit Prices:

The Project Manager will determine the actual quantities and classifications of Unit Price Work performed by the CONTRACTOR. The Project Manager will review with the CONTRACTOR preliminary determinations on such matters before finalizing the costs and quantities on the Schedule of Values. The Project Manager's acknowledgment thereof will be final and binding on the CONTRACTOR, unless, within 10 days after the date of any such decisions, the CONTRACTOR delivers to the Project Manager written notice of intention to appeal from such a decision.

ARTICLE 11 - CONTRACT TIME; COMPUTATION AND CHANGE

11.1 Commencement of Contract Time; Notice to Proceed:

The Contract Time will commence to run on the day indicated in the Notice to Proceed.

11.2 Starting the Work:

No Work on Contract items shall be performed before the effective date of the Notice to Proceed. The CONTRACTOR shall notify the Project Manager at least 24 hours in advance of the time actual construction operations will begin. The CONTRACTOR may request a limited Notice to Proceed after Award has been made, to permit him to order long lead materials which could cause delays in Project completion. However, granting is within the sole discretion of the Contracting Officer, and refusal or failure to grant a limited Notice to Proceed shall not be a basis for claiming for delay, extension of time, or alteration of price.

11.3 Computation of Contract Time:

11.3.1 When the Contract Time is specified on a Calendar Day basis, all Work under the Contract shall be completed within the number of Calendar Days specified. The count of Contract Time begins on the day following receipt of the Notice to Proceed by the CONTRACTOR, if no starting day is stipulated therein.

Calendar Days shall continue to be counted against Contract Time until and including the date of Substantial Completion of the Work.

11.3.2 When the Contract completion time is specified as a fixed calendar date, it shall be the date of Final Completion.

11.3.3 The Contract Time shall be as stated is 00800, Supplementary Conditions.

11.4 Time Change:

The Contract Time may only be changed by a Change Order or Supplemental Agreement.

11.5 Extension Due to Delays:

The right of the CONTRACTOR to proceed shall not be terminated nor the CONTRACTOR charged with liquidated or actual damages because of delays to the completion of the Work due to unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including, but not restricted to the following: acts of God or of the public enemy, acts of the AUTHORITY in its contractual capacity, acts of another contractor in the performance of a contract with the AUTHORITY, floods, fires, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather and delays of Subcontractors or Suppliers due to such causes. Any delay in receipt of materials on the site, caused by other than one of the specifically mentioned occurrences above, does not of itself justify a time extension, provided that the CONTRACTOR shall within twenty four (24) hours from the beginning of any such delay (unless the Contracting Officer shall grant a further period of the time prior to the date of final settlement of the Contract), notify the Project Manager in writing of the cause of delay. The Contracting Officer shall ascertain the facts and the extent of the delay and extend the time for completing the Work when the findings of fact justify such an extension.

11.6 Essence of Contract:

All time limits stated in the Contract Documents are of the essence of the Contract.

11.7 Reasonable Completion Time:

It is expressly understood and agreed by and between the CONTRACTOR and the AUTHORITY that the date of beginning and the time for Substantial Completion of the Work described herein are reasonable times for the completion of the Work.

11.8 Delay Damages:

Whether or not the CONTRACTOR's right to proceed with the Work is terminated, he and his Sureties shall be liable for damages resulting from his refusal or failure to complete the Work within the specified time.

Liquidated and actual damages for delay shall be paid by the CONTRACTOR or his Surety to the AUTHORITY in the amount as specified in the Supplementary Conditions for each Calendar Day the completion of the Work or any part thereof is delayed beyond the time required by the Contract, or any extension thereof. If a listing of incidents resulting from a delay and expected to give rise to actual or liquidated damages is not established by the Contract Documents, then the CONTRACTOR and his Surety shall be liable to the AUTHORITY for any actual damages occasioned by such delay. The CONTRACTOR acknowledges that the liquidated damages established herein are not a penalty but rather constitute an estimate of damages that the AUTHORITY will sustain by reason of delayed completion. These liquidated and actual damages are intended as compensation for losses anticipated arising, and including those items enumerated in the Supplementary Conditions.

These damages will continue to run both before and after termination in the event of default termination. These liquidated damages do not cover excess costs of completion or AUTHORITY costs, fees, and charges related to reprocurement. If a default termination occurs, the CONTRACTOR or his Surety shall pay in addition to these damages, all excess costs and expenses related to completion as provided by Article 14.2.5.

For each calendar day that the work remains incomplete after the expiration of the Contract Time, liquidated damages in the amount as stated in 00800, Supplemental Conditions shall be assessed to the CONTRACTOR. If no money is due the CONTRACTOR, the AUTHORITY shall have the right to recover said sum from the CONTRACTOR, the surety or both. The amount of these deductions is to reimburse the AUTHORITY for estimated liquidated damages incurred as a result of the CONTRACTOR's failure to complete the work within the time specified. As liquidated damages, such deductions are not to be considered as penalties.

Permitting the CONTRACTOR to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the AUTHORITY of any of its rights under the Contract.

ARTICLE I2 - QUALITY ASSURANCE

12.1 Warranty and Guaranty:

The CONTRACTOR warrants and guarantees to the AUTHORITY that all Work will be in accordance with the Contract Documents and will not be Defective. Prompt notice of all defects shall be given to the CONTRACTOR. All Defective Work, whether or not in place, may be rejected, corrected or accepted as provided for in this article.

12.2 Access to Work:

The AUTHORITY and the AUTHORITY's consultants, testing agencies and governmental agencies with jurisdiction interests will have access to the Work at reasonable times for their observation, inspecting and testing. The CONTRACTOR shall provide proper and safe conditions for such access.

12.3 Tests and Inspections:

12.3.l The CONTRACTOR shall give the Project Manager timely notice of readiness of the Work for all required inspections, tests or Approvals.

12.3.2 If Regulatory Requirements of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, the CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish the Project Manager the required certificates of inspection, testing or approval. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with AUTHORITY's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for Approval prior to the CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by the CONTRACTOR. The AUTHORITY may perform additional tests and inspections which it deems necessary to insure quality control. All such failed tests or inspections shall be at the CONTRACTOR's expense.

12.3.4 If any Work (including the work of others) that is to be inspected, tested or Approved is covered without written concurrence of the Project Manager, it must, if requested by the Project Manager, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the Project Manager timely notice of CONTRACTOR's intention to cover the same and the Project Manager has not acted with reasonable promptness in response to such notice.

12.3.5 Neither observations nor inspections, tests or Approvals by the AUTHORITY or others shall relieve the CONTRACTOR from the CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

12.4 Uncovering Work:

12.4.l If any Work is covered contrary to the written request of the Project Manager, it must, if requested by the Project Manager, be uncovered for the Project Manager's observation and replaced at the CONTRACTOR's expense.

12.4.2 If the Project Manager considers it necessary or advisable that covered Work be observed inspected or tested, the CONTRACTOR, at the Project Manager's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the Project Manager may require, that portion of the Work in question, furnishing all

necessary labor, material and equipment. If it is found that such Work is Defective, the CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) and the AUTHORITY shall be entitled to an appropriate decrease in the Contract Price. If, however, such Work is not found to be Defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction.

12.5 AUTHORITY May Stop the Work:

If the Work is Defective, or the CONTRACTOR fails to supply suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, the Contracting Officer may order the CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Contracting Officer to stop the Work shall not give rise to any duty on the part of the Contracting Officer to exercise this right for the benefit of the CONTRACTOR or any other party.

12.6 Correction or Removal of Defective Work:

If required by the Project Manager, the CONTRACTOR shall promptly, as directed, either correct all Defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Project Manager, remove it from the site and replace it with Work which conforms to the requirements of the Contract Documents. The CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

12.7 One Year Correction Period:

If within one year after the date of Substantial Completion of the relevant portion of the Work or such longer period of time as may be prescribed by Regulatory Requirements or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be Defective, the CONTRACTOR shall promptly, without cost to the AUTHORITY and in accordance with the Project Manager's written instructions, either correct such Defective Work, or, if it has been rejected by the Project Manager, remove it from the site and replace it with conforming Work. If the CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the AUTHORITY may have the Defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by the CONTRACTOR. In special circumstances where a particular item of equipment is placed in continuous service for the benefit of the AUTHORITY before Substantial Completion of all the Work, the correction period for that item may begin on an earlier date if so provided in the Specifications or by Change Order. Provisions of this paragraph are not intended to shorten the statute of limitations for bringing an action.

12.8 Acceptance of Defective Work:

Instead of requiring correction or removal and replacement of Defective Work, the Project Manager may accept Defective Work, the CONTRACTOR shall bear all direct, indirect and consequential costs attributable to the Project Manager's evaluation of and determination to accept such Defective Work (costs to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the AUTHORITY shall be entitled to an appropriate decrease in the Contract Price. If the AUTHORITY has already made final payment to the CONTRACTOR, an appropriate amount shall be paid by the CONTRACTOR or his Surety to the AUTHORITY.

12.9 AUTHORITY May Correct Defective Work:

If the CONTRACTOR fails within a reasonable time after written notice from the Project Manager to proceed to correct Defective Work or to remove and replace rejected Work as required by the Project Manager in accordance with paragraph 12.6, or if the CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if the CONTRACTOR fails to comply with any other provision of the Contract Documents, the AUTHORITY may, after 7 days' written notice to the CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph the AUTHORITY shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, the Project Manager may exclude the CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend the CONTRACTOR's services related thereto, take possession of the CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or approved remote storage sites or for which the AUTHORITY has paid the CONTRACTOR but which are stored elsewhere. The CONTRACTOR shall allow the Project Manager and his authorized representatives such access to the site as may be necessary to enable the Project Manager to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of the AUTHORITY in exercising such rights and remedies will be charged against the CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the AUTHORITY shall be entitled to an appropriate decrease in the Contract Price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of the CONTRACTOR's Defective Work. The CONTRACTOR shall not be allowed an extension of time because of any delay in performance of the work attributable to the exercise, by the Project Manager, of the AUTHORITY's rights and remedies hereunder.

ARTICLE 13 - PAYMENTS TO CONTRACTOR AND COMPLETION

13.1 Schedule of Values:

The Schedule of Values established as provided in paragraph 6.6 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the Project Manager. Progress payments on account of Unit Price Work will be based on the number of units completed.

13.2 Preliminary Payments:

Upon approval of the Schedule of Values the CONTRACTOR may be paid for direct costs substantiated by paid invoices and other prerequisite documents required by the General Requirements. Direct costs shall include the cost of bonds, insurance, approved materials stored on the site or at approved remote storage sites, deposits required by a Supplier prior to fabricating materials, and other approved direct mobilization costs substantiated as indicated above. These payments shall be included as a part of the total Contract Price as stated in the Contract.

13.3 Application for Progress Payment:

The CONTRACTOR shall submit to the Project Manager for review an Application for Payment filled out and signed by the CONTRACTOR covering the Work completed as of the date of the Application for Payment and accompanied by such supporting documentation as is required by the Contract Documents. Progress payments will be made as the Work progresses on a monthly basis.

13.4 Review of Applications for Progress Payment:

Project Manager will either indicate in writing a recommendation of payment or return the Application for Payment to the CONTRACTOR indicating in writing the Project Manager's reasons for refusing to recommend payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the Application for Payment.

13.5 Stored Materials and Equipment:

If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, paid invoice or other documentation warranting that the AUTHORITY has received the materials and equipment free and clear of all charges, security interests and encumbrances and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the AUTHORITY's interest therein, all of which will be satisfactory to the Project Manager. No payment will be made for perishable materials that could be rendered useless because of long storage periods. No progress payment will be made for living plant materials until planted.

13.6 CONTRACTOR's Warranty of Title:

The CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to the AUTHORITY no later than the time of payment free and clear of any claims, liens, security interests and further obligations.

13.7 Withholding of Payments:

The AUTHORITY may withhold or refuse payment for any of the reasons listed below provided it gives written notice of its intent to withhold and of the basis for withholding:

13.7.l The Work is Defective, or completed Work has been damaged requiring correction or replacement, or has been installed without Approval of Shop Drawings, or by an unapproved Subcontractor, or for unsuitable storage of materials and equipment.

13.7.2 The Contract Price has been reduced by Change Order,

13.7.3 The AUTHORITY has been required to correct Defective Work or complete Work in accordance with paragraph l2.9.

13.7.4 The AUTHORITY's actual knowledge of the occurrence of any of the events enumerated in paragraphs l4.2.l.a through l4.2.1.k inclusive.

13.7.5 Claims have been made against the AUTHORITY or against the funds held by the AUTHORITY on account of the CONTRACTOR's actions or inactions in performing this Contract, or there are other items entitling the AUTHORITY to a set off.

13.7.6 Subsequently discovered evidence or the results of subsequent inspections or test, nullify any previous payments for reasons stated in subparagraphs 13.7.l through 13.7.5.

13.7.7 The CONTRACTOR has failed to fulfill or is in violation of any of his obligations under any provision of this Contract.

13.8 Retainage:

At any time the AUTHORITY finds that satisfactory progress is not being made it may in addition to the amounts withheld under 13.7 retain a maximum amount equal to l0% of the total amount earned on all subsequent progress payments. This retainage may be released at such time as the Project Manager finds that satisfactory progress is being made.

13.9 Request for Release of Funds:

If the CONTRACTOR believes the basis for withholding is invalid or no longer exists, immediate written notice of the facts and Contract provisions on which the CONTRACTOR relies, shall be given to the AUTHORITY, together with a request for release of funds and adequate documentary evidence proving that the problem has been cured. In the case of withholding which has occurred at the request of the Department of Labor, the CONTRACTOR shall provide a letter from the Department of Labor stating that withholding is no longer requested. Following such a submittal by the CONTRACTOR, the AUTHORITY shall have a reasonable time to investigate and verify the facts and seek additional assurances before determining whether release of withheld payments is justified.

13.10 Substantial Completion:

When the CONTRACTOR considers the Work ready for its intended use the CONTRACTOR shall notify the Project Manager in writing that the Work or a portion of Work which has been specifically identified in the Contract Documents is substantially complete (except for items specifically listed by the CONTRACTOR as incomplete) and request that the AUTHORITY issue a certificate of Substantial Completion. Within a reasonable time thereafter, the Project Manager, the CONTRACTOR and Engineer(s) shall make an inspection of the Work to determine the status of completion. If the Project Manager does not consider the Work substantially complete, the Project Manager will notify the CONTRACTOR in writing giving the reasons therefore. If the Project Manager considers the Work substantially complete, the Project Manager will within fourteen days execute and deliver to the CONTRACTOR a certificate of Substantial Completion with tentative list of items to be completed or corrected. At the time of delivery of the certificate of Substantial Completion the Project Manager will deliver to the CONTRACTOR a written

division of responsibilities pending Final Completion with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties which shall be consistent with the terms of the Contract Documents.

The AUTHORITY shall be responsible for all AUTHORITY costs resulting from the initial inspection and the first re-inspection, the CONTRACTOR shall pay all costs incurred by the AUTHORITY resulting from re-inspections, thereafter.

13.11 Access Following Substantial Completion:

The AUTHORITY shall have the right to exclude the CONTRACTOR from the Work after the date of Substantial Completion, but the AUTHORITY shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

13.12 Final Inspection:

Upon written notice from the CONTRACTOR that the entire Work or an agreed portion thereof is complete, the Project Manager will make a final inspection with the CONTRACTOR and Engineer(s) and will notify the CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or Defective. The CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies. The CONTRACTOR shall pay for all costs incurred by the AUTHORITY resulting from re-inspections.

13.13 Final Completion and Application for Payment:

After the CONTRACTOR has completed all such corrections to the satisfaction of the Project Manager and delivered schedules, guarantees, bonds, certificates of payment to all laborers, Subcontractors and Suppliers, and other documents - all as required by the Contract Documents; and after the Project Manager has indicated in writing that the Work has met the requirements for Final Completion, and subject to the provisions of paragraph 13.18, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all remaining certificates, warranties, guarantees, releases, affidavits, and other documentation required by the Contract Documents.

13.14 Final Payment:

13.14.1 If on the basis of the Project Manager's observation of the Work during construction and final inspection, and the Project Manager's review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents; and the Project Manager is satisfied that the Work has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the AUTHORITY will process final Application for Payment. Otherwise, the Project Manager will return the Application for Payment to the CONTRACTOR, indicating in writing the reasons for refusing to process final payment, in which case the CONTRACTOR shall make the necessary corrections and resubmit the final Application for Payment.

13.14.2 If, through no fault of the CONTRACTOR, Final Completion of the Work is significantly delayed, the Project Manager shall, upon receipt of the CONTRACTOR's final Application for Payment, and without terminating the Contract, make payment of

the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by the AUTHORITY for Work not fully completed or corrected is less than the retainage provided for in paragraph 13.9, and if bonds have been furnished as required in paragraph 5.l, the written consent of the Surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the CONTRACTOR to the AUTHORITY with the application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

13.15 Final Acceptance:

Following certification of payment of payroll and revenue taxes, and final payment to the CONTRACTOR, the AUTHORITY will issue a letter of Final Acceptance, releasing the CONTRACTOR from further obligations under the Contract, except as provided in paragraph 13.17.

When it is anticipated that restarting, testing, adjusting, or balancing of systems will be required following Final Acceptance and said requirements are noted in Section(s) 01650, such Work shall constitute a continuing obligation under the Contract.

13.l6 CONTRACTOR's Continuing Obligation:

The CONTRACTOR's obligation to perform and complete the Work and pay all laborers, Subcontractors, and material men in accordance with the Contract Documents shall be absolute. Neither any progress or final payment by the AUTHORITY, nor the issuance of a certificate of Substantial Completion, nor any use or occupancy of the Work or any part thereof by the AUTHORITY or Owner, nor any act of acceptance by the AUTHORITY nor any failure to do so, nor any review and Approval of a Shop Drawing or sample submission, nor any correction of Defective Work by the AUTHORITY will constitute an acceptance of Work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents.

13.l7 Waiver of Claims by CONTRACTOR:

The making and acceptance of final payment will constitute a waiver of all claims by the CONTRACTOR against the AUTHORITY other than those previously made in writing and still unsettled.

13.18 No Waiver of Legal Rights:

The AUTHORITY shall not be precluded or be estopped by any payment, measurement, estimate, or certificate made either before or after the completion and acceptance of the Work and payment therefore, from showing the true amount and character of the Work performed and materials furnished by the CONTRACTOR, nor from showing that any payment, measurement, estimate or certificate is untrue or is incorrectly made, or that the Work or materials are Defective. The AUTHORITY shall not be precluded or estopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the CONTRACTOR or his Sureties, or both, such damages as it may sustain by reason of his failure to comply with requirements of the Contract Documents. Neither the acceptance by the AUTHORITY, or any representative of the AUTHORITY, nor any payment for or acceptance of the whole or any part of the Work, nor any extension of the Contract Time, nor any possession taken by the AUTHORITY, shall operate as a waiver of any portion of the Contract or of any power herein reserved, or of any

right to damages. A waiver by the AUTHORITY of any breach of the Contract shall not be held to be a waiver of any other subsequent breach.

ARTICLE I4 - SUSPENSION OF WORK, DEFAULT AND TERMINATION

14.I AUTHORITY May Suspend Work:

14.1.1 The AUTHORITY may, at any time, suspend the Work or any portion thereof by notice in writing to the CONTRACTOR. If the Work is suspended without cause the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an Approved claim therefore as provided in Article 15. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that suspension is due to the fault or negligence of the CONTRACTOR, or that suspension is necessary for Contract compliance, or that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the CONTRACTOR.

14.1.2 In case of suspension of Work, the CONTRACTOR shall be responsible for preventing damage to or loss of any of the Work already performed and of all materials whether stored on or off the site or Approved remote storage sites.

14.2 Default of Contract:

14.2.1 The Contracting Officer may give the contractor and his surety a written Notice to Cure Default if the contractor:

a. fails to begin work in the time specified,

b. fails to use sufficient resources to assure prompt completion of the work,

c. performs the work unsuitably or neglect or refuse to remove and replace rejected materials or work,

d. stops work,

e. fails to resume stopped work after receiving notice to do so,

f. becomes insolvent (except that if you declare bankruptcy, termination will be under Title 11 US Code 362 and/or 365. Your bankruptcy does not relieve the surety of any obligations to assume the Contract and complete the work in a timely manner.

g. Allows any final judgment to stand against him unsatisfied for period of 60 days, or

h. Makes an assignment for the benefit of creditors without the consent of the Contracting Officer, or

i. Disregards Regulatory Requirements of any public body having jurisdiction, or

j. Otherwise violates in any substantial way any provisions of the Contract Documents, or

k. fails to comply with Contract minimum wage payments or civil rights requirements, or

l. are party to fraud, deception, misrepresentation , or

m. for any cause whatsoever, fails to carry on the Work in an acceptable manner.

14.2.2 The Notice to Cure Default will detail the conditions determined to be in default, the time within which to cure the default and may, in the Contracting Officer's discretion, specify the actions necessary to cure the default. Failure to cure the delay, neglect or default within the time specified in the Contracting Officer's written notice to cure authorizes the Authority to terminate the contract. The Contracting Officer may allow more time to cure than originally stated in the Notice to Cure Default if he deems it to be in the best interests of the Authority. The Authority will provide you and your surety with a written Notice of Default Termination that details the default and the failure to cure it.

14.2.3 If the CONTRACTOR or Surety, within the time specified in the above notice of default, shall not proceed in accordance therewith, then the AUTHORITY may, upon written notification from the Contracting Officer of the fact of such delay, neglect or default and the CONTRACTOR's failure to comply with such notice, have full power and authority without violating the Contract, to take the prosecution of the Work out of the hands of the CONTRACTOR. The AUTHORITY may terminate the services of the CONTRACTOR, exclude the CONTRACTOR from the site and take possession of the Work and of all the CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by the CONTRACTOR (without liability to the CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which the AUTHORITY has paid the CONTRACTOR but which are stored elsewhere, and finish the Work as the AUTHORITY may deem expedient. The AUTHORITY may enter into an agreement for the completion of said Contract according to the terms and provisions thereof, or use such other methods that in the opinion of the Contracting Officer are required for the completion of said Contract in an acceptable manner.

14.2.4 The Contracting Officer may, by written notice to the CONTRACTOR and his Surety or his representative, transfer the employment of the Work from the CONTRACTOR to the Surety, or if the CONTRACTOR abandons the Work undertaken under the Contract, the Contracting Officer may, at his option with written notice to the Surety and without any written notice to the CONTRACTOR, transfer the employment for said Work directly to the Surety. The Surety shall submit its plan for completion of the Work, including any contracts or agreements with third parties for such completion, to the AUTHORITY for Approval prior to beginning completion of the Work. Approval of such contracts shall be in accordance with all applicable requirements and procedures for Approval of subcontracts as stated in the Contract Documents.

14.2.5 After the notice of termination is issued, the Authority may take over the work and complete it by contract or otherwise and may take possession of and use materials, appliances, equipment or plant on the work site necessary for completing the work.

14.2.6 Rather than taking over the work itself, the Authority may transfer the obligation to perform the work from the contractor to your surety. The surety must submit its plan for completion of the work, including any contracts or agreements with third parties for completion, to the Authority for approval prior to beginning work. The surety must follow the Contract requirements for approval of subcontracts, except that the limitation on percent of work subcontracted will not apply.

14.2.7 On receipt of the transfer notice, the surety must take possession of all materials, tools, and appliances at the work site, employ an appropriate work force, and complete the Contract work, as specified. The Contract specifications and requirements shall remain in effect. However the Authority will make subsequent Contract payments directly to the Surety for work performed under the terms of the Contract. CONTRACTOR forfeits any right to claim for the same work or any part thereof. CONTRACTOR is not entitled to receive any further balance of the amount to be paid under the Contract.

14.2.8 Upon receipt of the notice terminating the services of the CONTRACTOR, the Surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the Work included under the Contract and employ by contract or otherwise any person or persons to finish the Work and provide the materials therefore, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to the Surety, the Surety shall be paid in its own name on estimates covering Work subsequently performed under the terms of the Contract and according to the terms thereof without any right of the CONTRACTOR to make any claim for the same or any part thereof.

14.2.9 If the Contract is terminated for default, the CONTRACTOR and the Surety shall be jointly and severally liable for damages for delay as provided by paragraph 11.8, and for the excess cost of completion, and all costs and expenses incurred by the AUTHORITY in completing the Work or arranging for completion of the Work, including but not limited to costs of assessing the Work to be done, costs associated with advertising, soliciting or negotiating for bids or proposals for completion, and other reprocurement costs. Following termination the CONTRACTOR shall not be entitled to receive any further balance of the amount to be paid under the Contract until the Work is fully finished and accepted, at which time if the unpaid balance exceeds the amount due the AUTHORITY and any amounts due to persons for whose benefit the AUTHORITY has withheld funds, such excess shall be paid by the AUTHORITY to the CONTRACTOR. If the damages, costs, and expenses due the AUTHORITY exceed the unpaid balance, the CONTRACTOR and his Surety shall pay the difference.

14.2.10 If, after notice of termination of the CONTRACTOR's right to proceed under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of this clause, or that the delay was excusable under the provisions of this clause, or that termination was wrongful, the rights and obligations of the parties shall be determined in accordance with the clause providing for convenience termination.

14.3 Rights or Remedies:

Where the CONTRACTOR's services have been so terminated by the AUTHORITY, the termination will not affect any rights or remedies of the AUTHORITY against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due the CONTRACTOR by the AUTHORITY will not release the CONTRACTOR from liability.

14.4 Convenience Termination:

14.4.1 The performance of the Work may be terminated by the AUTHORITY in

accordance with this section in whole or in part, whenever, for any reason the Contracting Officer shall determine that such termination is in the best interest of the OWNER. Any such termination shall be effected by delivery to the CONTRACTOR of a Notice of Termination, specifying termination is for the convenience of the AUTHORITY the extent to which performance of Work is terminated, and the date upon which such termination becomes effective.

14.4.2 Immediately upon receipt of a Notice of Termination and except as otherwise directed by the Contracting Officer, the CONTRACTOR shall:

a. Stop Work on the date and to the extent specified in the Notice of Termination;

b. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the Work as is not terminated;

c. Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination;

d. With the written Approval of the Contracting Officer, to the extent he may require, settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, the cost of which would be reimbursable, in whole, or in part, in accordance with the provisions of the Contract;

e. Submit to the Contracting Officer a list, certified as to quantity and quality, of any or all items of termination inventory exclusive of items the disposition of which had been directed or authorized by the Contracting Officer;

f. Transfer to the Contracting Officer the completed or partially completed record drawings, Shop Drawings, information, and other property which, if the Contract had been completed, would be required to be furnished to the AUTHORITY;

g. Take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to the Contract which is in the possession of the CONTRACTOR and in which the AUTHORITY has or may acquire any interest.

The CONTRACTOR shall proceed immediately with the performance of the above obligations.

14.4.3 When the AUTHORITY orders termination of the Work effective on a certain date, all Work in place as of that date will be paid for in accordance with Article 13 of the Contract. Materials required for completion and on hand but not incorporated in the Work will be paid for at invoice cost plus 15 % with materials becoming the property of the AUTHORITY - or the CONTRACTOR may retain title to the materials and be paid an agreed upon lump sum. Materials on order shall be cancelled, and the AUTHORITY shall pay reasonable factory cancellation charges with the option of taking delivery of the materials in lieu of payment of cancellation charges. The CONTRACTOR shall be paid 10% of the cost, freight not included, of materials cancelled, and direct expenses only for CONTRACTOR chartered freight transport which cannot be cancelled without charges, to the extent that the CONTRACTOR can establish them. The extra costs due to cancellation of bonds and insurance and that part of job start-up and phase-out costs not amortized by the amount of Work accomplished shall be paid by the AUTHORITY. Charges for loss of profit or consequential damages shall not be recoverable except as provided above.

a. The following costs are not payable under a termination settlement agreement or Contracting Officer's determination of the termination claim:

1. Loss of anticipated profits or consequential or compensatory damages
2. Unabsorbed home office overhead (also termed "General & Administrative Expense") related to ongoing business operations
3. Bidding and project investigative costs
4. Direct costs of repairing equipment to render it operable for use on the terminated work

14.4.4 The termination claim shall be submitted promptly, but in no event later than 90 days from the effective date of termination, unless extensions in writing are granted by the Contracting Officer upon written request of the CONTRACTOR made within the 90 day period. Upon failure of the CONTRACTOR to submit his termination claim within the time allowed, the Contracting Officer may determine, on the basis of information available to him, the amount, if any, due to the CONTRACTOR by reason of the termination and shall thereupon pay to the CONTRACTOR the amount so determined.

14.4.5 The CONTRACTOR and the Contracting Officer may agree upon whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of Work pursuant to this section. The Contract shall be amended accordingly, and the CONTRACTOR shall be paid the agreed amount.

14.4.6 In the event of the failure of the CONTRACTOR and the Contracting Officer to agree in whole or in part, as provided heretofore, as to the amounts with respect to costs to be paid to the CONTRACTOR in connection with the termination of the Work the Contracting Officer shall determine, on the basis of information available to him, the amount, if any, due to the CONTRACTOR by reason of the termination and shall pay to the CONTRACTOR the amount determined as follows:

a. All costs and expenses reimbursable in accordance with the Contract not previously paid to the CONTRACTOR for the performance of the Work prior to the effective date of the Notice of Termination;

b. So far as not included under "a" above, the cost of settling and paying claims arising out of the termination of the Work under subcontracts or orders which are properly chargeable to the terminated portions of the Contract;

c. So far as practicable, claims by the contractor for idled or stand-by equipment shall be made as follows: Equipment claims will be reimbursed as follows:

1. Contractor-owned equipment usage, based on the contractor's ownership and operating costs for each piece of equipment as determined from the contractor's accounting records. Under no circumstance, may the contractor base equipment claims on published rental rates.
2. Idle or stand-by time for Contractor-owned equipment, based on your internal ownership and depreciation costs. Idle or stand-by equipment time is limited to the actual period of time equipment is idle or on stand-by as a direct result of the termination, not to exceed 30 days. Operating expenses will not be included for payment of idle or stand-by equipment

time.

3. Rented equipment, based on reasonable, actual rental costs. Equipment leased under “capital leases” as defined in Financial Accounting Standard No. 13 will be considered Contractor-owned equipment. Equipment leased from an affiliate, division, subsidiary or other organization under common control with you will be considered Contractor-owned equipment, unless the lessor has an established record of leasing to unaffiliated lessees at competitive rates consistent with the rates you have agreed to pay and no more than forty percent of the lessor’s leasing business, measured in dollars, is with organizations affiliated with the lessor.

14.4.7 The CONTRACTOR shall have the right of appeal under the AUTHORITY's claim procedures, as defined in Article 15, for any determination made by the Contracting Officer, except if the CONTRACTOR has failed to submit his claim within the time provided and has failed to request extension of such time, CONTRACTOR shall have no such right of appeal. In arriving at the amount due the CONTRACTOR under this section, there shall be deducted:

a. All previous payments made to the CONTRACTOR for the performance of Work under the Contract prior to termination;

b. Any claim for which the AUTHORITY may have against the CONTRACTOR;

c. The agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the CONTRACTOR or sold pursuant to the provisions of this section and not otherwise recovered by or credited to the AUTHORITY; and,

d. All progress payments made to the CONTRACTOR under the provisions of this section.

14.4.8 Where the Work has been terminated by the AUTHORITY said termination shall not affect or terminate any of the rights of the AUTHORITY against the CONTRACTOR or his Surety then existing or which may thereafter accrue because of such default. Any retention or payment of monies by the AUTHORITY due to the CONTRACTOR under the terms of the Contract shall not release the CONTRACTOR or his Surety from liability.

14.4.9 The contractor’s termination claim may not include claims that pre dated the notice for termination for convenience. Those claims shall be prosecuted by the contractor under Article 15.

14.4.10 The contractor’s termination claim may not exceed the total dollar value of the contract as awarded plus agreed upon change orders less the amounts that have been paid for work completed.

a. Unless otherwise provided for in the Contract Documents, or by applicable statute, the CONTRACTOR, from the effective date of termination and for a period of three years after final settlement under this Contract, shall preserve and make available to the AUTHORITY at all reasonable times at the office of the CONTRACTOR, all its books, records, documents, and other evidence bearing on the cost and expenses of the CONTRACTOR under his Contract and relating to the Work terminated hereunder.

b. Cost Principles. The Authority may use the federal cost principles at 48 CFR §§ 31.201-1 to 31.205-52 (or succeeding cost principles for fixed price contracts) as guidelines in determining allowable costs under this

Subsection to the extent they are applicable to construction contracts and consistent with the specifications of this Contract. The provisions of this contract control where they are more restrictive than, or inconsistent with, these federal cost principles."

ARTICLE I5 - CLAIMS AND DISPUTES

15.1 Notification

15.1.1 The CONTRACTOR shall notify the AUTHORITY in writing as soon as the CONTRACTOR becomes aware of any act or occurrence which may form the basis of a claim for additional compensation or an extension of Contract Time or of any dispute regarding a question of fact or interpretation of the Contract. The AUTHORITY has no obligation to investigate any fact or occurrence that might form the basis of a claim or to provide any additional compensation or extension of Contract Time unless the CONTRACTOR has notified the AUTHORITY in writing in a timely manner of all facts the CONTRACTOR believes form the basis for the claim.

15.1.2 If the CONTRACTOR believes that he is entitled to an extension of Contract Time, then the CONTRACTOR must state the contract section on which he basis his extension request, provide the AUTHORITY with sufficient information to demonstrate that the CONTRACTOR has suffered excusable delay, and show the specific amount of time to which the CONTRACTOR is entitled. The AUTHORITY will not grant an extension of Contract Time if the CONTRACTOR does not timely submit revised schedules under **Section 01300**.

15.1.3 If the matter is not resolved by agreement within 7 days, the CONTRACTOR shall submit an Intent to Claim, in writing, to the AUTHORITY within the next 14 days.

15.1.4 If the CONTRACTOR believes additional compensation or time is warranted, then he must immediately begin keeping complete, accurate, and specific daily records concerning every detail of the potential claim including actual costs incurred. The CONTRACTOR shall provide the AUTHORITY access to any such records and furnish the AUTHORITY copies, if requested. Equipment costs must be based on the CONTRACTOR's internal rates for ownership, depreciation, and operating expenses and not on published rental rates. In computing damages, or costs claimed for a change order, or for any other claim against the Authority for additional time, compensation or both, the contractor must prove actual damages based on internal costs for equipment, labor or efficiencies. Total cost, modified total cost or jury verdict forms of presentation of damage claims are not permissible to show damages. Labor inefficiencies must be shown to actually have occurred and can be proven solely based on job records. Theoretical studies are not a permissible means of showing labor inefficiencies. Home office overhead will not be allowed as a component of any claim against the Authority.

15.1.5 If the claim or dispute is not resolved by the Project Manager, then the CONTRACTOR shall submit a written Claim to the Contracting Officer within 90 days after the CONTRACTOR becomes aware of the basis of the claim or should have known the basis of the claim, whichever is earlier. The Contracting Officer will issue written acknowledge of the receipt of the Claim.

15.1.6 The CONTRACTOR waives any right to claim if the AUTHORITY was not notified properly or afforded the opportunity to inspect conditions or monitor actual costs or if the Claim is not filed on the date required.

15.2 Presenting the Claim

15.2.1 The Claim must include all of the following:

a. The act, event, or condition the claim is based on

b. The Contract provisions which apply to the claim and provide relief

c. The item or items of Contract work affected and how they are affected

d. The specific relief requested, including Contract Time if applicable, and the basis upon which it was calculated

e. A statement certifying that the claim is made in good faith, that the supporting cost and pricing data are accurate and complete to the best of your knowledge and belief, and that the amount requested accurately reflects the Contract adjustment which the CONTRACTOR believes is due.

15.3 Claim Validity, Additional Information, and AUTHORITY's Action

15.3.1 The Claim, in order to be valid, must not only show that the CONTRACTOR suffered damages or delay but that it was caused by the act, event, or condition complained of and that the Contract provides entitlement to relief for such act, event, or condition.

15.3.2 The AUTHORITY can make written request to the CONTRACTOR at any time for additional information relative to the Claim. The CONTRACTOR shall provide the AUTHORITY the additional information within 30 days of receipt of such a request. Failure to furnish the additional information may be regarded as a waiver of the Claim.

15.4 Contracting Officer's Decision

15.4.1 The CONTRACTOR will be furnished the Contracting Officer's Decision within 90 days, unless the Contracting Officer requests additional information or gives the CONTRACTOR notice that the time for issuing a decision is being extended for a specified period. The Contracting Officer's decision is final and conclusive unless, within 14 days of receipt of the decision, the CONTRACTOR delivers a Notice of Appeal to the Executive Director of the Authority.

15.5 Appeals on a Contract Claim.

15.5.1 An appeal from a decision of the Contracting Officer on a contract claim may be filed by the CONTRACTOR with the Executive Director of the Authority. The appeal shall be filed within 14 days after the decision is received by the CONTRACTOR. An appeal by the CONTRACTOR may not raise any new factual issues or theories of recovery that were not presented to and decided by the Contracting Officer in the decision under Section 15.4, except that a CONTRACTOR may increase the contractor's calculation of damages if the increase arises out of the same operative facts on which the original claim was based. The CONTRACTOR shall file a copy of the appeal with the Contracting Officer.

a. An appeal must contain a copy of the decision being appealed and identification of the factual or legal errors in the decision that form the basis for the appeal.

b. The Executive Director shall handle the appeal of a claim under this section expeditiously.

15.6 Construction Contract Claim Appeals.

15.6.1 The appeal from a decision of the Contracting Officer of a claim involving a construction contract shall be resolved by:

a. binding and final arbitration under AS 09.43.010 - 09.43.180 (Uniform Arbitration Act) if the claim is:

   1. less than $250,000 and the CONTRACTOR requests arbitration of the claim; or
   2. $250,000 or more and both the agency and the CONTRACTOR agree to arbitration of the claim; or

b. a hearing under the Authority's established policy and procedures if the claim is not handled by arbitration under 15.6.1 of this subsection.

15.7 Fraud and Misrepresentation in Making Claims

Criminal and Civil penalties authorized under State or federal law (including, but not limited to, forfeiture of all claimed amounts) may be imposed on the CONTRACTOR if the CONTRACTOR makes or uses a misrepresentation in support of a claim or defraud or attempt to defraud the AUTHORITY at any stage of prosecuting a claim under this Contract."

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SECTION 00800
SUPPLEMENTARY CONDITIONS
MODIFICATIONS TO THE GENERAL CONDITIONS
(STATE FUNDED CONTRACTS)

The following supplements modify, change, delete from, or add to Section 00700 "General Conditions of the Construction Contract for Buildings", revised December, 2011. Where any article of the General Conditions is modified, or a Paragraph, Subparagraph, or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect.

SC-1–DEFINITIONS

A. Add the following definitions:

1. **QUALITY ASSURANCE ACCEPTANCE TESTING –** This is all sampling and testing performed by the CONTRACTOR to determine at what level the product or service will be accepted for payment. Qualified personnel and laboratories will perform sampling and testing. The AUTHORITY pays for this testing.

2. **QUALITY CONTROL PROGRAM (QC PROGRAM) –** The CONTRACTOR'S, Subcontractor's or Supplier's operational techniques and activities that maintain control of the manufacturing process to fulfill the Contract requirements. This may include materials handling, construction procedures, calibration and maintenance of equipment, production process control, material sampling, testing and inspection, and data analysis.

3. **RESIDENT ENGINEER -** The Engineer's authorized representative assigned to make detailed observations relating to contract performance.

SC-2.4–VISITS TO SITE/PLACE OF BUSINESS

At General Conditions Article 2.4, delete the first four words of the first sentence ("The Contracting Officer will …") and replace with the following words "The Contracting Officer has the right to, but is not obligated to…"

SC-4.2–VISIT TO SITE

At General Conditions Article 4.2, delete this article in its entirety and replace with the following article:

"A. A formal visit to the site will occur as noted on the Invitation to Bid".

SC-4.3–EXPLORATIONS AND REPORTS

At General Conditions Article 4.3, add the following paragraph:

"All reports and other records (if available) are provided for informational purposes only to all plan holders listed with the AUTHORITY as General Contractors, and are available to other planholders upon request. They are made available so Bidders have access to the same information available to the AUTHORITY. The reports and other records are not intended as a substitute for independent investigation, interpretation, or judgment of the Bidder. The AUTHORITY is not responsible for any interpretation or conclusion drawn from its records by the Bidder. While referenced by or provided with the Contract Documents; the recommendations, engineering details, and other information contained in these reports of explorations shall not be construed to supersede or constitute conditions of the Contract Documents."

SC-5.4.1 – INSURANCE REQUIREMENTS

At General Condition Article 5.4.1, delete the second to the last sentence and replace with the following: "The delivery to the AUTHORITY of a written notice in accordance with the policy provisions is required before cancellation of any coverage or reduction in any limits of liability."

SC-5.4.2a – WORKERS COMPENSATION INSURANCE

At General Condition Article 5.4.2a, delete paragraph "a" in its entirety and replace with the following:

"a. Workers' Compensation Insurance: The Contractor shall provide and maintain, for all employees of the Contractor engaged in work under this contract, Workers' Compensation Insurance as required by AS 23.30.045. The Contractor shall be responsible for Workers' Compensation Insurance for any subcontractor who provides services under this contract. Coverage shall include:

1. Waiver of subrogation against the Authority.

2. Employer's Liability Protection in the amount of $500,000 each accident / $500,000 each disease.

3. If the Contractor directly utilizes labor outside of the State of Alaska in the prosecution of the work, "Other States" endorsement shall be required as a condition of the contract.

4. Whenever the work involves activity on or about navigable waters, the Workers' Compensation policy shall contain a United States Longshoreman's and Harbor Worker's Act endorsement, and when appropriate, a Maritime Employer's Liability (Jones Act) endorsement with a minimum limit of $1,000,000."

SC-5.4.2d–BUILDERS RISK INSURANCE

At General Conditions Article 5.4.2d, delete the subsection in its entirety.

SC-9.4–CHANGE ORDER

A. At General Conditions Article 9.4, add the following sentence:

"The AUTHORITY will issue Change Orders for the CONTRACTOR to sign. A Change Order shall be considered executed when the AUTHORITY signs it. The CONTRACTOR'S signature indicates that they accept the Change Order or acknowledge it. Acknowledgement of a Change Order does not surrender the CONTRACTOR'S right to claim."

SC-12.1–WARRANTY AND GUARANTEE

At General Condition Article 12.1, add the following sentence:

"The failure of the AUTHORITY to strictly enforce the Contract in one or more instances does not waive its right to do so in other or future instances."

SC-12.6–CORRECTION OR REMOVAL OF DEFECTIVE WORK

At General Condition Article 12.6, add the following paragraphs:

"The CONTRACTOR shall establish necessary lines and grades before performing the Work. Work done before necessary lines and grades are established, Work contrary to the AUTHORITY'S instructions, Work done beyond the limits of the Contract, or any extra Work done without authority, will be considered as unauthorized and shall not be paid for by the AUTHORITY, and may be ordered removed or replaced at no additional cost to the AUTHORITY."

SC-13.15–FINAL ACCEPTANCE

In Paragraph 13.15, delete "Section(s) 01650" and replace with "Section(s) 01700."

SC-15.1–NOTIFICATION

In Paragraph 15.1.2, delete “Section 01300” and replace with “Section 01310.”

SC-15.6– Construction Contract Claim Appeals.

Delete 15.6 in its entirety.

END OF SECTION 00800

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INVITATION TO BID
Kwigillingok Rural Power System Upgrade Project
Project Number REG-17064

Issued by the Alaska Energy Authority, Rural Energy Group

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 2 – SITE WORK

DIVISIONS 3 through 15 - (NOT USED)

DIVISION 16 – ELECTRICAL

SECTION 01020

INTENT OF DOCUMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Explanation of intent and terminology of the Construction Documents.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions.

1.03 SPECIFICATION FORMAT AND COMPOSITION

A. Specifications are divided into Divisions and Sections for the convenience of writing and using. Titles are not intended to imply a particular trade jurisdiction. AUTHORITY is not bound to define the limits of any subcontract, and will not enter into disputes between the CONTRACTOR and his employees, including Subcontractors.

B. Pages are numbered independently for each Section, and recorded in the Table of Contents. Section number is shown with the page number at the bottom of each page. The end of each Section of the Specifications is ended by "End of Section". It is CONTRACTOR'S responsibility to verify that Contract Documents received for bidding and/or construction are complete in accordance with Table of Contents.

C. The language employed in the Contract Documents is addressed directly to the CONTRACTOR. Imperative or indicative language is generally employed throughout and requirements expressed are the mandatory responsibility of the CONTRACTOR, even though the Work specified may be accomplished by specialty subcontractors engaged by the CONTRACTOR. References to third parties in this regard shall not be interpreted in any way as to relieve the CONTRACTOR of his or her responsibility under this Contract.

D. These Specifications are of the abbreviated or "streamlined" type, and may include incomplete sentences.

E. Omissions of words or phrases such as "the CONTRACTOR shall", "in conformity therewith", "shall be", "as noted on the Drawings", "according to the Drawings", "a", "an", "the" and "all" are intentional.

F. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note' occurs on the Drawings.

1.04 DRAWINGS: CONTENT EXPLANATION

A. Drawings, Dimensions and Measurements.

1. Contract Documents do not purport to describe in detail, absolute and complete construction information. Drawings are diagrammatic. CONTRACTOR shall provide verification of actual site conditions and shall provide complete and operational systems as specified when Drawings do not provide full detail.

1.05 COMMON TERMINOLOGY

A. Certain items used generally throughout the Specifications and Drawings are used as follows:

1. Indicated: The term “indicated” is a cross reference to details, notes or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar means of recording requirements in the Contract Documents. Where terms such as “shown”, “noted”, “schedules”, and “specified” are used in lieu of “indicated”, it is for the purpose of helping the reader accomplish the cross reference, and no limitation of location is intended except as specifically noted.
2. Installer: The person or entity engaged by CONTRACTOR, his Subcontractor or sub-subcontractor for the performance of a particular unit of Work at the Project site, including installation, erection, application and similar required operations. It is a general requirement that installers be recognized experts in the work they are engaged to perform.
3. Furnish: Except as otherwise defined in greater detail, the term “furnish” is used to mean “...supply and deliver to the Project site, ready for unpacking, assembly and installation…”
4. Guarantee and Warranty: “Warranty” is generally used in conjunction with products manufactured or fabricated away from the Project site, and “guarantee” is generally used in conjunction with units of work which require both products and substantial amounts of labor at the Project site. The resulting difference is that warranties are frequently issued by manufacturers, and guarantees are generally issued by CONTRACTOR and frequently supported (partially) by product warranties from manufacturers.

1.06 CONFLICTS

A. Report any conflicts to AUTHORITY for clarification.

END OF SECTION

SECTION 01027

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of Applications for Payment.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions: Article 13, Progress Payments, and Final Payment.

B. Document 00800 – Supplementary Conditions.

C. Section 01300 – Submittals.

D. Section 01370 – Schedule of Values.

E. Section 01700 – Project Closeout.

F. Section 01720 – Project Record Documents

G. Section 01770 – Contract Closeout.

1.03 FORMAT

A. Application for Payment form as provided by the AUTHORITY or Contractor's Form containing same information.

1.04 PREPARATION OF APPLICATIONS

A. Type required information on Application for Payment form approved by AUTHORITY.

B. Execute certification by original signature of authorized officer upon each copy of the Application for Payment.

C. Submit names of individuals authorized to be responsible for information submitted on Application for Payment.

D. Indicate breakdown of costs for each item of the Work on accepted Schedule of Values. Provide dollar value in each column for each line item for portion of

Work performed and for stored products. Indicate percent complete for each item, value for invoice submitted, total value billed, and totals for each column.

E. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.

F. Prepare for application of Final Payment as specified in Section 01770 – Contract Closeout.

1.05 SUBMITTAL PROCEDURES

A. Submit original plus three (3) copies and one (1) copy electronically of each Application for Payment at times stipulated in Contract.

B. Submit under AUTHORITY accepted transmittal letter. Identify Contract by AUTHORITY Contract number.

1.06 SUBSTANTIATING DATA

A. When AUTHORITY requires substantiating information, submit data justifying line item amounts in question.

B. Provide two (2) copies of data with cover letter for each copy of Application. Show Application number and date, and line item by number and description.

1.07 SUBMITTALS WITH APPLICATION FOR PAYMENT

A. Submit the following with each Application for Payment:
   1. Updated construction schedule as required by Section 01300 – Submittals.
   2. Updated Schedule of Values as required by Section 01370 – Schedule of Values.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01028

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for processing Change Orders.

1.02 RELATED SECTIONS

A. Document 00700 - General Conditions: Articles 9, 10, and 11 – Governing requirements for changes in the Work, in Contract Price, and Contract Time.

B. Document 00800 – Supplementary Conditions: Modifications to Document 00700 – General Conditions.

C. Section 01027 – Applications for Payment.

D. Section 01300 - Submittals.

E. Section 01370 – Schedule of Values.

F. Section 01630 – Product Options and Substitutions.

G. Section 01770 – Contract Closeout.

1.03 SUBMITTALS

A. Submit name of the individual authorized to accept changes, and to be responsible for informing others in CONTRACTOR's employ of changes in the Work.

B. Change Order Forms will be prepared by the AUTHORITY.

1.04 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

A. Maintain detailed records of work done on a Cost of the Work plus a Fee basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work. Incomplete or unsubstantiated costs will be disallowed.

B. CONTRACTOR shall submit a complete, detailed, itemized cost breakdown addressing impact on Contract Time and Contract Price with each proposal.

C. On request, provide additional data to support computations:
   1. Quantities of products, labor, and equipment.
   2. Taxes, insurance and bonds.
   3. Overhead and profit.
   4. Justification for any change in Contract Time.
   5. Credit for deletions from Contract, similarly documented.

D. Support each claim for additional costs, and for work done on a cost of the Work plus a Fee basis, with additional information:
   1. Origin and date of claim.
   2. Dates and times Work was performed, and by whom.
   3. Time records and wage rates paid.
   4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.05 PRELIMINARY PROCEDURES

A. AUTHORITY may submit a Proposal Request which includes: Detailed description of change with supplementary or revised Drawings and Specifications, the projected time for executing the change, with a stipulation of any overtime work required, and the period of time during which the requested price will be considered valid.

B. CONTRACTOR may initiate a change by submittal of a request to AUTHORITY describing the proposed change with a statement of the reason for the change, and the effect on Contract Price and Contract Time with full documentation.

1.06 CONSTRUCTION CHANGE AUTHORIZATION

A. Shall be in accordance with Article 9 – Changes: in Document 00700 – General Conditions.

1.07 LUMP SUM CHANGE ORDER

A. CONTRACTOR shall submit an itemized price proposal in sufficient detail to fully explain the basis for the proposal. CONTRACTOR and AUTHORITY shall then negotiate an equitable price (and time adjustment if appropriate) in good faith. The Change Order will reflect the results of those negotiations. If negotiations break down, CONTRACTOR may be directed to perform the subject Work under a COST OF THE WORK CHANGE ORDER.

B. The maximum rates of cost markup (to cover both overhead and profit of the CONTRACTOR) shall be per Section 00700 – General Conditions, Article 10, Paragraph 10.3 “Change Order Price Determination”.

C. These terms shall also apply to the proposals of subcontracts and allowances.

1.08 UNIT PRICE CHANGE ORDER

A. For pre-determined Unit Prices and quantities, Change Order will be executed on a lump sum basis.

B. For pre-determined Unit Prices and undetermined quantities, Change Order will be executed on an estimated quantity basis; payment will be based on actual quantities measured as specified.

1.09 COST OF THE WORK CHANGE ORDER

A. CONTRACTOR shall submit documentation required in Paragraph 1.04 of this Section on a daily basis for certification by the AUTHORITY. The AUTHORITY will indicate by signature that the submitted documentation is acceptable. If it is not acceptable, CONTRACTOR and AUTHORITY shall immediately meet to discuss resolution.

B. After completion of the change and within fourteen (14) Calendar Days, unless extended by the AUTHORITY, the CONTRACTOR shall submit in final form an itemized account with support data of all costs. Support data shall have been certified by the AUTHORITY, as required above in paragraph A.

C. AUTHORITY will determine the change allowable in Contract Price and Contract Time as provided in provisions of the Contract Documents.

1.10 EXECUTION OF CHANGE ORDERS

A. AUTHORITY will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

1.11 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price as shown on Change Order.

B. Promptly revise progress schedules to reflect any change in Contract Time, revise subschedules to adjust times for other items of Work affected by the change, and resubmit.

C. Promptly enter changes in project record documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01100

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section describes the project and the work to be performed under this Contract. Detailed requirements and extent of work are stated in applicable Specification sections and shown on the Drawings.

1.02 ORGANIZATION AND INTERPRETATION OF CONTRACT DOCUMENTS

A. Specifications and Drawings included in these Contract Documents establish the performance, quality requirements, location and general arrangement of materials and equipment, and establish the minimum standards for quality of workmanship and appearance.

B. Specification sections have not been divided into groups for work of subcontractors or various trades. Should there be questions concerning the applicability or interpretation of a particular section or part of a section or Drawing, direct questions to the Engineer.

C. A part of the work that is necessary or required to make each installation satisfactory and operable for its intended purpose, even though it is not specifically included in the Specifications or on the Drawings, shall be performed as incidental work as if it were described in the Specifications and shown on the Drawings.

1.03 DESCRIPTION OF PROJECT

A. Scope

1. This project consists of a general contract to furnish all labor, materials, equipment, consumables, supervision, transportation, freight, subsistence, expertise and incidentals necessary to complete the Kwigillingok Rural Power System Upgrade Project as identified in the Contract Documents.
2. All work is included in the Base Bid and any Additive Alternates awarded unless otherwise indicated and can be generally described as providing the following as appropriate for each bid item and additive alternate:
    a. Pre-construction and post construction costs of obtaining all required bonds, permits and other costs Contractor must incur before beginning the work.
    b. Mobilization and demobilization.
    c. Construction surveying and staking

d. Erecting, maintaining and removing all temporary structures, storage yards, erosion control measures, and other construction facilities.
e. Disassembly, relocation and/or reassembly of existing structures that interfere with execution of the work, including boardwalks, steambaths, and other miscellaneous structures.
f. Receipt of any owner furnished materials.
g. Furnishing and installation of H-piles
h. Furnishing and installation of helical pile guy anchors and guy lines.
i. Furnishing and installation of electrical primary and secondary cable, controls and power poles.
j. Furnishing and Installation of transformers
k. Providing temporary power to structures affected by the construction.
l. Demolition of existing primary and secondary distribution components taken out of service as a result of the project.
m. Onsite Safety.
n. Testing and Quality Control
o. All other work and material that may be indicated or shown on the drawings, described in the specifications, and/or is needed to make a complete and fully functioning electrical distribution system.
p. Contract Documents
    1. Work shall be constructed in accordance with Contract Documents.

B. The Contractor shall, except as otherwise specifically stated in applicable parts of these Contract Documents, provide and pay for labor, materials, equipment, tools, construction equipment, facilities, and services necessary for proper execution, testing, and completion of the work.

1.04 DESCRIPTION OF BID ITEMS

A. Bid Item #1: Construct Base Bid Area

1. The lump sum bid for Bid Item 1 shall include but not be limited to full payment for all labor, material, freight and equipment required to furnish and install all required H-piles, poles, conductor, transformers, switch cabinets, hardware, guy anchors, guy lines, and other components in the base bid area as shown on the plans and described in the project specifications.
2. Work shall also include energizing and testing the new system components in the Base Bid Area, and demolition of all existing system components taken out of service as a result this bid item as shown in the plans and described in the project specificaions.

3. Work shall also include transportation of demolished items to the Kwigillingok Landfill or other location approved by the Utility and the Authority.
4. Measurement for payment shall be lump sum complete in place.

B. Additive Alternate 1A: Furnish Materials for Additive Alternate 1 Area

1. The lump sum bid for Additive Alternate 1A shall include but not be limited to full payment for all labor, material, freight and equipment required to furnish all materials required for construction of facilities in Additive Alternate 1 area FOB Kwigillingok, including all piling, poles, transformers, cross arms, guy anchors, guy lines, conductor, hardware and other components as shown on the plans and specifications. Provide secure storage for project materials in Kwigillingok.
2. Measurement for payment shall be lump sum complete in place.

C. Additive Alternate 1B: Install New System Components in Additive Alternate 1 Area

1. The lump sum bid for Additive Alternate 1B shall include but not be limited to full payment for all labor, material, freight and equipment required to install all system components in Additive Alternate 1 area to make a complete and functional system, including all piles, pole support angle brackets, helical anchors, poles, cross arms, guy anchors, conductor and associated components and hardware as shown on the plans and described in the project specifications.
2. Work shall also include energizing and testing the new system components in Additive Alternate 1 area and demolition of all existing system components taken out of service as a result work completed under this bid item in accordance with the project plans and specifications.
3. Work shall also include transportation of demolished items to the Kwigillingok Landfill or other location approved by the Utility and the Authority.
4. Measurement for payment shall be lump sum complete in place.

D. Additive Alternate 2A: Furnish Materials for Additive Alternate 2 Area

1. The lump sum bid for Additive Alternate 2A shall include but not be limited to full payment for all labor, material, freight and equipment required to furnish all materials required for construction of facilities in Additive Alternate 2 area FOB Kwigillingok, including all piling, poles, transformers, cross arms, guy anchors, guy lines, conductor, hardware and

other components as shown on the plans and specifications. Provide secure storage for project materials in Kwigillingok.

2. Measurement for payment shall be lump sum complete in place.

E. Additive Alternate 2B: Install New System Components in Additive Alternate 2 Area

1. The lump sum bid for Additive Alternate 2B shall include but not be limited to full payment for all labor, material, freight and equipment required to install all system components in Additive Alternate 2 area to make a complete and functional system, including all piles, pole support angle brackets, helical anchors, poles, cross arms, guy anchors, conductor and associated components and hardware as shown on the plans and described in the project specifications.

2. Work shall also include energizing and testing the new system components in Additive Alternate 2 area and demolition of all existing system components taken out of service as a result work completed under this bid item in accordance with the project plans and specifications.

3. Work shall also include transportation of demolished items to the Kwigillingok Landfill or other location approved by the Utility and the Authority.

4. Measurement for payment shall be lump sum complete in place.

F. Additive Alternate 3A: Furnish Materials for Additive Alternate 3 Area

1. The lump sum bid for Additive Alternate 3A shall include but not be limited to full payment for all labor, material, freight and equipment required to furnish all materials required for construction of facilities in Additive Alternate 2 area FOB Kwigillingok, including all piling, poles, transformers, cross arms, guy anchors, guy lines, conductor, hardware and other components as shown on the plans and specifications. Provide secure storage for project materials in Kwigillingok.

2. Measurement for payment shall be lump sum complete in place.

E. Additive Alternate 3B: Install New System Components in Additive Alternate 3 Area

1. The lump sum bid for Additive Alternate 3B shall include but not be limited to full payment for all labor, material, freight and equipment required to install all system components in Additive Alternate 2 area to make a complete and functional system, including all piles, pole support angle brackets, helical anchors, poles, cross arms, guy anchors, conductor and associated components and hardware as shown on the plans and described in the project specifications.

2. Work shall also include energizing and testing the new system components in Additive Alternate 2 area and demolition of all existing system components taken out of service as a result work completed under this bid item in accordance with the project plans and specifications.
3. Work shall also include transportation of demolished items to the Kwigillingok Landfill or other location approved by the Utility and the Authority.
4. Measurement for payment shall be lump sum complete in place.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01110

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 APPLICABLE CODES, STANDARDS, AND REGULATORY REQUIREMENTS

All work shall be in accordance with the latest adopted edition of governing Codes and Regulations including but are not limited to:

1. Alaska Department of Environmental Conservation (ADEC) Regulations including 18AAC75
2. American National Standards Institute (ANSI)
3. American Society of Mechanical Engineers (ASME)
4. Environmental Protection Agency (EPA) Regulations
5. American Society of Testing and Materials (ASTM)
6. American Society of Mechanical Engineers (ASME)
7. Institute of Electrical and Electronic Engineers (IEEE)
8. International Fire Code (IFC)
9. International Building Code (IBC)
10. National Fire Protection Association (NFPA) NFPA 30
11. National Electrical Safety Code (NESC), ANSI C2-2007
12. Ocupational Safety and Health Administration (OSHA)
13. Underwriters Laboratories (U.L.)
14. Rural Utility Service (RUS)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01126

CONTRACTOR'S CERTIFICATION OF SUBCONTRACT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparing, submitting and accepting subcontracts.

1.02 RELATED SECTIONS

A. Document 00120 – Required Documents, Required After Notice of Apparent Low Bidder.

B. Document 00410 – Subcontractor List.

C. Document 00700 – General Conditions.

D. Section 01300 – Submittals.

1.03 PREPARATION

A. Certification Forms: Use forms provided by AUTHORITY.

B. CONTRACTOR to prepare certification form and submit to the AUTHORITY prior to the start of Work. All subcontracts shall be included in a single submittal. Where required, attach additional information (cross-referenced to the appropriate subcontract) to the certification form.

C. Substitute certification forms will not be considered.

1.04 SUBMITTAL OF CERTIFICATION

A. CONTRACTOR shall submit certification forms in accordance with the submittal requirements identified under Paragraph 1.02 D of this Section.

1.05 CONSIDERATION OF CERTIFICATION

A. Following receipt of submittal and within a reasonable period of time AUTHORITY shall review for each of the following:
   1. Completeness of forms and attachments.
   2. Proper execution (signatures) of forms and attachments.

B. Submittals which are not complete or not properly executed will be returned to the CONTRACTOR under a transmittal letter denoting the deficiencies found. CONTRACTOR shall correct and resubmit per paragraph 1.04 of this Section.

1. The CONTRACTOR shall not award any Work to any Subcontractor without prior written Approval of the AUTHORITY.
2. Payment will not be made for Work performed by a Subcontractor not approved (non-certified) by the AUTHORITY.

1.06 ACKNOWLEDGMENT OF CERTIFICATION

A. Submittals which have been examined by the AUTHORITY and are determined to be complete and properly executed shall be acknowledged as such by the AUTHORITY's signature on the face of each certification form.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ALASKA ENERGY AUTHORITY	SUBCONTRACTOR CERTIFICATION	

Note: The Contractor shall provide this form for ALL subcontractors working on this project. This form is applicable to all projects, including Small Procurement Contracts, and must be completed in full.

PROJECT: _____ PROJ. #: _____

PRIME CONTRACTOR: _____

Pursuant to the Contract Documents, we hereby stipulate the following concerning the award of Work to the last Subcontractor on the following list:

1. First Tier Subcontractor: _____ DBE? **Yes**☐ **No**☐

   Second Tier: _____ DBE? **Yes**☐ **No**☐

   Third Tier: _____ DBE? **Yes**☐ **No**☐

   Fourth Tier: _____ DBE? **Yes**☐ **No**☐

2. Date of Subcontract: _____

3. Amount of Subcontract: $ _____

4. Scope of Work: _____

   _____

5. Are the following documents kept on file by both the Contractor and the Subcontractor (check the appropriate answer)?

   Contract Minimum Wage Schedule **Yes**☐ **No**☐

6. Does the Subcontract contain provisions for prompt payment, release of retainage, and interest on late payment and retainage conforming to AS 36.90.210?

   Yes☐ **No**☐

7. Does the Subcontract specifically bind the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the Department and does it contain waiver provisions and termination provisions as required by the Contract Documents?

   Yes☐ **No**☐

8. a. Does the Subcontractor have adequate insurance coverages as specified in the Contract Documents?

   Yes☐ **No**☐

   If not, does the Contractor stipulate that the insurance limits of the Subcontractor are acceptable to the Contractor and that he has notified his insurance carrier of the reduced insurance limits?

   Yes☐ **No**☐

   b. Does the evidence of insurance certify that the policies described thereon comply with all aspects of the insurance requirements for this project?

   Yes☐ **No**☐

PROJECT: _____ **PROJ. #:** _____

Subcontractor Name: _____

c. Does the evidence of insurance list the Department as an "Additional Insured" or "Certificate Holder"?

Yes☐ **No**☐

d. Does the evidence of insurance commit to providing 30 day written notice of cancellation or reduction of any coverage?

Yes☐ **No**☐

e. Insurance Expiration dates:

Comprehensive or Commercial General Liability: _____

Automobile: _____ Workers' Compensation: _____

(Other): _____

9. Copies of the following professional certifications, licenses, and registrations are attached (circle all that apply):

Business License (mandatory)
Contractor License (mandatory)
Land Surveyor's License
Electrical Administrator's License (mandatory for electrical subs)
Mechanical Administrator's License (mandatory for mechanical subs)
Engineer/Architect
Other: _____

10. Exceptions to any of the above are explained as follows: _____

_____

CERTIFICATION (to be completed and signed by PRIME CONTRACTOR): I certify all the above to be true and correct.

Signature: _____

Printed Name: _____

Company: _____

Date: _____

AUTHORITY'S APPROVAL/DISAPPROVAL

The subject subcontract is **APPROVED**. Nothing in this approval should be construed as relieving the Prime Contractor of the responsibility for complete performance of the work or as a waiver of any right of the Department to reject defective work.

SIGNATURE: _____ **DATE:** _____

Project Engineer

The subject subcontract is **NOT APPROVED** for the following reasons:

_____

_____

SIGNATURE: _____ **DATE:** _____

Project Engineer

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements and procedures necessary for scheduling, preparation, and submission of submittals.

1.02 RELATED SECTIONS

A. Individual Specification sections in these Contract Documents contain additional and special submittal requirements. Individual sections shall take precedence in the event of a conflict with this section.

B. Document 00700 – General Conditions, Paragraphs 6.9, 6.10 and 6.11 for substitutes, and Paragraphs 6.20 and 6.21 for shop drawings.

C. Document 00700 – General Conditions, Paragraphs 6.6, 6.7 and 6.8 for Progress Schedules.

D. Document 00700 – General Conditions, Paragraph 6.16 for Record Documents.

E. Section 01310 – Progress Schedules.

F. Section 01370 – Schedule of Values.

G. Section 01400 – Quality Control.

H. Section 01500 – Temporary Facilities and Controls.

I. Section 01600 – Materials and Products.

J. Section 01630 – Product Options and Substitutions.

K. Section 01700 – Project Closeout.

L. Section 01720 – Project Record Documents.

M. Section 01770 – Contract Closeout.

N. All Technical Specifications.

1.03 SUBMITTALS

A. Work Plan as required by the Special Conditions in Document 00800 – Supplementary Conditions.

B. Erosion and Pollution Control Plans as required by the Special Conditions in Document 00800 – Supplementary Conditions.

C. Schedule.

D. Quality Control Submittals.

E. Submittal's as indicated in 1.04 Submittal Schedule, and in individual specification sections.

1.04 SUBMITTAL SCHEDULE

Submittal items shall be submitted to the following locations as indicated:

ITEM	**ORIGINAL**	**COPY**
Schedule of Values	AUTHORITY	Engineer
* Construction Schedule	AUTHORITY	Engineer
* Subcontractor List	AUTHORITY	Engineer
* Contractor Questionnaire	AUTHORITY	Engineer
Work Plan	Engineer	AUTHORITY
Erosion and Pollution Control Plans	Engineer	AUTHORITY
Quality Control	Engineer	AUTHORITY
Product Options and Substitutions	Engineer	AUTHORITY
Pay Requests	AUTHORITY	Engineer
Change Order Requests or Proposals	AUTHORITY	Engineer
Design Clarification and Verification Requests	Engineer	AUTHORITY
Project Closeout Documents	AUTHORITY	Engineer
Request for Substantial Completion Inspection	AUTHORITY	Engineer
Contract Closeout Documents	AUTHORITY	Engineer
Request for Final Completion Inspection	AUTHORITY	Engineer
Project Record Documents	AUTHORITY	Engineer

* These items are required by Document 00120. All items required by Document 00120 but not listed here shall be submitted to the AUTHORITY.

1.05 SUBMITTAL PROCEDURES

A. AUTHORITY reserves the right to modify the procedures and requirements for submittals, as necessary, to accomplish the specific purpose of each submittal. Direct inquiries to Engineer regarding the procedure, purpose, or extent of any submittal.

B. Review, acceptance, or approval of substitutions, schedules, shop drawings, list of materials, and procedures submitted or requested by Contractor shall not add to the Contract amount, and additional costs which may result therefrom shall be solely the obligation of Contractor.

C. Contractor shall be responsible for performing necessary analysis research, data gathering, code analysis, and cost estimating for review and acceptance by the Engineer when the Contractor submits a substitution as an equal product.

D. AUTHORITY is not precluded, by virtue of review, acceptance, or approval, from obtaining a credit for construction savings resulting from allowed concessions in the work or materials therefore.

E. AUTHORITY is not responsible to provide engineering or other services to protect Contractor from additional costs accruing from submittals.

F. Submittals processed by Engineer do not become Contract Documents and are not Change Orders; the purpose of submittal review is to establish a reporting procedure and is intended for Contractor's convenience in organizing the work, and to permit Engineer to monitor Contractor's progress and understanding of the design.

G. Delays caused by the need for resubmittal shall not constitute basis for claim.

H. After checking and verifying all field measurements, make submittal to Engineer in accordance with the submittal schedule for review.
   1. Submittals shall bear a stamp or specific written indication that Contractor has satisfied its responsibilities under the Contract Documents with respect to the review of the submittal.
   2. Data shown shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable Engineer to review the information.

I. Check samples, and accompany with specific written indication that Contractor has satisfied requirements under the Contract Documents with respect to review of submittals, and identify clearly as to material, supplier, pertinent data such as catalog numbers and the intended use.

J. Before submission of each submittal, determine and verify quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto; review and coordinate each submittal with other submittals, requirements of the work, and the Contract Documents.

K. At the time of each submission, give Engineer specific written notice of each variation that the submittal may have from the requirements of the Contract Documents. In addition, make specific notation on each shop drawing submitted to Engineer for review and approval of each such variation.

L. Engineer's review will be only for conformance with the design concept of the project and for compliance with the information given in the Contract Documents, not extending to means, methods, techniques, sequences, or procedures of construction (except where a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents), nor to safety precautions or programs incident thereto. The review of a separate item as such will not indicate review of the assembly in which the item functions.

M. Engineer's review of submittals shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing, called Engineer's attention to each such variation at the time of submission, and Engineer has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the shop drawing or sample approval; nor will any approval by Engineer relieve Contractor from responsibility for errors or omissions in the shop drawings, or from responsibility for having complied with the provisions herein.

N. Where a shop drawing or sample is required by the Specifications, related work performed prior to Engineer's review and approval of the pertinent submission shall be the sole expense and responsibility of Contractor.

1.06 ADMINISTRATIVE SUBMITTALS

A. Provide administrative submittals required by the Bidding Requirements, General Conditions, Special Conditions, and as may be specifically required in other parts of the Contract Documents.

B. Make required submittals promptly to the applicable federal, state, or local agency, as required by law. Failure to comply with this requirement may result in withholding of progress payments and make Contractor liable for other prescribed action and sanctions.

C. Submit to AUTHORITY a copy of all letters relative to this Contract, including notifications, reports, certifications, payroll and the like, that are submitted directly to a federal, state, or other governing agency.

1.07 SCHEDULES

A. General:
   1. Submit Schedules in accordance with Section 01310.
   2. Revise, resubmit, and identify all changes made from previously submitted schedules throughout the duration of the project to keep all schedules up to date.

1.08 QUALITY CONTROL SUBMITTALS

A. Submit Quality Control Submittals as identified in the Specifications and on the Drawings per most recent edition of the NESC and RUS Standards.

B. Certification of Compliance:
   1. Where specified, furnish certification of compliance for products specified to a recognized standard or code prior to the use of such products in the work.
      a. Engineer may permit use of certain materials or assemblies prior to sampling and testing if accompanied by a certification of compliance.
      b. Certifications shall be signed by the manufacturer of the product; state that the components involved comply in all respects with the requirements of the Specifications.
      c. Furnish certification of compliance with each lot delivered to the job site, and clearly identify the lot so certified.
   2. Products used on the basis of a certification of compliance may be sampled and tested at any time. The fact that a product is used on the basis of a certification of compliance shall not relieve the Contractor of responsibility for incorporating products in the work, which conforms to requirements of the Contract Documents. Products not conforming to such requirements will be subject to rejection whether in-place or not.

1.09 CONTRACT CLOSEOUT SUBMITTALS

A. Record Drawings:
   1. Maintain a current listing and description of each change incorporated into the work and note same on mark-up drawing set. Provide mark-up drawing set to the Engineer prior to or during the substantial completion inspection. Engineer will prepare a set of record drawings for the project from the Contractor provided annotated drawings, which will include the changes made in materials, equipment, locations, and dimensions of the work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01310

PROGRESS SCHEDULES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Detailed scheduling requirements and procedures including preparation, interim schedule, and overall schedule.

B. Preconstruction conference requirements.

C. Monthly progress report requirements.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraphs 6.6, 6.7 and 6.8 for Anticipated Schedules, Finalizing Schedules, and Adjusting Schedules.

B. Section 01300 – Submittals.

1.03 SUBMITTALS

A. Submit the following items as specified in this section:
   1. Gantt Chart, not CPM (Critical Path Method) nodal analysis.

1.04 CONSTRUCTION SCHEDULE RESPONSIBILITIES

A. Contractor shall accept the risk for delays caused by the rate of progress of work to be executed under Contract. Contractor shall be responsible for scheduling work.

1.05 PROGRESS OF THE WORK

A. General:
   1. Execute work with such progress as necessary to prevent delay to the overall completion of the project.
   2. Execute the work at such times and on such parts of the project, and with such forces, materials and equipment to assure completion in the time established by the Contract.

1.06 PRECONSTRUCTION CONFERENCE

A. Within twenty (20) days following execution of Contract but before start of work at the site, Contractor shall meet with AUTHORITY and Engineer for discussion of scheduling requirements per Section 01320 – Project Meetings.
B. Prior to start of work at the site, Contractor shall meet with AUTHORITY and Engineer for an update of scheduling requirements per Section 01320 – Project Meetings.

1.07 SCHEDULE

A. General:
   1. Contractor shall prepare and submit within fourteen (14) days after the award of Contract, a schedule comprised of all construction operations in connection with the Contract.

B. Schedule Requirements:
   1. Schedule type shall be a Gantt chart. Draw or print the schedule on reproducible paper, not larger than 30 inches by 42 inches, and show the sequence and interdependence of activities required for complete performance of all items of work.

C. Acceleration:
   1. If at any time during the project Contractor fails to complete an activity by its latest scheduled completion date, which late completion will impact the end date of the work past the Contract completion date, submit within seven (7) calendar days plans to reorganize the work force to return to the current schedule.
   2. The AUTHORITY may require Contractor to add equipment or construction forces, as well as increase working hours, if operations fall behind schedule at any time.
   3. Addition of equipment or construction forces, increasing working hours, or other method, manner, or procedure to return to the contractually required completion date will not be justification for Contract modification or treated as a schedule acceleration by the AUTHORITY.
   4. Contractor shall plan, schedule, and coordinate construction operations and activities in a manner that will facilitate progress of work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01320

PROJECT MEETINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. Preconstruction Conference: Contractor shall attend a mandatory preconstruction conference at Alaska Energy Authority, 813 West Northern Lights Blvd, Anchorage, Alaska 99503, (907) 771-3000.

1. As a minimum, the following project representatives will attend:
   a. AUTHORITY's project manager
   b. Engineer's project manager
   c. Contractor's project manager
   d. Contractor's superintendent
   e. Subcontractors whom the Contractor or Engineer has requested may attend.
2. The Engineer shall develop an agenda for the preconstruction conference approximately one (1) week prior to the meeting. Minimum agenda is a follows:
   a. Identification of Responsible Parties
   b. Contract Information
   c. DCVRs, Procedures, Contractor Questions and AUTHORITY Directions
   d. Change Order Procedures
   e. Project Schedule (provided by the Contractor)
   f. Schedule of Values
   g. Pay Requests
   h. List of Subcontractors

B. Job Site Preconstruction Meeting: Contractor shall hold a mandatory preconstruction meeting at the job site within 7-days of start of construction. Contractor shall provide minimum 7-days notice to the AUTHORITY of the meeting date and location. The Contractor is responsible to provide the meeting facilities.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01370

SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Provide a detailed breakdown of the agreed Contract Sum showing amounts allocated to each of the various parts of the work, as specified herein and in other provisions of the Contract Documents.

B. Related Work:

1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Special Conditions, and Sections in Division 1 of these Specifications.
2. Preparation and submittal of a Schedule of Values is required by the General Conditions.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraph 13.1, Schedule of Values.

1.03 SUBMITTALS

A. Within seven (7) days after the Preconstruction Conference and prior to first application for payment, submit a proposed Schedule of Values to the Engineer based on the schedule breakdown in Part 2.01 of this section.

1. Prepare Schedule of Values for the project with tasks identified outlined by this section.
2. Meet with the Engineer and AUTHORITY to determine additional data, if any, required to be submitted.
3. Secure the Engineer and AUTHORITY's acceptance of the Schedule of Values prior to submitting first application for payment.

1.04 QUALITY ASSURANCE

A. Assure arithmetical accuracy of the sums described.

B. When so required by the Engineer, provide copies of documentation or other data acceptable to the Engineer, substantiating the sums described.

1. Support documentation might include, but not be limited to the following:

a. Insurance and bond invoices
b. Copies of subcontracts
c. Bills of lading
d. Material invoices
e. Freight invoices

PART 2 PRODUCTS

2.01 SCHEDULE OF VALUES BREAKDOWN

A. The following is the minimum acceptable breakdown:

1. Bond and insurance
2. General Conditions (categorize as required)
3. Freight (categorize as required)
4. Mobilization
5. Demobilization
6. Items specified in 2.02 SCHEDULE OF VALUES (include materials, equipment and labor breakdown)
7. Final Clean-up and Punch List

B. The sum of the Schedule of Values breakdown shall equal to the total Contract Price.

C. The Schedule of Values shall serve as a basis for calculating progress payments during construction and shall be presented in such detail to allow the AUTHORITY to accurately verify the amount and value of work completed as defined in the Contractor's invoice.

D. The Schedule of Values shall correspond to the activities on the Construction Schedule.

E. All components or items not listed in the Schedule of Values shall be incidental to one of the Units listed.

2.02 SCHEDULE OF VALUES

UNIT	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
#2 ACSR	OH PRIMARY - SPARATE	FT.	
#2 JCN	PRIMARY UG CABLE: 15KV, #12 AWG AL, JACKETED, 133% INSULATION, FULL CONCENTRIC CU NEUTRAL, STRAND FILLED	FT.	
#1/0 TRIPLEX	600 VOLT TRIPLEX – NERITINA. SERVICE DROP CABLE, AL, CROSS-LINKED POLYETHYLENE INSULATION, 6201 ALLOY NEUTRAL MESSENGER,	FT	
#2 TRIPLEX	600 VOLT TRIPLEX – SHRIMP. SERVICE DROP CABLE, AL, CROSS-LINKED POLYETHYLENE INSULATION, 6201 ALLOY NEUTRAL MESSENGER,	FT	
#6 DUPLEX	600 VOLT DUPLEX – VIZSLA. SERVICE DROP CABLE, AL, CROSS-LINKED POLYETHYLENE INSULATION, 6201 ALLOY NEUTRAL MESSENGER,	FT	
30’, Class 4	WOOD POLE, AS SPECIFIED	EACH	
35’, Class 4	WOOD POLE, AS SPECIFIED	EACH	
40’, Class 4	WOOD POLE, AS SPECIFIED	EACH	
A2.1	SINGLE PHASE SINGLE SUPPORT - TANGENT	EACH	
A2.021	DOUBLE INSULATOR SUPPORT – PRIMARY	EACH	
A5.03	SUSPENSION DEADEND INSULATORS, COMPLETE AS INDICATED ON RUS CONSTRUCTION UNIT.	EACH	
A5.1	SINGLE PHASE DEADEND	EACH	
C1.11	THREE PHASE SINGLE SUPPORT ON CROSSARM - TANGENT	EACH	
C2.21	THREE PHASE DOUBLE SUPPORT ON CROSSARMS	EACH	
C2.52	DOUBLE SUPPORT ON 10 FOOT CROSSARMS (POST INSULATORS)	EACH	
C5.21	SINGLE DEADEND ON CROSSARMS	EACH	
C6.21	THREE PHASE DOUBLE DEADEND ON CROSSARMS	EACH	

UNIT	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
E1.1La	SINGLE DOWN GUY	EACH	
E1.4L	SINGLE OVERHEAD GUY – HEAVY TYPE (THROUGH BOLT TYPE)	EACH	
F7.0	HELICAL PILE ANCHOR	EACH	
G1.4-10	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 10 KVA		
G1.4-15	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 15 KVA	EACH	
G1.4-25	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 25 KVA		
G1.4-37.5	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 37.5 KVA	EACH	
G1.5-15	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 15 KVA		
G1.5-25	SINGLE PHASE CONVENTIONAL TRANSFORMER (TANGENT POLE), 25 KVA		
G1.6-15	SINGLE PHASE TRANSFORMER (DEADEND POLE), 15 KVA	EACH	
G1.6-25	SINGLE PHASE TRANSFORMER (DEADEND POLE), 25 KVA	EACH	
G1.6-37.5	SINGLE PHASE CONVENTIONAL TRANSFORMER (DEADEND POLE), 37.5 KVA	EACH	
H1.1G	POLE GROUNDING DETAIL, H-PILE	EACH	
H1-PILE	HP10X57 PILE BY 45 FEET	EACH	
H1-PILE	POLE FOUNDATION, H-PILE INSTALLATION	EACH	
J2.1	SECONDARY ASSEMBLIES (LARGE ANGLE)	EACH	
N5.2	NEUTRAL ASSEMBLY	EACH	
N6.1	NEUTRAL ASSEMBLY, DOUBLE DEADEND	EACH	

UNIT	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
N7.4	SINGLE-PHASE SECONDARY SERVICE ASSEMBLY	EACH	
N7.6	SINGLE-PHASE SECONDARY SERVICE ASSEMBLY		
S1.01	FUSED CUTOUT	EACH	
S2.32a	GROUP OPERATED, HORIZONTAL LOAD BREAK SWITCH, THREE-PHASE	EACH	
S2.32b	GROUP OPERATED, VERTICAL LOAD BREAK SWITCH, THREE-PHASE	EACH	
UC2a	THREE PHASE CABLE TERMINAL POLE WITH CUTOUTS AND BRACKET MOUNTING ARRESTERS	EACH	
UM6-1	15 KV LOAD BREAK ELBOW	EACH	
UM6-5	FEED THROUGH INSERT	EACH	
UM6-12	CABLE ROUTE MARKER	EACH	

NOTE: Units identified in the staking sheet but not listed in the Schedule of Values table shall be considered incidental to another unit and included within that unit for pay purposes.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contractor's quality assurance program and control procedures in executing the work.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Article 12, Quality Assurance.

B. Section 01300 – Submittals

C. Section 01600 – Materials and Products

D. All Technical Specifications.

1.03 SUBMITTALS

A. Submit a quality control plan for review and approval.

B. Contractor's weekly reports.

1.04 DISCREPANCIES

A. If this section and the NESC and RUS codes conflict, the more stringent requirement shall apply.

1.05 GENERAL

A. This section identifies Contractor Quality Control (QC) requirements and to assist:

1. Planning of Quality Control Work
2. Providing of the appropriate Quality Control Personnel
3. Assurance of Quality Work

B. The Engineer's function is to plan, design, and review the construction of the PROJECT. Their responsibility to the AUTHORITY is to ensure the completion of the project within the parameters established by cost and schedule, while meeting all the design requirements. The Engineer's function does not include any supervision of Contractor's employees.

C. Documentation is an extremely important component of the QC effort. Documentation is required by law and is the basis of evidence that the facility was constructed as designed and approved. By his signature, the quality assurance reviewer, whether he is in the Contractor's employment, attests to and certifies that the report is a factual summation of what he has reviewed during the period covered by this report.

1.06 MEASURING/TESTING EQUIPMENT REQUIREMENTS

A. Calibration and control of measuring/test equipment shall be performed by the Contractor. The Contractor will use the equipment in accordance with the equipment manufacturer's requirements and approved procedures.

1.07 CONSTRUCTION INSPECTION AND TESTS

A. General construction inspection shall be established by the Contractor using approved procedures.

B. Systems for performing inspection at the construction site by the Contractor shall be established and implemented according to approved procedures which assure that the quality of materials, work in process, and completed construction conforms to Contract requirements. Inspection, instruction, and test procedures include acceptance criteria as specified in these Specifications and any other regulatory requirements.

1.08 QUALITY CONTROL RECORDS

A. Required records and data shall be compiled and maintained by the Contractor in accordance to the Specifications. As-builts drawings, Specifications, and engineering documents shall be maintained by the Contractor.

1.09 CONTRACTOR'S QC INSPECTORS

A. If, in the opinion of the Engineer, Contractor's QC inspection staff is insufficient or unqualified to perform satisfactory quality control in accordance with the Contract documents, Contractor shall replace or supplement QC staff as directed by the Engineer at no cost to the AUTHORITY.

B. General duties and responsibilities of the Contractor's quality control team are:

1. Chief Inspector: The Chief Inspector's duties and responsibilities shall include, but are not limited to the following:

a. Be thoroughly familiar with and understand Contract Documents and construction codes.

b. Assure that all inspectors have current certifications in their pertinent inspection disciplines. Moreover, assure competence of inspectors in their disciplines.

c. Determine quantities of work completed for preparation of progress pay estimates.

d. Assure that all inspectors work in a safe manner and that they report unsafe practices or work areas.

e. Complete appropriate daily report for inspection activities.

f. Maintain a personal project log noting important job-related events of each work day.

g. Verify that all inspection activities are conducted in accordance with all aforementioned documents.

h. Report unsafe work practices and areas.

i. Assure compliance with the Contract Documents.

j. Prepare daily reports summarizing field data.

k. Inspect material quality.

l. Verify all field testing is performed in accordance with written procedures.

m. Verify all field testing results.

n. Coordinate overall quality control plan and provide consolidated QC reporting to the Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 TESTING

A. Contract QC inspector shall be responsible for implementing and assuring the performance of testing required to assure the completed facilities will be in conformance with the contract documents. Testing shall be conducted as indicated in the specifications.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes requirements for temporary facilities and controls, including utilities, support facilities, and security and protection facilities.

B. Temporary utilities include, but are not limited to, the following:
1. Water service
2. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities
3. Heating and cooling facilities
4. Ventilation
5. Electric power service
6. Lighting
7. Telephone/facsimile

C. Support facilities include, but are not limited to, the following:
1. Project identification and temporary signs
2. Water storage facilities
3. Waste disposal facilities
4. Office or common use facility
5. Storage
6. Lifts and hoists
7. Temporary ladders and scaffolding
8. Construction aides and miscellaneous services and facilities

D. Security and protection facilities include but are not limited to, the following:
1. Environmental protection
2. Temporary secure enclosures

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraph 6.14, Use of Premises, and Paragraph 7.6, Sanitary Provisions.

1.03 SUBMITTALS

A. Submit temporary facility proposed locations, and construction.

1.04 USE CHARGES

A. Cost or use charges for temporary facilities are not chargeable to the AUTHORITY or Engineer, and shall be included in the Contract Price. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
   1. Engineer
   2. AUTHORITY
   3. Personnel of authorities having jurisdiction.

B. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities.

C. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities.

1.05 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
   1. Keep temporary services and facilities clean and neat.
   2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Provide new materials or undamaged previously used materials in serviceable condition. Provide materials suitable for use intended.

2.02 EQUIPMENT

A. Provide equipment suitable for use intended.

B. Field Office: Local office with lockable entrances, operable windows, and serviceable finishes; heated; on foundations adequate for normal loading.

C. Fire extinguishers: Hand carried, portable, UL rated.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110V to 120V plus into higher voltage outlets; equipped with ground fault circuit interrupters, reset button and pilot light.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
   1. Arrange with utility company, AUTHORITY, and existing users for time when distribution system can be interrupted, if necessary, to make connections for temporary services.
   2. Provide adequate capacity for each stage of construction.

B. Provide job site first aid kit, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

C. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include overload-protected disconnecting means, automatic ground-fault interrupters, and distribution panel. Provide meter if not provided by utility company.

D. Telephone Service: Provide temporary telephone service throughout construction period for a common-use facility or office used by all personnel engaged in construction activities.
   1. Provide additional telephone lines for the following:
      a. Provide a telephone line for facsimile machine in each common use facility or office.
      b. At each telephone, post a list of important telephone numbers.
         1. Police and fire departments
         2. Medical Emergency
         3. Contractor’s home office
         4. Engineers’ offices
         5. AUTHORITY’s office
         6. Principal subcontractors’ field and home offices.
      c. Provide messaging service on superintendent's telephone.

d. Furnish superintendent with portable communications device for use when away from field office, i.e. Cellular phone, two-way radio, etc.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:
   1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access in approved locations.
   2. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.
   3. All facilities shall comply with OSHA regulations.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons in the vicinity of the Project site.

3.05 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

C. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

D. Prevent water-filled piping from freezing.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with cleaning requirements in Section 01710 – Cleaning.

END OF SECTION

SECTION 01600

MATERIALS AND PRODUCTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Products.

B. Transportation and Handling.

C. Storage and Protection.

D. Product Options.

E. Contractor Representation.

F. Systems Demonstration.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraph 6.5, Materials and Equipment.

B. Section 01100 – Summary of Work.

C. Section 01300 – Submittals.

D. All Technical Specifications.

1.03 PRODUCTS

A. Products include material, equipment and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification section shall be the same and shall be interchangeable.

1.04 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage; deliver in dry, undamaged condition in manufacturer's unopened containers or packaging.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.05 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and maintained under required conditions until incorporated in the Work.

1.06 PRODUCT OPTIONS

A. Products Specified by Naming One or More Manufacturers followed by the term "No Substitutions": Use only specified manufacturers, no substitutions allowed.

B. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards.

C. Whenever a material, article or piece of equipment is identified in the Contract Documents by reference to manufacturer's or vendor's names, trade names, catalog numbers, etc., it is intended to establish a minimum standard. Unless otherwise noted, any substitute material, article or equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design of the project will be considered equally acceptable; provided, the substitute material, article or equipment so proposed is, in the opinion of the Engineer, of equal substance, function, dimension, appearance and quality.

D. Prior to the bid opening, the Bidder shall make his own determination in selecting which specified or substitute equipment to base his proposal upon. Substituted items shall be equal to or better than that specified or indicated in regards to quality, workmanship, finish, space requirements, electrical requirements, performance and warranties.

E. After the bid opening, the Contractor shall submit sufficient data in accordance with this Section to establish equality. The Engineer shall be the sole judge of equality and acceptability.

F. Acceptance of substitute materials will not relieve the Contractor of the responsibility for any changes in his own Work or in the Work of other crafts caused by the substitution. Any additional costs resulting from substitutions are the responsibility of the Contractor.

G. Any proposed substitution whose characteristics differ from the specified item to such an extent as to necessitate changes in the mechanical, electrical or other basic design of the Project, shall include the cost of any such changes, the design and the cost of design, which costs shall be borne by the Contractor. Determination of a substitution request will be based on the Engineer's comparisons as to quality, adaptability, performance, aesthetics, Contract amount change, if applicable, etc., between the proposed substitution and specified item.

H. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

I. Substitute products shall not be ordered or installed without written acceptance.

1.07 CONTRACTOR REPRESENTATION

A. Request for substitution constitutes a representation that Contractor has investigated proposed product and has determined that it is equal to or superior in all respects to specified product.

B. Contractor will provide same warranty for substitution as for specified product.

C. Contractor will coordinate installation of accepted substitute, making such changes as may be required for Work to be complete in all respects.

D. Contractor certifies that cost data presented is complete and includes all related costs under this Contract.

E. Contractor waives claims for additional costs related to substitution that may later become apparent.

1.08 SYSTEMS DEMONSTRATION

A. Prior to final inspection, Contractor will demonstrate operation of each system to Engineer.

B. Contractor will instruct AUTHORITY's and Utility's personnel in operation, adjustment and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01630

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section describes product options available to Bidders and the Contractor, plus procedures for securing approval of substitutions. Request for substitutions will not be considered prior to award of the Contract.

1.02 RELATED SECTIONS

A. Documents affecting work of this section include, but are not necessarily limited to: General Conditions, Special Conditions, and Sections in Division 1 of these Specifications.

B. Document 00700 – General Conditions, Paragraphs 6.9, 6.10 and 6.11 for Substitutes “or Equal” Items, Substitute Means and Methods, and Evaluation of Substitution.

1.03 SUBMITTALS

A. Make submittals in accordance with pertinent provisions of the General Conditions and Section 01300.

B. Submit options and substitutions under the Technical Specifications where the item is specified.

1.04 PRODUCT OPTIONS

A. The Contract is based on standards of quality established in the Contract Documents.
   1. In agreeing to the terms and conditions of the Contract, the Contractor has accepted a responsibility to verify that the specified products will be available, and to place orders for all required materials in such a timely manner as is needed to meet his agreed construction schedule.
   2. Neither the AUTHORITY nor the Engineer has agreed to the substitution of materials or methods called for in the Contract Documents, except as they may specifically otherwise state in writing.

B. Materials and/or methods specified by name:
   1. Where materials and/or methods are specified by naming one single manufacturer and/or model number, without stating that equal products

will be considered, only the material and/or method named is approved for incorporation into the Work.

2. Should the Contractor demonstrate to the satisfaction of the Engineer that a specified material or method was ordered in a timely manner and will not be available in time for incorporation into this Work, the Contractor shall submit to the Engineer such data on proposed substitute materials and/or methods as are needed to help the Engineer determine suitability of the proposed substitution.

C. Where materials and/or methods are specified by name and/or model number, followed by the words “or approved equal”, or “or equal as approved by the Engineer”,:

1. The material and/or method specified by name establish the required standard of quality.
2. Materials and/or methods proposed by the Contractor to be used in lieu of materials and/or methods so specified by name, shall in all ways equal or exceed the qualities of the named materials and/or methods.

D. The following products do not require further approval except for interface within the work:

1. Products specified by reference to standard Specifications such as RUS and similar standards.
2. Products specified by manufacturer’s name and catalog model number. All equipment and similar items provided “as specified” shall be submitted for record.

E. Where the phrase “or equal”, “or approved equal”, “or equal as approved by the Engineer”, and “or approved substitute” occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this work by the Engineer.

F. The decisions of the Engineer shall be final.

1.05 DELAYS

A. Delays in construction arising by reason of the non-availability of a specified material and/or method will not be considered by the Engineer as justifying an extension of the agreed Time of Completion.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ALASKA ENERGY AUTHORITY	SUBSTITUTION REQUEST FORM (after Award)	

Project: Project No.:

Contractor: _____

Specified item for which substitution is requested: _____
(reference specification section and paragraph)

The following product is submitted for substitution: _____
(describe proposed substitution and differences from specified item; attach complete technical, performance, and test data; state whether substitution affects dimensions and functional clearances shown on drawings or affects other trades, and include complete information for changes to drawings and/or specifications which proposed substitution will require for its proper installation.)

I certify the following:

Yes	No	
❑	❑	The substitute will perform adequately and achieve the results called for by the general design.
❑	❑	The substitute is similar, of equal substance, suited to the same use, and will provide the same warranty as the product specified.
❑	❑	An equivalent source of replacement parts is available.
❑	❑	The evaluation and approval of the proposed substitute will not delay the Substantial or Final Completion of the project.
❑	❑	Any change in the design necessitated by the proposed substitution will not delay the Substantial or Final Completion of the project.
❑	❑	The cost of any change in the design necessitated by the proposed substitution, including engineering and detailing costs, and construction costs caused by the substitution will be paid by the contractor at no cost to the State.
❑	❑	The cost of any license fee or royalty necessitated by the proposed substitution will be paid by the contractor at no cost to the State.

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Signed: _____ Date: _____
Authorized Contractor Signature

Architect/Engineer Recommendation:

❑ Accepted ❑ Accepted as Noted ❑ Not Accepted ❑ Received Too Late

Remarks:

Signed: _____ Date: _____
Architect/Engineer

Recommend Acceptance / Rejection _____ Date: _____
(circle one) Resident Engineer

❑ Accepted
❑ Rejected _____ Date: _____
Project Manager

SECTION 01700

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section describes an orderly and efficient transfer of the completed Work to the AUTHORITY.

1.02 RELATED SECTIONS

A. Documents affecting work of this section include, but are not necessarily limited to: General Conditions, Special Conditions, and Sections in Division 1 of these Specifications.

B. Activities relative to Substantial Completion, Project Closeout, and Contract Closeout are described in the General Conditions.

C. Document 00700 – General Conditions, Paragraphs 13.10 and 13.12 for Substantial Completion and Final Completion.

D. Section 01720 – Project Record Documents shall be submitted prior to Substantial Completion.

C. Section 01770 – Contract Closeout,

1.03 QUALITY ASSURANCE

A. Prior to requesting inspection by the Engineer, use adequate means to assure that the Work is substantially completed in accordance with the specified requirements, and is ready for the requested inspection.

B. Substantial completion date for the Contract shall be established as stated in the General Conditions.

1.04 PROCEDURES

A. Substantial Completion:

1. Substantial completion is defined as that point at which the facilities are basically complete to the AUTHORITY's satisfaction in accordance with Document 00700 – General Conditions, Article 1, Definitions. All mechanical and life safety features shall have been installed, and be functionally operational. Remaining work shall be extremely minor or require seasonal opportunity to complete or subject to delayed completion

items, and shall not impair the functionality or health and life safety features of the facilities.

2. The Contractor shall notify the Engineer in writing a minimum of 14 days prior to the date when the work will be substantially completed and ready for inspection.
3. Within a reasonable time after receipt of such notice, the Engineer will inspect to determine status of completion.
4. Should the Engineer determine that the work is not substantially complete:
    a. The Engineer promptly will so notify the Contractor, in writing, giving the reasons therefore.
    b. The Contractor shall remedy the deficiencies and notify the Engineer when ready for reinspection.
    c. The Engineer will reinspect the work.
    d. The Contractor shall be liable for expenses incurred by the AUTHORITY and Engineer for reason of such Substantial Completion Reinspection.
5. When the Engineer concurs that the work is substantially complete:
    a. The Engineer will prepare a "Memorandum of Acceptance", accompanied by a Substantial Completion Punch List of items to be completed or corrected, as verified by the Engineer.
    b. The Engineer will submit the Memorandum to the AUTHORITY and to the Contractor for their written acceptance of the responsibilities assigned to them in the Memorandum.
    c. Once the Contractor executes the Memorandum, it must be returned to the Engineer.

B. Final Inspection:
1. Final Inspection shall be defined as that period at which all Work in the Contract is 100% complete and no minor details remain to be performed in accordance with Document 00700 – General Conditions, Article 1, Definitions.
2. Final Inspection shall not be made until all Work under the contract is completed in accordance with Section 01770 – Contract Closeout.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. During the term of this Contract, the Contractor shall remove as promptly as possible any materials and equipment which are not required for the completion of the Work. All debris shall be removed from the site and legally disposed of. The Contractor shall take particular care to eliminate any hazards created by his operations.

B. Related Sections:
1. Documents affecting Work of this section include, but are not necessarily limited to: General Conditions, Special Conditions, and Sections in Division 1 of these Specifications.
2. In addition to standards described in this section, comply with requirements for cleaning as described in other pertinent sections of these Specifications.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.02 COMPATIBILITY

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

B. Materials used for cleaning shall not harm the existing vegetative mat of the tundra.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. At the completion of the project, or prior thereto if so directed by the Engineer, the Contractor shall be responsible for complete cleaning of those portions of the project, which his work affects.

1. Contractor shall remove from the facility all tools, equipment, surplus materials, debris, temporary structures, and other material not incorporated in the permanent installation.

B. Restoration of Damaged Property

To the extent that any roads, boardwalks, vegetation, structures, utilities or other items are damaged or displaced by the Contractor's operations, these shall be restored to their original or better condition prior to Substantial Completion. This shall include both on-site and off-site items. Any damage which is severe enough to disrupt community travel or utilities shall be repaired by the Contractor immediately.

C. Cleaning, repair, and restoration must be accomplished prior to Final Inspection, to the satisfaction of and at no additional cost to the AUTHORITY.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Maintenance of Record Documents and Samples.

B. Submittal of Record Documents and Samples.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraph 6.16 – Record Documents.

B. Section 01300 – Submittals.

C. Section 01770 – Contract Closeout.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. In addition to requirements in General Conditions, maintain at the site for AUTHORITY one accurate record copy of:
   1. Contract Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, product data, and samples.
   6. Field records.
   7. Field test records.
   8. Inspection certificates.

B. Prior to Substantial Completion, provide original or legible copies of each item maintained by CONTRACTOR as listed in 1.03.A above.

C. Delegate responsibility for maintenance of Record Documents to one person on CONTRACTOR's staff.

D. Promptly following award of Contract, secure from AUTHORITY, at no cost to the CONTRACTOR, one (1) complete set of all Documents comprising the Contract.

E. Immediately upon receipt of job set described above, identify each Document with title "RECORD DOCUMENTS – JOB SET".

F. Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.

G. Label and file record documents and samples in accordance with section number listings in table of contents of this Project manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

H. Maintain record documents in a clean, dry and legible condition. Do not use record documents for construction purposes.

I. Use all means necessary to maintain job set of Record Documents completely protected from deterioration and from loss and damage until completion of Work and transfer of recorded data to AUTHORITY.

J. Keep record documents and samples available for inspection by AUTHORITY.

K. Upon request by the AUTHORITY and at time of each Application for Payment, submit complete collection of record documents to the AUTHORITY for review and duplication as desired.

L. AUTHORITY's approval of current status of Record Documents will be prerequisite to AUTHORITY's approval of requests for progress payments and request for final payment.
   1. Prior to submitting each request for progress payment, secure AUTHORITY's approval of Record Documents as currently maintained.
   2. Prior to submitting request for Final Payment, obtain AUTHORITY's approval of final Record Documents.

M. Do not use job set for any purpose except entry of new data and for review and copying by AUTHORITY.

1.04 RECORDING

A. Record information on a set of black line opaque Drawings, and in a copy of a Project manual, provided by AUTHORITY.

B. Using felt tip marking pens, ballpoint pens, or colored pencil, maintaining separate colors for each major system, clearly describe changes by note and by graphic line, as required. Date all entries. Call attention to entry by a "cloud" around area or areas affected.

C. Thoroughly coordinate all changes within Record Documents, making adequate and proper entries on each Specification Section and each sheet of Drawings and

other Documents where such entry is required to properly show change or selection.

D. When a change within Record Documents is referenced to another document, such as Design Clarification Request, Shop Drawing, or Change Order, attach a copy of the referenced document to the respective Record Drawing or Record Specification where the entry is made.

E. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Accurate to the nearest inch.
2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
3. Field changes of dimension and detail.
4. Changes made by modifications.
5. Details not on original Contract Drawings.
6. References to related Shop Drawings and modifications.
7. Clearly label all changes and show dimensions to establish size and location. All identifications shall be sufficiently descriptive to relate reliably to Specifications.

F. Specifications: Legibly mark each item to record actual construction, including:
1. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.
2. Changes made by Addenda and modifications.

G. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records required by individual Specifications sections.

1.05 SUBMITTALS

A. Upon submittal of the completed Record Documents, make changes in Record Documents as required by the AUTHORITY.

B. Transmit Record Documents, with cover letter in duplicate, listing:
1. Date.
2. AUTHORITY's Project title and number.
3. CONTRACTOR's name, address, and telephone number.
4. Number and title of each record document.
5. Signature of CONTRACTOR or authorized representative.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01770

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures to be followed in closing out the Contract.

1.02 RELATED SECTIONS

A. Document 00700 – General Conditions, Paragraphs 13.14, 13.15 and 13.17 for Final Payment, Final Acceptance, and Waiver of Claims by Contractor.

B. Document 00700 – General Conditions.

D. Section 01700 - Project Closeout

C, Section 01710 – Cleaning

1.03 SUBSTANTIAL COMPLETION

A. Substantial completion date for the Contract shall be established as stated in the General Conditions.

1.04 FINAL SUBMITTALS

A. No Contract will be finalized until all of the following have been submitted as required in Section 01300 – Submittals:
   1. Submittals.
   2. Operation and Maintenance manuals.
   3. Project Record Documents.
   4. Application for Final Payment.

B. No Contract will be finalized until all warranties and guarantees, bonds, certifications, licenses, affidavits, evidence of payment of Subcontracts and suppliers, and certificate of release required for work or equipment as specified are satisfactorily filed with the Engineer and AUTHORITY.

1.05 RELEASE OF LIENS OR CLAIMS

A. No Contract will be finalized until satisfactory evidence of release of liens has been submitted to AUTHORITY as required by the General Conditions.

1.06 WARRANTIES AND GUARANTEES

A. As a condition precedent to Final Payment, all guarantees and warranties as specified under various sections of the Contract Documents shall be obtained by the CONTRACTOR and delivered to the AUTHORITY, in duplicate giving a summary of guarantees attached and stating the following in respect to each:
   1. Character of Work affected.
   2. Name of Subcontractors.
   3. Period of Guarantee.
   4. Conditions of Guarantee.

B. Delivery of said guarantees and/or warranties shall not relieve the CONTRACTOR from any obligations assumed under any other provision of the Contract.

C. If, within any guarantee period, repairs or changes are required in connection with the guaranteed Work, which in the opinion of the AUTHORITY is rendered necessary as the result of the use of materials, equipment or workmanship, which are defective, or inferior, or not in accordance with the terms of the Contract, the CONTRACTOR shall, upon receipt of notice from the AUTHORITY, and without expense to the AUTHORITY, proceed within seven (7) calendar days to:
   1. Place in satisfactory conditions in every particular all of such guaranteed Work, correct all defects therein, and make good all damages to the structure or site.
   2. Make good all Work or materials, or the equipment and contents of structures or site disturbed in fulfilling any such guarantee.

D. If the CONTRACTOR, after notice, fails to comply without the terms of the guarantee, the AUTHORITY may have the defects corrected and the CONTRACTOR and CONTRACTOR’s Surety shall be liable for all expenses incurred in connection therewith, including Engineer’s fees.

1.07 STATEMENT OF ADJUSTMENT TO ACCOUNTS

A. With the request for final payment, submit final statement reflecting adjustments to Contract Price indicating:
   1. Original Contract Price.
   2. Previous Change Orders.
   3. Changes under allowances.
   4. Changes under Unit Prices.
   5. Deductions for uncorrected Work.
   6. Penalties and bonuses.
   7. Deductions for liquidated damages.
   8. Deductions for reinspection fees.
   9. Other adjustments to Contract Price.

10. Total Contract Price as adjusted.
11. Previous payments.
12. Sum remaining due.

B. AUTHORITY will issue a final Change Order reflecting all remaining adjustments to Contract Price not previously made by Change Orders.

PART 2 PRODUCTS

2.01 SURPLUS MATERIALS

A. Contractor shall furnish to the AUTHORITY upon acceptance of work all surplus materials specified to be provided for this project.

B. Surplus materials must be in like new condition and be provided in the original manufatucturers packaging.

PART 3 EXECUTION

3.01 FINAL CLEANING

A. At completion of Work and immediately prior to final inspection, clean entire project according to the following provisions and Section 01710 – Cleaning:
1. Clean, sweep, wash, and polish work and equipment provided under the Contract, including finishes. Leave the structures and site in a complete and finished condition to the satisfaction of the Engineer and AUTHORITY.
2. Should Contractor not remove rubbish or debris, or not clean the facilities and site as specified above, the AUTHORITY reserves the right to have final cleaning done at the sole expense of the Contractor.

B. The Contractor shall:
1. Employ experienced workers or professional cleaners for final cleaning.
2. Conduct final inspection of exposed interior and exterior surfaces and of concealed spaces in preparation for substantial completion or occupancy.
3. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed interior and exterior finished surfaces; polish surfaces designated to shine finish.
4. Repair, patch, and touch up marred surfaces to specified finish, and match adjacent surfaces.
5. Broom clean paved surfaces; rake clean other surfaces.
6. Remove debris accumulated within the project area, around the access roads, boardwalks and temporary storage areas.
7. Remove all abovegrade survey debris, including lathe, staking and flagging.

8. Remove from the construction site and Contractor's staging area temporary structures and materials, equipment, and appurtenances not required as part of, or appurtenant to, the completed work. See Section 01500 – Temporary Facilities and Controls.
9. Leave water courses, gutters, and ditches open and in condition satisfactory to Engineer.

C. The Facility Owner or the respective participant will assume responsibility for cleaning as of the date of Final Completion.

3.02 FINAL INSPECTION –

A. Following notification, the Engineer or a representative of the AUTHORITY, will make a final inspection of the Contractor's work and record any deficiencies on the Final Inspection Punch List. The Contractor shall immediately correct these deficiencies at his own expense and notify the Engineer in writing when all items have been corrected. The Engineer or a representative of the AUTHORITY may reinspect the work to assure correction of all deficiencies. The Contractor shall be liable for all costs of reinspection when the Substantial Completion Punch List deficiencies have not been corrected at the time of the Final Inspection and additional reinspection is required.

B. Any reasonable delay by the AUTHORITY in making Final Inspection shall not relieve the Contractor of responsibility for the Work, nor shall the AUTHORITY be held responsible for damages or claims for compensation on account of continuing overhead, maintenance, etc., occasioned by such a delay.

C. When the Engineer finds all Work satisfactory, Contractor will be allowed to make application for final payment in accordance with provisions of the General Conditions. Should Engineer still find deficiencies in the Work, Engineer will notify Contractor in writing of deficiencies and will not approve Contractor's request for final payment until such time as Contractor has satisfactorily completed the required Work.

END OF SECTION

SECTION 01800

INCIDENTAL WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The following items shall be considered incidental to performing the work and no separate payment shall be made:
   1. Safe handling and disposal of fuel, oil, paint and thinners, and other hazardous material.
   2. Safety program to protect workers and residents.
   3. Sanitation facilities for workers.
   4. Post-construction cleanup.
   5. Climate controls for painting, such as tenting and heaters.
   6. Disposal and hauling of unsuitable materials removed from excavations.
   7. Protection of materials and work from weather during construction.
   8. Snow removal.
   9. Provisions for temporary fueling or fuel transfers.
   10. Temporary mats or fills required to support heavy equipment.
   11. Construction of ice / snow roads.
   12. Temporary removal / replacement of boardwalks or other structures that interfere with the work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02200

CONSTRUCTION SURVEYING

PART 1 - GENERAL

1.01 SUMMARY

1. This section includes supplying all labor, materials, tools, and equipment required to complete construction surveying for the project.

1.02 SCOPE OF WORK

A. Contractor shall furnish all labor and materials necessary to perform all surveying and staking essential for the completion of construction in conformance with the Contract Documents.

B. Contractor shall perform all necessary work and calculations required to accomplish the work in accordance with these specifications and other portions of the Contract Documents.

C. Quality:

1. This Section is intended to establish a standard minimum level of acceptable field survey specifications and procedures to properly control construction projects.
2. It is the Contractor's responsibility to ensure proper survey methods and procedures are followed.
3. Any errors resulting from the survey shall be corrected at the expense of the Contractor at no additional expense to the Owner.
4. Any method conflicting with these survey specifications shall be approved by the Engineer prior to its use.

D. All survey work shall be performed under the direct supervision of an Alaskan Registered Professional Land Surveyor.

E. Owner Provided Pile Coordinate Data

1. Owner will provide coordinates for all proposed piles.
2. Pile coordinate information will be submitted on form similar to that shown in construction drawings.
3. Pile coordinate information will be submitted to the Contractor by July 15, 2016 unless otherwise agreed upon in writing.

1.03 PROJECT CONTROL

A. Control Data:

1. Owner will provide reference horizontal and vertical control data to facilitate construction staking.

2. Contractor shall establish and check all survey control prior to any staking activity to ensure the Project is properly located and constructed according to the Contract Documents.
3. If discrepancies are found, the Engineer shall be notified immediately.

B. Protection and Replacement:

1. Contractor shall preserve and protect all line stakes, grade stakes, reference points, and hubs.
2. In the event of their loss or destruction, Contractor shall pay all costs for their replacement.
3. Contractor shall replace any monument that exists within the construction limits, if it is disturbed or removed due to construction project activity.
4. All monumentation disturbed or removed shall be replaced with the same type monument or a monument approved by the Engineer.

C. Horizontal Control Accuracy:

1. The maximum permissible linear error allowed in establishing horizontal control is 1:5000 feet.
2. The maximum error allowed in unadjusted angular closure shall be calculated by the formula:

$$\text{error} = 30 \times \sqrt{N}$$

where the term "N" signifies the number of transit set-ups in the traverse and "30" signifies thirty seconds.

D. Vertical Control:

1. Elevations shall originate from the datum provided in the Drawings.
2. All level circuits run to establish temporary bench marks (TBMs) shall have an accuracy no less than the value computed by the formula:

$$\text{accuracy} = 0.03 \times \sqrt{d}$$

where the term "d" signifies the distance in miles.
3. Foresights and backsights shall be balanced.
4. The maximum sighting distance shall not exceed 300 feet.
5. All leveling circuits establishing TBMs shall be adjusted using recognized standard surveying adjustment methods.
6. Side shots to establish an elevation on TBMs will not be allowed.
7. A minimum of two known bench marks shall be used when establishing TBMs to verify correct elevation information.
8. A sufficient number of TBMs shall be set to control a project with a maximum spacing of 800 feet between marks.
9. A TBM shall not be greater than 200 feet outside the construction limits of the project.

10. All TBMs shall be located and shall be comprised of sufficient materials such that their integrity will not be compromised throughout the life of the Project.

1.04 FIELD NOTES

A. Field Books:

1. Contractor shall supply uniform hard-backed "write-in-rain" or equivalent survey field books.
2. Owner has the right to inspect and take possession of the field books at any time throughout the course of the Project.
3. All field books shall be identified on the outside spine.
4. Each book shall be indexed and its contents referred to by page number prior to returning them to the Owner.
5. The date, weather conditions, survey crew personnel, and instruments used shall be shown at the beginning of each day's notes.
6. As a general rule, field notes for each phase of the Work shall be placed in a separate series of field books.
7. All field books used in the process of the Work are the property of the Owner and shall be submitted to the Owner upon completion of the Work or the end of the construction season.
8. All field books containing field note information shall be sealed and signed by a Registered Professional Land Surveyor on the title page of each field books.

B. Notes:

1. All observations shall be recorded directly into project field books; "pegging" of notes will not be acceptable.
2. All field notes shall be in pencil and recorded in standard bound field books as described above.
3. All field notes and drawings shall be completed and reduced before acceptance by the Owner.
4. Control sketches and traverse data shall be graphic and show measured and recorded distances.
5. The source of record shall be stated.
6. Stationing shall increase from the bottom of the page to the top of the page.
7. Notes shall be neat, legible, precise and sufficiently detailed.
8. If necessary, all survey work will be stopped until the notes are brought into conformance with the above requirements.
9. A copy of each day's field book notes shall be reduced and delivered to the office of the Engineer by 12:00 noon the next working day following any request by Engineer for such information.
10. The Engineer may issue a Stop Work Order at the Contractor's sole expense until the field notes are delivered within this time frame.

11. If GPS RTK is being used, control point check shot inverse residuals (both horizontal and vertical) will be noted at the time each check shot is collected.

C. Corrections:

1. Erasures of errors in field books will not be accepted.
2. A line shall be drawn through those portions of the notes in error, leaving the original note legible, and the correction shall be noted above the original entry.
3. Corrections shall be initialed and dated.
4. Where appropriate, a note of explanation shall be included.

D. Architect/Engineer's Approval:

1. Failure on the part of the Contractor to keep and maintain complete and accurate field notes as required by this Section, shall be sufficient reason to withhold payment for those items of Work where survey is required.
2. No final project payment will be made to the Contractor until the field books have been submitted to and approved by the Engineer.

1.05 PARTY CHIEF'S DAILY DIARY

A. The survey party chief shall keep a factual daily diary of all work performed by the survey crew on the project.

B. The diary shall contain the following information, as a minimum:

1. Date
2. Crew
3. Type and location of work performed
4. Work accomplished
5. Orders from the Engineer

C. This diary shall be kept on the Project Site and submitted to the Architect/Engineer upon re-quest.

D. At completion of the Project, this diary shall become the property of the Owner.

1.06 CONSTRUCTION STAKING

A. Contractor shall provide sufficient stakes for the adequate control of all structures and incidental construction not specifically covered above.

B. A staking diagram with respect to centerline and measurements for any pay quantities shall be maintained in the field notes.

C. Other items such as horizontal and vertical control shall be shown in the field book and shall be governed by procedures established in previous articles of this Specification.

1.07 ELECTRONIC DATA COLLECTION, RADIAL SURVEYS AND GLOBAL POSITISIONING SYSTEMS (GPS)

A. When electronic data collection is used or radial methods are used, the following criteria shall be maintained and submitted:

1. A standard field book shall be used to record the date of survey, weather conditions, instrumentation, data collector or GPS units used, crew, project description and sketches, listing of horizontal and vertical control points used and established, and other information needed to set up the reconstruction of the survey activity.
2. A printout of the unedited raw files from the data collector,orGPS receivers used on the project. A copy of the radial field book entries to include: code descriptors, horizontal circle information, vertical circle information based on Zenith, slope distance expressed in feet, and a sheet containing the explanation of the codes used to identify the various shots.
3. Project improvements may be identified in the field book by computed point number, station and offset, feature number or the corresponding letter reference used in the Drawings or other unique identifier. The references used for project features in the field book should be readily matched to the Drawings, and raw data or ascii coordinate files submitted with the project.
4. GPS static field notes shall include receiver/unit name, height readings in feet and meters, antenna type, local start and stop time, GDOP and satellite information. GPS RTK field notes shall include base station name, rover height, horizontal and vertical precision to control checks, local time and C.Q. readings to each point.
5. The Contractor will prepare CD(s) or DVD(s) with electronic deliverables separated into ACAD, Monument Reports, Survey Field Notes and Raw Data folders. The folders will contain AutoCad drawings, Monument of Record Forms (MORFs), scanned field notes, ascii point files, and raw data out put files generated by electronic data collection from Total Stations and Static or RTK GPS units. Ascii coordinates files will consist of the reduced and adjusted data represented by point number, station left or right of centerline, elevation, descriptor and coordinates of the point.
6. All cross section data shall be submitted in an unedited points file in point, northing, easting, elevation, description (PNEZD) format so it can be independently run through a DTM program by the Engineer.

1.08 AS-BUILT SURVEYS, FIELD NOTES AND PROJECT RECORD DOCUMENTS

A. As-Built Surveys:

1. As-built survey measurements shall be recorded on a clean set of full sized drawings deemed the "Project Record Documents," and shall show

changes and improvements which vary from the dimensions, lines, grades, locations, or materials as shown on the Drawings.

2. The as-builts shall also include, and kept current on a daily basis, swing ties to all existing structures including manholes, culverts, utility poles and pipelines.

B. Survey measurements shall be taken, field notes shall be kept, and accuracies shall be attained in accordance with the specifications of this Section.

C. Pay Request Information:

1. A copy of all survey field notes, including line and grade books, shall be submitted with each pay request.
2. Engineer has sufficient recourse to delay the processing of pay requests until the survey notes are received by the Engineer, and the Engineer is provided evidence that the Project Record Documents are current and in the required condition.

D. Project Record Documents:

1. Project Record Documents shall be redlined and kept current, and shall be kept ready for review for when Engineer, at his option, requests that the Project Record Documents be submitted with the survey field notes for the pay request.
2. Project Record Documents shall be submitted along with a copy of the field notes to the Engineer at the completion of construction activity.
3. These drawings shall be clearly stamped "Record Drawings."
4. No final payment will be made to the Contractor until the Project Record Drawings and field notes have been submitted to and approved by the Engineer.

END OF SECTION

SECTION 02455

H-PILE FOUNDATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes supplying all labor, materials, tools, and equipment required to install the specified H-piles to the indicated depths.

1.02 SUBMITTALS

A. Submit in accordance with Section 01300, Submittals, of the General Requirements.

B. Preliminary Submittals: Within fourteen (14) days of the Contract award and prior to starting construction, submit a written description of all equipment and techniques proposed for use in the installation of the piles; include a description of access, provisions to prevent construction equipment from damaging the ground surface, boardwalks, or adjacent structures, manufacturer's specifications for the pile hammer including type, energy capacity, and operating instructions, procedures for driving piles, procedures for penetration of obstructions, and procedures to relieve soil friction in the event soil consolidation prevents piles from being driven to the specified depth.

C. Submittals Required After Installation.

Accurately record the following data for each driven pile and submit to the Engineer daily:

1. Project name, contract name and number, and contractor name.
2. Location of pile (structure number).
3. Time driving started and ended, including any times when driving stopped.
4. Pile type and size.
5. Driven depth of pile below adjacent grade.
6. Height of top of pile above adjacent grade.
7. Bearing strata description and elevations if pre-drilling is performed.
8. Nature and location of obstructions.
9. Type, size and rate of operation of equipment used for driving piles.
10. Continuous record of number of blows for each foot of penetration for impact hammers and the number of seconds to advance each foot for vibratory or pneumatic hammers.

11. Measurement data for plumbness and coordinates of pile drive point if different than shown on the plans.

12. Description of pre-drilling methods and result of pre-drilling.

13. Record of all deviations in methods and results.

14. Description of pile tip, if used.

D. Welding Procedures. Submit written welding procedures, including sketches if applicable, for the Engineer's review. The welding procedures shall describe the means and methods by which the Contractor shall perform the welding. Detailed welding procedures shall be developed for and at the expense of the Contractor by the Testing Institute of Alaska or other qualified testing laboratory approved by the Engineer. Welding procedures shall cover such items as welding methods, backing plate metal if required, filler materials, pile splice joint design, preheating base metals, etc.

E. Welder Qualifications. Provide documentation of individual welder's certification to the Engineer at least three days prior to performing permanent field welding.

1.03 QUALITY CONTROL

A. Qualifications and Inspections. Contractor shall qualify his welding procedures in accordance with American Welding Society (AWS) D1.1. All welders shall be qualified in accordance with AWS D1.1, specifically for the materials used on this project.

B. An approved independent testing laboratory shall certify qualifications of the welding procedures and welders.

C. Piles shall be transported, stored and handled by the contractor at the site in a manner that will not result in pile shaft bowing (sweep). All piles shall be visually inspected prior to installation for conformance with the contract specifications.

PART 2 – MATERIAL

2.01 WELD MATERIAL

Weld materials shall have 15 feet-lbs. energy Charpy V-notch absorption at –20°F as tested in accordance with American Society for Testing and Materials (ASTM) A370 and A673.

PART 3 - EXECUTION

3.01 EQUIPMENT

A. Driving Equipment: The Contractor shall furnish equipment of sufficient size and capacity to install the piles as specified without damaging piles or adjacent structures. Equipment shall be suitable for installing each pile without the need for splicing. A single acting diesel pile hammer capable of developing 30,000 to 40,000 ft-lb energy is recommended. Specifications for equipment with energy ratings above or below 30,000 to 40,000 ft-lb energy shall be submitted for review and approval by the engineer. The equipment shall be maintained in good operating condition at all times during installation and shall be able to operate at its full-rated capacity. Pre-drilling and thawing equipment shall be made available by the Contractor as necessary.

B. Driving Caps: Impact hammers shall be equipped with cast steel or structural steel driving caps, with grooved bases conforming to the pile shape. The head of the pile shall fit square in the hammer, but the driving cap should not restrain the pile from rotating. Pile hammer cushion and drive cap configuration shall be included in the submittal,

C. Driver Leads: Fixed or rigid type pile driver leads that will hold the pile firm in position and alignment, and in axial alignment with the hammer, shall be used. The leads shall be extended to within two feet of the elevation at which the pile enters the ground. A free lead system may be approved by the Engineer, provided a reliable performance record with free lead systems is demonstrated by the Contractor.

3.02 PREPARATION

A. Pile Tips: The piles may be driven without pile tips or shoes unless the Contractor deems them necessary to prevent pile damage. The outside diameter of pile tips or shoes, if used, shall not be larger than the outside diameter of the pile.

B. Pile Length Markings: Each pile's length shall be marked with horizontal lines at one-foot intervals and the number of feet from the tip at five-foot intervals with white or orange indelible marker. After pile driving is completed, the ground line shall be marked on the pile with a yellow indelible marker.

C. Pile Splicing: Pile splices are not permitted without the prior approval of the engineer. Approved pile splices shall be made with the top of the driven pile section at least three feet above the ground to permit inspection of the welded connection. Splice shall be a full penetration butt weld welded in accordance with the approved welding procedure.

3.03 INSTALLATION

A. Driving Piles.

1. Piles shall be installed at locations indicated on the pile/pole coordinate schedule provided by the Engineer.

2. Each pile shall be driven without interruption until full depth is obtained.

3. Protect the pile head during driving. Provide full bearing on the piles for distribution of the hammer blow. Do not damage piles during driving operations.

4. Pre-drilling and thawing, if required, shall be performed by the Contractor at no additional cost to the Owner. The diameter for the pre-drill shall not exceed four inches for H-piles.

5. All spoils from pre-drilling shall be disposed of in accordance with US Army Corps of Engineers Nationwide Permit #12. Do not distribute spoils in streams or drains.

6. Carefully maintain pile centerline location. Carefully plumb leads and pile before driving. Pulling the pile into position after driving has started is not permitted.

7. When handling and driving piles, take special precautions to ensure against overstress or leading away from a true position when driving.

8. Should any obstructions be encountered which threaten to damage a pile so as to make it unsuitable or cause a pile to drift from its required location, cease driving and immediately notify the Engineer.

9. Pile driving shall be considered complete when the following requirements are achieved. Penetration rates for dense or firm soils and refusal rates will be determined from the driving equipment specifications.

a. The pile is driven to 40 feet depth below ground line, and

b. The last twenty feet of pile installation has penetration rates indicating dense or firm soils

B. Damaged or Misdriven Piles:

1. Damaged piles and piles driven outside required driving tolerances will not be accepted and shall be removed and, if necessary, a new pile shall be furnished at no additional cost to the Owner. Damaged piles are defined as piles that exhibit variations beyond mill tolerance limits.

a. Piles rejected after driving may be withdrawn and reinstalled at the correct location provided they are not damaged.

b. Backfill voids left by withdrawn piles that will not be filled by new piles, The backfill material shall be compatible and suitable for providing a dense, supportive soil mass, free of voids, not frozen, and shall be approved by the Engineer. Backfill shall be placed in the void left by withdrawn pile in layers not exceeding six inches in depth, with each layer mechanically tamped before the next layer is added. The backfill shall be compacted to a density equal to or greater than that of the surrounding undisturbed soil.

2. Cutting Off:

a. Driven piles that are approved for splicing shall have their tops cut off if they are distorted from driving. No more than six inches of pile length shall be cut off for splice welds.

b. Cuts shall be neat and square to the axis of the pile. Pile ends shall be beveled if required by the approved welding procedure. Dispose of excess materials as required by local and state law.

C. Welding:

1. All welding shall conform to the requirements of AWS D1.1.

2. If the ambient temperature is below 32°F or conditions are windy, a shelter maintained at a minimum temperature of 32°F shall be provided to enclose the area where welding is being performed.

3. Flux coated welding electrodes shall be purchased in hermetically sealed containers. Immediately after opening of the sealed container, electrodes shall be stored in ovens at temperatures specified in the approved welding procedure and AWS D1.1. Electrode exposure to the atmosphere shall not exceed the time specified in the approved welding procedure and AWS D1.1. Electrodes that have been wet shall not be used.

4. Base metal shall be preheated as specified in the approved welding procedure.

5. Splices, where approved by the Engineer, shall be welded to produce a straight pile alignment through the splice and developing full strength of the pile in both tension and bending.

D. Tolerances:

1. Install piles within the following maximum tolerances:

a. Location of pile: Pile center point shall be within three (3) inches of specified pile coordinates.

b. Pile variation from vertical: a maximum 1-inch per 10 feet of vertical.

c. Top elevation of piles: plus or minus three inches.

END OF SECTION

SECTION 16050

DEMOLITION OF EXISTING DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE

This section describes the requirements for demolition of the existing distribution system and disposal of the material. The existing distribution system is shown on the drawings.

1.02 DESCRIPTION OF EXISTING DISTRIBUTION SYSTEM

A. The existing distribution system is an overhead, three-phase system consisting of direct buried wood poles, anchors and guys, crossarms, #2 ACSR conductor, pole mounted transformers, insulators, and other components that make up a distribution system construced using RUS construction units and standards. Some poles are installed on H-piles as are some anchors.

1.03 SCHEDULING OF DISTRIBUTION SYSTEM DEMOLITION

A. The existing distribution system shall not be demolished until after the new distribution system is accepted by the AUTHORITY and the Kwigillingok Power Company.

1.04 DEMOLITION OF EXISTING DISTRIBUTION SYSTEM

A. The existing distribution system shall be demolished upon acceptance of the new system. All poles that have telephone cables attached will not be removed.

B. No telephone system conductors, attachments, equipment, or service drops are to be removed, damaged, or modified. Any damage to the existing telephone system by the Contractor shall be repaired or replaced in accordance with the telephone utilty requirements. The telephone utility may elect to repair the damage themselves and backcharge the Contractor.

C. All distribution system conductors, including primary and secondary, shall be removed.

D. All transformers shall be removed.

E. All crossarms, anchor rods, insulators, guy material, pole top insulator support brackets, insulators, bolts, etc., shall be removed from the poles. Only those items that are required for the telephone system are to remain on the poles.

F. All anchors that will not be required by the telephone system shall be removed, along with the guys. Anchors and guys that are required to support the telephone system shall remain. All anchor rods removed as part of the demolition shall be removed to a point below grade.

G. Unless otherwise notedon the drawings, all H-pile anchors that will not be reused or required by the telephone system shall be cut off to 6 inches below the existing grade.

1.05 DISPOSAL OF MATERIAL

A. The Kwigillingok Power Company shall have the opportunity to retain material removed from the existing distribution system. All material selected shall be moved by the Contractor to a location designated by the Kwigillingok Power Company.

B. Any wood poles removed, shall be moved by the contractor to a location designated by the Kwigillingok Power Company and shall be stacked in a neat and safe manner that will provide easy access for future usage of the poles.

C. All transformers removed shall be relocated by the Contractor to a location designated by the Kwigillingok Power Company and stacked in a neat, orderly, and accessible manner.

D. All other material, such as conductor, H-piles, anchor rods, guy material, pole top insulator support brackets, insulators, etc., shall be disposed of in a legal landfill, or removed from the community.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 16400

OVERHEAD DISTRIBUTION AND STAKING SHEETS

PART 1 - GENERAL

1.01 SCOPE

A. This Specification describes the minimum acceptable standards for overhead distribution line construction.

B. The staking sheets are included at the end of these specifications and are made a part of these specifications.

C. Any modified RUS Construction Units or any new construction units are included on the detail sheets in the project drawings. Any standard RUS Construction Units referenced on the drawings or staking sheets shall be obtained by the Contractor. The lack of having the correct RUS construction unit drawing will not be acceptable as an excuse for an incorrect installation.

1.02 QUALITY CONTROL

A. All material shall be Rural Utility Service (RUS) approved and accepted.

B. All construction work shall be done in a thorough and workman-like manner in accordance with RUS Bulletin 1728F-804, Specifications and Drawings for 12.47/7.2 kV Line Construction, the Staking Sheets, Plans and Specification, and Construction Drawings; and RUS Bulleting 1728F-806, Specifications and Drawings for Underground Distribution. The Contractor shall obtain a copy of these specifications and shall keep them on the jobsite.

C. This specification supplements the RUS Bulletins identified above. Where there is a conflict, the more stringent condition shall apply. In general, standard RUS construction unit drawings have been used. However, several construction units have been modified. These construction units are included on the drawings and have been identified with a modifier and shall be used in lieu of the similar RUS construction unit.

D. Work shall be performed to the C2-2007 Edition of the National Electric Safety Code (NESC) except where local regulations are more stringent, in which case local regulations shall govern.

1.03 SUBMITTALS

A. All Contractor supplied materials shall be submitted for approval prior to installation.

B. Submit in accordance with Section 01300 of the General Requirements.

1.04 DISTRIBUTING POLES

In distributing the poles, large, choice, close-grained poles shall be used for transformers, deadend, angle, and corner poles.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products shall conform to the following requirements. Items of the same classification shall be identical including equipment, assemblies, parts, and components.

B. Material and equipment shall be the standard product of a manufacturer regularly engaged in the manufacturer of the product.

2.02 INSULATORS

A. Insulators, tension, pin, and spool, shall be porcelain type. Insulators shall be selected to properly accommodate the armor rod installed on the conductor.

B. Suspension insulators shall be ANSI Class 52-9A.

C. All insulators shall be RUS approved for the voltage rating of the system.

2.03 CROSSARMS

A. Crossarms shall meet the requirements of RUS Spec. No. DT-5B:PE-16 solid wood, distribution type, and a 1/4 inch, 45° chamfer on all top edges. Crossarms shall be full-length pressure treated using a pressure injection method approved by the Western Wood Preserves Institute. Pressure treatment shall be by the Pentachlorophenol process or the Copper Naphthenate process in accordance with AWPA C4. Other treatment processes will not be accepted.

B. Crossarm gains shall meet ANSI C135.33 requirements.

C. Crossarms shall be 8 feet in length, unless otherwise required by the Contract Documents. 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. Crossarms shall have a stamp or nameplate indicating manufacturer, year of manufacture, species of wood, and type of treatment, and grade (close grain or dense).

D. Crossarm braces shall be selected for the crossarm length and shall be full-length pressure treated using a pressure injection method approved by the Western Wood Preserves Institute. Pressure treatment shall be by the Pentachlorophenol process or the Copper Naphthenate process in

accordance with AWPA C4. Other treatment processes will not be accepted.

2.04 FUSED CUTOUTS

A. Primary-fuse cutouts shall be 15 kV, 110 kV BIL, 100A loadbreak open type construction, porcelain. NEMA B, heavy duty, 10 kA, for crossarm mounting. Open-link cutouts are not acceptable. Fuses shall be the dropout type. Fuse cutouts shall be equipped with combination mounting brackets for cutout and surge arrester, suitable for the indicated installations.

B. Hubbell Power Systems or equal.

2.05 GANG OPERATED LOAD INTERRUPTER SWITCHES

A. Load interrupter switches shall meet ANSI C37.30 standards.

B. Gang-operated load interrupter switches shall be of the outdoor, manually operated, three-pole, single-throw type with rotating insulators and equipped with interrupters capable of load break and load make equal to switch's continuous current rating. Each switch shall be suitably preassembled for the indicated configuration and mounting. Moving contacts shall be of the high-pressure, limited area type, designed to ensure continuous satisfactory contact. Each switch shall be rated for the voltage of the system in which it is installed.

C. Switches shall be complete with necessary operating mechanisms, handles, and other items required for manual operation from the ground, as indicated on the drawings.

D. The control rod shall be sized and provided to properly operate the three-phase switch.

E. Switches shall be Cooper Power Systems M-Force three-phase switch, 600 amp, 15 kV, horizontal as indicated on the drawings, with porcelain insulators, steel crossarm, ice shields, and torsional handle. Contractor shall develop the catalog number for the switch from the description herein and from the Cooper Power System information and submit the complete catalog number with the product submittals. Other manufacturers will not be accepted.

F. See Staking Sheets for additional requirements.

2.06 SURGE ARRESTERS

A. Arresters shall be 7.65 kV, 9 kV duty cycle, distribution class, MOV type requiring no gap adjustment.

B. Surge arresters shall be provided for protection of aerial-to-underground transitions, gang-operated load-interrupter switches, transformers and other indicated equipment.

C. Surge arrestors shall meet NEMA LA1 requirements for the zinc-oxide type and shall be suitable for outdoor installations. Arresters shall be equipped with mounting brackets suitable for the indicated installations.

D. Hubbell PDV-100, no. 213708, or approved equal.

2.07 POLE LINE HARDWARE

A. Zinc-coated hardware material shall meet ANSI C135.1, C135.14, C135.17, C135.22, and C135.33 requirements.

B. Steel hardware material shall meet ASTM A575 and A576 requirements.

C. All hardware shall be hot-dip galvanized in accordance with ASTM A153.

D. All curved washers shall be cast ductile iron.

2.08 GUY ASSEMBLIES

A. Guy material shall be minimum 7 strand, 3/8" nominal diameter, Class A zinc-coated-steel high-strength meeting ASTM A475 requirements, with a minimum breaking strength not less than 10,800 pounds or as indicated on the drawings.

B. Guy assemblies, including insulators and attachments, shall provide a strength exceeding the required guy strength. Thimbles or thimble-eyes shall be provided on anchor points.

C. Holding capacities for down guys shall be based on a lead angle of 45 degrees as indicated. When field conditions prevent indicated lead angles, anchors shall be placed in other locations as approved by the Engineer.

D. Guy deadends shall be made by using Preformed Line Products Guy-Grip deadend, or Engineer approved equal. Deadends shall be selected to equal or exceed the rating of the RUS unit referenced in the Staking Sheets.

2.09 GUY MARKERS

A. Guy markers shall be full round, 2-inch by 8 feet long, yellow. Markers shall be made of high density polyethylene with ultra-violet light resistance additives to protect the resin and the color from brittleness and fading. Provide vandal resistant type. Securely clamped to the guy at the bottom and top of the marker.

B. Install red striped reflective tape on both sides of the guy guard. Install in warm environment to allow for proper adhesion.

2.10 SPLICES AND DEADENDS

A. All splices shall be full tension automatic type, Fargo GL406A, or approved equal.

B. Deadends shall be automatic side opening wedge type, Hubbell Power GDW2040, or approved equal. Deadends shall be full tension rated for the conductor.

C. Secondary and service conductors shall be deadended using Preformed Line Products service grip deadends, suitable for the conductor provided.

2.11 POLE NUMBERS

Pole numbers shall be 2-inch high aluminum embossed with Roman typeface. Attached to pole with aluminum barbed round head nail. Pole numbers shall match the associated location in the Staking Sheet.

2.12 POLE REFLECTORS

Where indicated, install a minimum of 4 reflectors vertically on the pole. Reflectors shall be red, aluminum, 3-inch two hole mounting, acrylic.

2.13 MEDIUM VOLTAGE CONDUCTORS

All medium voltage conductors shall meet the following requirements:

A. 15 kV.

B. Ethylene propylene insulation, 220 mils, 133% insulation level.

C. 105° C continuous operating temperature.

D. Jacketed full concentric neutral, bare copper wires.

E. #2 AWG aluminum or copper, strand-filled.

F. PVC outer jacket.

G. Installed in conduit, as indicated on the drawings.

H. Okonite catalog number 163-23-3060.

2.14 LOAD BREAK ELBOWS

Load break elbows shall be 15 kV, 200-amp, Cooper Power Systems model 500-10, with test point, suitable for the cable provided, with grounding kit. Provide Cooper Power Systems model CS1 cable jacket seal.

2.15 EXTERIOR 15 KV CABLE TERMNATORS

Exterior 15 kV cable terminations shall be IEEE Class I cold shrink type molded rubber kits, with weather shield. Terminations shall be 3M type QT-II outdoor type suitable for the conductor size and a jacketed concentric neutral cable.

2.16 SECONDARY OVERHEAD CONDUCTORS

A. All secondary conductors shall be overhead service drop, multiplex, aluminum, 600 volt, 75° C rating, polyethylene insulated conductors. For each assembly, provide insulated conductors as indicated and an ACSR concentrically stranded neutral messenger. Conductors shall conform to the following standards.

B-230: Aluminum Wire, 1350-H19 for Electrical Purposes.
B-231: Aluminum Conductors, Concentric-Lay-Stranded.
B-232 Aluminum conductors, Concentric-Lay-Stranded, Coated Steel Reinforced (ACSR).

B-399: Concentric-Lay-Stranded 6201-T81 Aluminum Alloy Conductors.

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B. Each multiplex cable shall be provided in the sizes indicated in the Staking Sheets or on the drawings. Cables shall be provided based on the standard Code Word for the specific cable. Cables shall be provided as follows:

1. Duplex Conductors:

Cables utilized for lighting or other 120 volt service. Cable shall consist of one insulated conductor and one neutral.

2. Triplex Conductors:

Cables utilized for single phase service or other uses as indicated on the drawings. Cable shall consist of two insulated conductors and one neutral ACSR.

3. Quadruplex Conductors:

Primarily used for three-phase service. Shall be provided with three insulated conductors and one neutral ACSR. Conductors shall be marked for easy phase identification.

2.17 SECTIONALIZING CABINETS

A. Three-phase sectionalizing cabinets shall be Nordic Fiberglass, as indicated on the drawings, with stainless steel mounting plate.

B. Install components as indicated on the drawings.

2.18 SUPPORT BRACKETS AND TRANSFORMER MOUNTS

A. Support mounts for three-phase transformer installations shall be Aluma-form wing cluster mounts, model 3MW-24-M-L. Cluster mounts shall be suitable for the transformers installed.

2.19 PADLOCKS

Provide ten (10) Sterling Junior brass padlocks, from Engineering Unlimited dba Sterling Security Systems, to the Kwigillingok Power Company within two months after mobilization to the project site. Provide five keys that match the locks. Use these locks for locking the sectionalizing cabinets and group operated load break switches. Contractor may keep two keys but shall turn over to the Kwigillingok Power Company prior to substantial completion.

PART 3 - EXECUTION

3.01 GENERAL

A. Materials to be used for construction are designated by one or two lower-case alphabetic characters shown on the drawings and in the "ITEM" column in the drawing material blocks. For example, "b" designates a steel, pole top pin.

B. Normally crossarm pins and post-type insulators come equipped with washers and locknuts. Thus, the washers and locknuts for crossarm pins are not tallied in the "QTY" (quantity) columns in the material boxes on the construction drawings. However, the crossarm pin washers and locknuts are shown on the construction drawings in parenthesis to depict proper construction. If crossarm pins or post type insulators are purchased without washers, locknuts or studs, the quantity totals in the material boxes on the construction drawings will need to be adjusted accordingly.

C. Locknuts shall be installed on all threaded material and hardware in addition to nuts and washers. The threads on installed bolts shall protrude past the lock washers a minimum of one inch but not more than two inches.

3.02 SETTING POLES

All poles shall be connected to the H-pile foundation as indicated on the drawings.

3.03 OVERHEAD CONDUCTOR INSTALLATION

A. Conductors shall be handled with care. Conductors shall not be tramped on nor run over by vehicles. Each reel shall be examined and the wire shall be inspected for cuts, kinks, or other injuries. Injured portions shall be cut out and the conductors spliced. The conductors shall be pulled over suitable rollers or stringing blocks properly mounted on pole or crossarm if necessary to prevent binding while stringing.

B. The neutral conductor should be maintained on one side of the pole for tangent construction and for angles not exceeding 30°.

C. With pin-type insulators the conductors shall be tied in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles. Pin-type insulators shall be tight on the pins and on tangent construction the top groove shall be in line with the conductors after tying in.

D. For neutral and secondary conductors on poles, insulated brackets (Material Item 'da') may be substituted for the single and double upset bolts on angles of 0° to 5° in locations known to be subject to considerable conductor vibration. All conductors shall be cleaned thoroughly by wire brushing before splicing or the installation of a connector or clamp. A suitable inhibitor shall be used before splicing or applying connectors over aluminum conductor.

3.04 SAGGING CONDUCTORS

A. Conductors shall be sagged evenly and in accordance with the conductor manufacturers' recommendations. The air temperature at the time and place of sagging shall be determined by a certified etched glass thermometer.

B. The sag of all conductors after stringing shall be in accordance with the conductor manufacturers' recommendations, except that a maximum increase of three (3) inches of the specified sag in any span will be acceptable. However, under no circumstances will a decrease in the specified sag be allowed.

C. The conductor shall be tensioned above the initial sag conditions. After bringing conductor to proper sag, deadends shall be secured within 2 hours. Wire shall be tied to insulators within 48 hours.

3.05 CONDUCTOR TIES

A. All ties used shall be pre-formed type as manufactured by Preformed Line Products and conductors shall be properly attached to insulators using preformed ties.

B. Conductor ties shall be selected to properly accommodate the armor rod installed on the conductor.

3.06 GANG OPERATED LOAD INTERRUPTER SWITCHES

A. Install switches in accordance with the manufacturer's instructions.

B. Switches shall be horizontal or vertical as indicated on the drawings or staking sheets.

C. Position the operating handle at no higher than 3'-6" above grade level. Verify the actual height with the local Kwigillingok Power Company and lower to 3'-0" if requested. If necessary, the lower operating rod shall be cut and threaded or lengthened as required to comply with the final position of the operating handle.

3.07 GUYS AND ANCHORS

A. Guys shall be placed before the conductors are strung and shall be attached to the pole per the Specifications for Overhead Distribution Line Construction.

B. All anchors shall be helical pile type as indicated on the drawings and specified herein.

3.08 POLE LINE HARDWARE

A. A locknut shall be installed with each nut, eye-nut, or other fastener on all bolts or threaded hardware such as insulator pins, upset bolts, double arming bolts, etc.

B. Suitable 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 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. Square curved washers shall be used for down-guy attachments to pole. 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 adequately support and protect poles, brackets, crossarms, guy wires, and insulators.

C. A 3 inch by 3 inch (minimum), square, curved washer (item "d") shall be used abutting the pole when installing primary deadend, neutral deadend and guy assemblies directly to the pole. A 2-¼ inch (minimum) square washer shall be placed under the shoulder of crossarm insulator pins whose surface area abutting the crossarm is less than 4 square inches.

3.09 SPLICES AND DEADENDS

D. Conductors shall be spliced and deadended as indicated on the Construction Drawings. There shall be not more than one (1) splice per conductor in any span and splicing sleeves shall be located at least ten (10) feet from the conductor support.

E. Splices shall be no closer than 1,000 feet from one another and there shall be no more than three splices per mile in any primary phase or neutral conductor. Splices shall be installed in accordance with the manufacturer's specifications and recommendations.

3.10 TAPS AND JUMPERS

A. Jumpers and other leads connected to line conductors shall have sufficient slack to allow free movement of the conductors. Where slack is not indicated, it shall be provided by at least two (2) bends in a vertical plane, or one (1) in a horizontal plane, or the equivalent. In areas where aeolian vibration occurs, special measures to minimize the effects of jumper breaks shall be used as specified.

B. All aluminum to aluminum connections shall be provided with a Belleville washer.

3.11 HOT LINE CLAMPS AND CONNECTORS

A. Connectors suitable for the purpose shall be installed.

B. Hot-line clamps shall be used at single phase transformer connections beneath three-phase primary lines and where single phase primary taps or extends from a three-phase primary line. Where a hot line clamp is used install a stirrup clamp suitable for the conductor.

C. Stirrups shall be aluminum, bolted with tin plated loop. Hubbell Power type AHLS, or approved equal. Size selected to fit the primary conductor and the hot line clamp.

D. Connections to the main line shall be made with compression solderless connectors. Connectors to equipment shall be made with compression connectors bolted to the equipment pad. Tools and dies shall be as recommended by the manufacturer. An embossing die code or other standard method shall provide visible indication that a connector has been

adequately compressed on the ground wire. Where ground wires are connected to aluminum-composition conductors, specially treated or lined copper-to-aluminum connectors suitable for this purpose shall be utilized.

E. All conductors shall be cleaned thoroughly by wire brushing before splicing or installing connectors or clamps. A suitable oxidation inhibitor shall be applied before splicing or applying connectors over aluminum conductor.

3.12 ARMOR RODS

A. Armor rods shall be provided for all ACSR conductors. Armor rods shall be installed at each insulator but will not be required at primary dead-end assemblies if aluminum or aluminum-lined zinc-coated steel clamps are used.

B. Lengths and methods of fastening armor rods shall be in accordance with the manufacturer's recommendations. All armor rods shall be pre-formed round.

C. The application of armor rods to the conductor shall be such that the center of the armor rods shall not deviate from the center of the conductor support by more than 2-1/2 inches.

3.13 CROSSARMS

A. Crossarms shall be bolted to poles with 5/8-inch through-bolts with square washer with locknut at each end. Bolts shall extend not less than 1/8 inch nor more than 2 inches beyond nuts.

B. On single crossarm construction, the bolt head shall be installed on the crossarm side of the pole. Single crossarms shall be placed on opposite sides of consecutive poles.

C. Double crossarms shall be securely held in position as indicated on the RUS Construction Units. Each bolt shall be equipped with square washers with locknuts. Double crossarms shall be provided at dead-ends, and at angles and corners as indicated, to provide adequate vertical and longitudinal strength.

D. Tangent Arms and Buck Arms: Tangent arms and buck arms shall be set at right angles to lines for straight runs and for angles 45° and greater. Tangent arms shall bisect angles of turns of less than 45°. Dead-end assemblies shall be used for turns where shown. Buckarms shall be installed, as indicated, at corners and junction poles.

3.14 BRACES

A. Wood braces shall be used for crossarm supports, unless specified otherwise on the construction drawings. Braces shall be Hughes Brothers type 2023 or 2045, size as indicated on the RUS Construction Units, or approved equal.

B. Braces shall be bolted to arms with 3/8-inch carriage bolts with round or square washers with locknuts between boltheads and crossarms, and secured to poles with 1/2-inch by 4-inch lag screws after crossarms are leveled and aligned.

3.15 GROUNDING

A. The ground wire shall be secured to the pole with copper coated staples. The staples on the ground wire shall be spaced two (2) feet apart except for a distance of eight (8) feet above the ground and eight (8) feet down from the top of the pole where they shall be six (6) inches apart.

B. Poles with pile foundations shall utilize the pile foundations in place of a ground rod. All poles shall be bonded to the pile, see construction unit for details.

C. All below grade connections and connections to the H-piles shall be made using the exothermic weld metal method.

D. All equipment shall have at least two (2) connections from the frame, case or tank to the multi-grounded neutral conductor.

E. The equipment ground, neutral wires, and lightning-protective equipment shall be interconnected and attached to a common ground wire.

F. Ground wire sizes, not otherwise indicated, shall be not smaller than No. 4 AWG.

G. Surge Arrester Grounding: Surge arresters shall be grounded. Ground resistance for distribution-class arresters shall be not more than 5 ohms. Ground wire connections shall be not less than #4 AWG for distribution arresters.

H. Unless otherwise indicated, neutral conductors shall be grounded at each transformer. Also, neutral conductors shall be grounded at a point not exceeding every third pole.

3.16 WOOD POLE STORAGE AND HANDLING

A. Wood poles held in storage for more than 2 weeks shall be stored in accordance with ANSI 05.1. Poles shall be stacked on treated skids, so arranged as to support the poles without producing noticeable distortion to any of the poles and to allow free circulation of air. The height of the piles shall be limited so as to avoid damage to poles on the bottom layers. Poles shall be piled and supported in such a manner that all poles are at least 1 foot above general ground level and any vegetation growing thereon. No decayed or decaying wood shall be permitted to remain underneath stored poles.

B. Handling of wood poles shall be in accordance with ANSI 05.1. Poles shall not be dragged along the ground. Cant hooks, pole tongs, or other tools capable of producing indentations of more than 1 inch in depth shall not be used in handling the poles.

3.17 TESTS

A. Operating Test: After the installation is completed, the Contractor shall conduct an operating test for approval. Equipment shall be demonstrated to operate in accordance with the requirements herein. Tests shall be performed in the presence of the AUTHORITY or the AUTHORITY Representative. The AUTHORITY shall be notified no less than 7-days prior to test date. The Contractor shall furnish field transportation, instruments, power, tools and personnel required for the test.

B. Ground-Resistance Measurements: Ground-resistance measurements shall be taken and certified by the Contractor. Certified test results shall be submitted to the AUTHORITY no less than 5-days prior to energization of the distribution system. No part of the electrical distribution system shall be energized prior to the receipt of written approval from the AUTHORITY of the resistance testing of that system's ground rods and grounding systems. Test reports shall indicate the location of the ground point and grounding system and the resistance and the soil conditions at the time the test was performed. When the building water service is used as a ground or part of the grounding system, ground-resistance measurements shall also be made of this connection. Ground-resistance measurements shall be made in normally dry weather, not less than 48 hours after rainfall, and with the ground under test isolated from other grounds. The resistance to ground shall be measured using the fall-of-potential method described in IEEE No. 142.

C. Sag and Tension Test

1. The AUTHORITY shall be given no less than 7-days prior notice of the time schedule for stringing conductors or cables serving overhead medium-voltage circuits and reserves the right to witness the procedures used for ascertaining that initial stringing sags and tensions are in compliance with requirements for the applicable loading district and cable weight.

2. The Contractor shall submit the sag and tension method to be used and the sag tables used to achieve the proper sag. The contractor shall wait a minimum of 2 hours after stringing the conductors to allow the conductors to stabilize prior to conducting the sag and tension tests. The contractor must complete the tests within 36 hours after stringing the conductors to avoid damaging the cable. Sagging operations shall not be conducted when wind conditions prevents satisfactory sagging.

3. The span used to set the sag shall be called the sag-check span. The sag-check span shall be a level span and approximately equal to the ruling span.

END OF SECTION

STATE OF ALASKA
ALASKA ENERGY AUTYORITY

KONGIGANAK RURAL POWER SYSTEMS UPGRADE

STAKING SHEETS

KWIGILLINGOK RURAL POWER SYSTEM UPGRADE

REG - 17064

STAKING SHEETS

ISSUED FOR CONSTRUCTION – JANUARY 2017

GRAY STASSEL ENGINEERING, INC
P.O. BOX 111405
ANCHORAGE, ALASKA 99511-1405

REV. NO.	DATE	DESCRIPTION	BY
0	1/18/17	ISSUED FOR CONSTRUCTION.	CWV

GRAY STASSEL ENGINEERING, INC.
P.O. BOX 111405
ANCHORAGE, ALASKA 99511
(907) 349-0100

DESIGNER	DATE
CWV/TRK	January 18, 2017
CHECKER	DATE
TRK	January 18, 2017
DIST. ENG.	DATE
CWV	1/218/2017

KWIGILLINGOK RURAL POWER SYSTEM UPGRADE

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR No.	CONDUCTOR SIZE/TYPE	CONDUCTOR Back Span	POLE HEIGHT	POLE CLASS	PRIMARY ASSEMBLY No.	PRIMARY ASSEMBLY Units	GUYS No.	GUYS Units	ANCHORS No.	ANCHORS Units	XFMRS No.	XFMRS Units	SECONDARY CONDUCTOR SERVICE No.	SECONDARY CONDUCTOR SERVICE SIZE/TYPE	SECONDARY CONDUCTOR BACKFEED Back Span	SECONDARY CONDUCTOR BACKFEED No.	SECONDARY CONDUCTOR BACKFEED SIZE/TYPE	SECONDARY SERVICE No.	SECONDARY SERVICE Units	MISCELLANEOUS CONSTRUCTION UNITS No.	MISCELLANEOUS CONSTRUCTION UNITS Units	RIGHT OF WAY	REMARKS/COMMENTS/NOTES
STEP-UP XFMR								3	UM6-1																	EXISTING STEP-UP TRANSFORMER.
								3	UM6-5																	SEE PLAN DRAWINGS FOR ADDITIONAL REQUIREMENTS.
1		10	3	#2 AWG	110	40	4	1	C2.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
				15 KV, JCN				1	UC2a														1	H1.1G		
			1	4" CONDUIT																						
1A		10	4	#2 ACSR	55	40	4	1	C6.21														1	H1-PILE		SEE NOTES 1 & 10.
								1	C2.52														1	N6.1		UNIT C6.21 ON TOP.
								2	A2.021																	
								1	A1.01																	
1A-1A			4	#2 ACSR	210	40	4	1	C1.11					1	G1.4-37.5	3	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
1A-1B			4	#2 ACSR	125	40	4	1	C5.21	1	E1.1La	1	F7.0	1	G1.4-15	2	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		SEE NOTE 2.
																										INSTALL STREET LIGHT.
1A-2A			4	#2 ACSR	170	40	4	1	C1.11							1	#2 TRIPLEX	170	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
1A-3A			4	#2 ACSR	220	40	4	2	C5.21	2	E1.1La	2	F7.0	1	G1.4-15	1	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
1A-4A			4	#2 ACSR	225	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-5A			4	#2 ACSR	225	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-6A			4	#2 ACSR	225	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-7A			4	#2 ACSR	225	40	4	2	C5.21	2	E1.1La	2	F7.0	1	G1.4-10						1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
1A-8A			4	#2 ACSR	240	40	4	2	C5.21	2	E1.1La	2	F7.0					240	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
1A-9A			4	#2 ACSR	250	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-10A			4	#2 ACSR	250	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-11A			4	#2 ACSR	250	40	4	2	C5.21	2	E1.1La	2	F7.0										1 1	H1-PILE H1.1G		SEE NOTE 1.
1A-12A			4	#2 ACSR	240	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-13A			4	#2 ACSR	240	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
1A-14A			4	#2 ACSR	200	40	4	1	C5.21	2	E1.1La	2	F7.0	2	G1.4-15						2 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.
1A-14A-1A						30	5									1	#2 TRIPLEX	100	1	#2 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
1A-14A-1B						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	190	1	#2 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
2A			4	#2 ACSR	190	40	4	2	C5.21	2	E1.1La	2	F7.0	1	G1.4-25	1	#2 TRIPLEX				2 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.
3A		14	4	#2 ACSR	140	40	4	1 1 2 1	C6.21 C2.52 A2.021 A1.01							2	#2 TRIPLEX	140	1	#1/0 TRIPLEX	2 4	J3.1 N7.6	1 1	H1-PILE N6.1		SEE NOTED 1 & 10. INSTALL STREET LIGHT. UNIT C6.21 ON TOP.
3A-1A			4	#2 ACSR	210	40	4	1	C1.11										1	#1/0 TRIPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
3A-2A			4	#2 ACSR	175	40	4	1	C1.11							3	#2 TRIPLEX	175	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
3A-3A			4	#2 ACSR	155	40	4	1	C5.21	1	E1.1La	1	F7.0	1	G1.4-25	1	#2 TRIPLEX	155	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
3A-3A-1A						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	145	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
3A-3A-1B						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	250	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
3A-1B			4	#2 ACSR	200	35	4	2	C5.21	2	E1.1La	2	F7.0										1	H1-PILE		SEE NOTE 1.
3A-2B			4	#2 ACSR	110	35	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
								1	S2.32b																	
								1	UC2a																	
3A-2B-1			3	#2 AWG	70																					EXISTING BATTERY BANK.
				15 KV, JCN																						SEE NOTE 6.
			1	4" CONDUIT																						
3A-3B			4	#2 ACSR	35	35	4	1	C5.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
								1	S2.32b																	
								1	UC2a																	
3A-4B			3	#2 AWG	90			3	UM6-1																	EXISTING PAD MOUNT SECTIONALIZING CABINET.
				15 KV, JCN																						NOTE 7.
				4" CONDUIT																						
4A			4	#2 ACSR	180	40	4	1	C1.11									165	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	J3.1				INSTALL STREET LIGHT.
5A		9	4	#2 ACSR	195	40	4	2	C5.21	1	E1.1La	1	F7.0					125	1	#6 DUPLEX			1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
																										INSTALL STREET LIGHT.
5A-1A			2	#2 ACSR	125	40	4	1	A2.1					1	G1.4-25	2	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
5A-2A			2	#2 ACSR	255	40	4	2	A5.1	2	E1.1La	2	F7.0					160	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
5A-3A			2	#2 ACSR	160	35	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.5-15	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
5A-3A-1						30	5									1	#2 TRIPLEX	80	1	#2 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
5A-1B		6	4	#2 ACSR	155	40	4	1	C2.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
5A-2B			4	#2 ACSR	150	40	4	1	C1.11					1	G1.4-25	3	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
5A-3B			4	#2 ACSR	250	40	4	1	C1.11					1	G1.4-25	3	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
5A-4B			4	#2 ACSR	140	40	4	2	C5.21	2	E1.1La	2	F7.0										1	H1-PILE		SEE NOTE 1.
5A-5B			4	#2 ACSR	190	40	4	2	C5.21	2	E1.1La	2	F7.0	1	G1.5-25	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																							1	N6.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
5A-6B			4	#2 ACSR	180	40	4	1	C5.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
5A-5B-1				#2 ACSR	95	35	4	1	A2.1							2	#2 TRIPLEX	95	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
			2																							
5A-5B-2			2	#2 ACSR	180	35	4	1	A5.1	1	E1.1La	1	F7.0			1	#2 TRIPLEX	180	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
2			4	#2 ACSR	175	40	4	1	C1.11							1	#2 TRIPLEX	175	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
3			4	#2 ACSR	135	40	4	2	C5.21	2	E1.1La	2	F7.0			2	#2 TRIPLEX	135	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
4			4	#2 ACSR	165	40	4	1	C1.11	1	E1.1La	1	F7.0	1	G1.4-25						3	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																							1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
4-1			2	#2 ACSR	130	35	4	1	A3.1	1	E1.1La	1	F7.0					130	1	#1/0 TRIPLEX	2	J3.1				SEE NOTE 1. INSTALL STREET LIGHT.
																										EXISTING POLE WITH PILE.
																										REUSE RUS UNIT A3.1.
																										RECONNECT TELEPHONE.
4-2			2	#2 ACSR	115	35	4	2	A5.1	2	E1.1La	2	F7.0					115	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
4-2A						35	4											160	1	#1/0 TRIPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. EXISTING POLE WITH PILE. RECONNECT EXISTING SERVICES.
4-3			2	#2 ACSR	215	35	4	1	A2.1														1	H1-PILE		SEE NOTE 1.
4-4			2	#2 ACSR	160	35	4	1	A2.1														1	H1-PILE		SEE NOTE 1.
4-5			2	#2 ACSR	180	35	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.6-15	1	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
5			4	#2 ACSR	225	40	4	1	C1.11 (EX)									225	1	#6 DUPLEX	2	J3.1				SEE NOTE 1. INSTALL STREET LIGHT. EXISTING POLE WITH PILE.
6			4	#2 ACSR	210	40	4	1	C1.11 (EX)									210	1	#6 DUPLEX	2	J3.1				INSTALL STREET LIGHT. EXISTING POLE WITH PILE.
7		35	4	#2 ACSR	210	40	4	1	C6.21	2	E1.1La	2	F7.0					210	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
								1	C5.21														1	N6.1		INSTALL STREET LIGHT.
								2	A2.021																	SEE NOTES 3 AND 10.
								1	A1.01																	
7-1						35	4			1	E1.4L	1	F7.0										1	H1-PILE		SEE NOTE 1. SEE NOTE 4.
7-1A						35	4		EXISTING																	SEE NOTE 1. SEE NOTE 5.
8			4	#2 ACSR	325	40	4	1	C1.11	1	E1.1La	1	F7.0					185	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
								1	C5.21																	INSTALL STREET LIGHT. SEE NOTE 11.
8-1			4	#2 ACSR	205	40	4	1	C6.21														1	H1-PILE		SEE NOTE 1.
								1	S2.32a														1	H1.1G		
																							1	N6.1		
8-2			4	#2 ACSR	200	40	4	1	C1.11									185	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
8-3			4	#2 ACSR	185	40	4	1	C1.11					1	G1.4-37.5						4	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
8-3A						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	205	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
8-3B						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	165	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
8-4			4	#2 ACSR	125	40	4	1	C1.11									155	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
8-5			4	#2 ACSR	125	40	4	2	C5.21	2	E1.1La	2	F7.0			1	#2 TRIPLEX	95	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
8-6			4	#2 ACSR	240	40	4	1	C1.11					1	G1.4-25	1	#2 TRIPLEX				2 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1.
8-7			4	#2 ACSR	150	40	4	2	C5.21	2	E1.1La	2	F7.0			1	#2 TRIPLEX	150	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
8-8			4	#2 ACSR	165	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
8-9			4	#2 ACSR	165	40	4	1 1	C5.21 C1.11	1	E1.1La	1	F7.0			2	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
8-9A-1			4	#2 ACSR	135	40	4	1	C5.21	1	E1.1La	1	F7.0					135	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
8-9A-2						30	5									1	#2 TRIPLEX	45	1	#2 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
8-10			4	#2 ACSR	105	40	4	1	C1.11					1	G1.4-25	2	#2 TRIPLEX	105	1	#1/0 TRIPLEX	4 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1.
8-11			4	#2 ACSR	155	40	4	1	C1.11					1	G1.4-25	4	#2 TRIPLEX				4 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.
8-12			4	#2 ACSR	155	40	4	1	C1.11					1	G1.4-25	4	#2 TRIPLEX				4 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1.
8-12A						35	4			1	E1.1La	1	F7.0					115	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL PILE ON LOT LINE.
8-13			4	#2 ACSR	170	40	4	1	C1.11					1	G1.4-25	4	#2 TRIPLEX				4 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
8-14			4	#2 ACSR	135	40	4	1	C1.11					1	G1.4-25	4	#2 TRIPLEX				4	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
8-15			4	#2 ACSR	120	40	4	1	C5.21	2	E1.1La	2	F7.0					120	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	H1.1G		INSTALL STREET LIGHT.
																							1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
8-16		40	2	#2 ACSR	220	35	4	1	A3.1	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
8-17			2	#2 ACSR	215	35	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.6-15	2	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
8-17A						30	5											55	1	#2 TRIPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
																										SEE NOTE 8.
9		15	4	#2 ACSR	185	40	4	1	C2.21	1	E1.1La	1	F7.0	1	G1.4-25	2	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
10			4	#2 ACSR	195	40	4	1	C6.21									195	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	S2.32a														1	N6.1		
11			4	#2 ACSR	195	40	4	1	C1.11									195	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
12			4	#2 ACSR	195	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
13			4	#2 ACSR	195	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
14			4	#2 ACSR	195	40	4	1	C1.11							2	#2 TRIPLEX	150	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
15			4	#2 ACSR	150	40	4	1	C1.11					1	G1.4-25	2	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
16		14	4	#2 ACSR	185	40	4	1	C2.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
17			4	#2 ACSR	185	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
18 (BASE BID)		5	4	#2 ACSR	185	40	4	1	C5.21	1	E1.1La	1	F7.0	1	G1.4-25	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	C2.21												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																										BASE BID.
18 (ALT #1)		5	4	#2 ACSR	185	40	4	1	C2.21	1	E1.1La	1	F7.0	1	G1.4-25	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01												1	N7.6	1	H1.1G		ADDITIVE ALTERNATE NO. 1.
																							1	N5.1		SEE NOTE 9.
																										SEE UNIT C5.11G FOR 1-PHASE TAP.
18-1 (BASE BID)			4	#2 ACSR	225	35	4	1	C1.11									225	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										BASE BID
18-1 (ALT #1)			2	#2 ACSR	225	35	4	1	A2.1									225	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										ADDITIVE ALTERNATE NO. 1.
																										SEE NOTE 9.
18-2 (BASE BID)			2	#2 ACSR	220	35	4	2	C5.21	1	E1.1La	1	F7.0				#2 TRIPLEX	220	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	N6.1		BASE BID
																										SEE UNIT C5.11G FOR 1-PHASE TAP.
18-2 (ALT #1)			4	#2 ACSR	220	35	4	1	A2.1								#2 TRIPLEX	220	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										ADDITIVE ALTERNATE NO. 1.
																										SEE NOTE 9.
15 (EXISTING LOCATION)			4	#2 ACSR	110	EXISTING		2	C5.21	2	E1.1La	2	F7.0													SEE NOTE 9.
																										BASE BID.
																										REMOVE EXISTING RUS PRIMARY UNIT.
18-3			2	#2 ACSR	220	35	4	1	A2.1														1	H1-PILE		
18-4			2	#2 ACSR	220	35	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.6-25	3	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
19 (BASE BID)			4	#2 ACSR	145	40	4	1	C5.21	1	E1.1La	1	F7.0			3	#2 TRIPLEX	145	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
																										BASE BID
19 (ALT #1)			4	#2 ACSR	145	40	4	1	C1.11							3	#2 TRIPLEX	145	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										ADDITIVE ALTERNATE NO. 1. SEE NOTE 9.
20			4	#2 ACSR	160	40	4	1	C1.11	1	E1.1La	1	F7.0	1	G1.4-25						1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
20-1						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	135	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
20-1A						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	135	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
20-1B						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	180	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
21			4	#2 ACSR	220	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
22			4	#2 ACSR	320	40	4	1	C1.11					1	G1.4-25	2	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1.
								1	C5.21												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																										NOTE 11.
22-1A			4	#2 ACSR	210	35	4	2	C5.21	1	E1.1La	1	F7.0										1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
22-1A-1			4	#2 ACSR	135	35	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
22-1A-2			4	#2 ACSR	135	35	4	1	C5.21	1	E1.1La	1	F7.0	1	G1.4-15	1	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
22-1B						35	4			1	E1.4L	1	F7.0			1	#2 TRIPLEX	95	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										SEE NOTE 4.
22-2A			2	#2 ACSR	265	35	4	2	A5.1	2	E1.1La	2	F7.0	1	G1.4-25	2	#2 TRIPLEX				1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
22-3A			2	#2 ACSR	165	35	4	1	A2.1														1	H1-PILE		SEE NOTE 1.
22-4A			2	#2 ACSR	160	35	4	1	A5.1	2	E1.1La	2	F7.0	1	G1.6-25						2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
22-4A-1						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	160	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
22-5A						35	4											150	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
22-6A						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	135	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
23		12	4	#2 ACSR	155	40	4	1	C2.21							1	#2 TRIPLEX	155	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	N5.1		INSTALL STREET LIGHT.
																										SEE UNIT C5.11G FOR 1-PHASE TAP.
23-1			2	#2 ACSR	180	35	4	1	A2.1														1	H1-PILE		SEE NOTE 1.
23-2			2	#2 ACSR	180	35	4	1	A5.1	2	E1.1La	2	F7.0	1	G1.6-25						1	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
23-3						35	4											115	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
23-4						35	4			1	E1.1La	1	F7.0			2	#2 TRIPLEX	115	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
24			4	#2 ACSR	235	40	4	1	C6.21														1	H1-PILE		SEE NOTE 1.
								1	S2.32a														1	N6.1		
25			4	#2 ACSR	235	40	4	1	C1.11							1	#2 TRIPLEX	255	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																										INSTALL STREET LIGHT.
26 (ALT #1)		13	4	#2 ACSR	255	40	4	2	C5.21	2	E1.1La	2	F7.0	1	G1.4-25	2	#2 TRIPLEX				4	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																							1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
																										ADDITIVE ALTERNATE NO. 1.
26 (ALT #2)		13	4	#2 ACSR	255	40	4	1	C2.21	1	E1.1La	1	F7.0	1	G1.4-25	2	#2 TRIPLEX				4	J3.1	1	H1-PILE		SEE NOTE 1.
								1	C5.21												1	N7.6	1	H1.1G		ADDITIVE ALTERNATE NO. 2.
																							2	N5.1		INSTALL STREET LIGHT.
26-1A						35	5											175	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-2A						35	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	180	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-1B			4	#2 ACSR	260	40	4	1	C1.11					1	G1.4-25	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
26-2B			4	#2 ACSR	200	40	4	1	C1.11							2	#2 TRIPLEX	200	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-3B			4	#2 ACSR	200	40	4	2	C5.21														1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
26-3B-1B						30	5			1	E1.4L	1	F7.0										1	H1-PILE		SEE NOTE 1.
																										SEE NOTE 4.
26-3B-1A			2	#2 ACSR	320	40	4	1	A5.1	2	E1.1La	2	F7.0	1	G1.6-25	1	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
26-3B-2A						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	130	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-4B			4	#2 ACSR	200	35	4	1	C2.21	1	E1.1La	1	F7.0			1	#2 TRIPLEX	145	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01														1	H1.1G		INSTALL STREET LIGHT.
																							1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.
26-4B-1			2	#2 ACSR	145	35	4	1	A2.3									145	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-4B-2			2	#2 ACSR	145	35	4	1	A5.1	2	E1.1La	2	F7.0	1	G1.6-25	1	#2 TRIPLEX	140	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		
26-4B-3						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	190	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-5B			4	#2 ACSR	200	40	4	1	C1.11							1	#2 TRIPLEX	155	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-6B		12	4	#2 ACSR	155	40	4	1	C2.21	1	E1.1La	1	F7.0	1	G1.4-25	2	#2 TRIPLEX				3	J3.1	1	H1-PILE		SEE NOTE 1.
																					1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
26-6B-1						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	165	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-7B		13	4	#2 ACSR	190	40	4	1	C5.21	2	E1.1La	2	F7.0	1	G1.4-25	2	#2 TRIPLEX				2	J3.1	1	H1-PILE		SEE NOTE 1.
								1	A5.01												1	N7.6	1	H1.1G		INSTALL STREET LIGHT.
																							1	N5.1		SEE UNIT C5.11G FOR 1-PHASE TAP.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
26-7B-1						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	125	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
26-8B			2	#2 ACSR	255	35	4	1	A2.1														1	H1-PILE		SEE NOTE 1.
26-9B			2	#2 ACSR	165	35	4	1	A2.1									210	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
26-10B			2	#2 ACSR	190	35	4	1	A2.1					1	G1.6-25	2	#2 TRIPLEX				2 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1.
26-10B-1						35	5			1	E1.1La	1	F7.0			3	#2 TRIPLEX	125	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
26-11B			2	#2 ACSR	235	35	4	1	A5.1	1	E1.1La	1	F7.0			3	#2 TRIPLEX	235	1	#1/0 TRIPLEX	4	J3.1	1	H1-PILE		SEE NOTE 1.
27			4	#2 ACSR	155	40	4	1	C1.11									155	1	#6 DUPLEX	1	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
28			4	#2 ACSR	200	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
29			4	#2 ACSR	205	40	4	1 1	C1.11 A5.01	2	E1.1La	2	F7.0					90	1	#6 DUPLEX	1	J3.1	1 1	H1-PILE N5.1		SEE NOTE 1. INSTALL STREET LIGHT. SEE UNIT C5.11G FOR 1-PHASE TAP.
29-1			2	#2 ACSR	90	40	4	1	A2.1							1	#2 TRIPLEX	180	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
29-2			2	#2 ACSR	180	40	4	1	A2.1									155	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
29-3			2	#2 ACSR	155	40	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.6-25	1	#2 TRIPLEX				3 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.
29-3-1A						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	130	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
29-3-1B						35	4			1	E1.1La	1	F7.0					165	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
29-3-1C						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	190	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
29-3-1D						30	4									1	#2 TRIPLEX	85	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
30			4	#2 ACSR	220	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
31		12	4	#2 ACSR	220	40	4	1	C2.21					1	G1.4-25	1	#2 TRIPLEX				2 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1. INSTALL STREET LIGHT.
31-1A						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	125	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
31-1B						35	4			1	E1.4L	1	F7.0										1	H1-PILE		SEE NOTE 1. SEE NOTE 4.
32			4	#2 ACSR	265	40	4	1	C1.11														1	H1-PILE		SEE NOTE 1.
33			4	#2 ACSR	185	40	4	1 1	C5.21 A5.01	2	E1.1La	2	F7.0	1	G1.4-25	1	#2 TRIPLEX				2 1	J3.1 N7.6	1 1 1	H1-PILE H1.1G N5.1		SEE NOTE 1. INSTALL STREET LIGHT. SEE UNIT C5.11G FOR 1-PHASE TAP.
33-1						35	4			1	E1.1La	1	F7.0			1	#2 TRIPLEX	160	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1.
33-2						35	4			1	E1.1La	1	F7.0			2	#2 TRIPLEX	120	1	#1/0 TRIPLEX	3	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
34			2	#2 ACSR	160	35	4	1	A2.1							2	#2 TRIPLEX	100	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.
35			2	#2 ACSR	100	35	4	1	A5.1	1	E1.1La	1	F7.0	1	G1.6-25	1	#2 TRIPLEX				3 1	J3.1 N7.6	1 1	H1-PILE H1.1G		SEE NOTE 1.

LOCATION NUMBER	STATION	LINE ANGLE (DEG)	CONDUCTOR			POLE		PRIMARY ASSEMBLY		GUYS		ANCHORS		XFMRS		SECONDARY CONDUCTOR					SECONDARY SERVICE		MISCELLANEOUS CONSTRUCTION UNITS		RIGHT OF WAY	REMARKS/COMMENTS/NOTES
																SERVICE		BACKFEED								
			No.	SIZE/TYPE	Back Span	HEIGHT	CLASS	No.	Units	No.	Units	No.	Units	No.	Units	No.	SIZE/TYPE	Back Span	No.	SIZE/TYPE	No.	Units	No.	Units		
36						35	4											165	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1. INSTALL STREET LIGHT.
37						30	5			1	E1.1La	1	F7.0			1	#2 TRIPLEX	130	1	#1/0 TRIPLEX	2	J3.1	1	H1-PILE		SEE NOTE 1.

STAKING SHEET NOTES:

1. SEE PROJECT DETAIL DRAWINGS FOR MODIFIED RUS CONSTRUCTION UNITS.
2. INSTALL 120 VOLT METER AND BASE ON THE POLE WITH THE TOP OF THE METER BASE AT 5'-0" ABOVE GRADE LEVEL. INSTALL UNISTRUT SUPPORT ON THE PILE AS REQUIRED. THE METER BASE SHALL BE NEMA 3R. INSTALL 1-1/4" CONDUIT RISER UP TO THE LIGHT WITH WEATHERHEAD. ROUTE POWER SUPPLY FOR LIGHT THROUGH METER.
3. REMOVE THE BOTTOM RUS C1.11 UNIT AND REPLACE WITH NEW RUS UNIT C6.21. INSTALL NEW ANCHOR AND GUY UNITS.
4. CONSTRUCTION UNIT E1.4L SHALL BE MODIFIED TO USE PREFORMED DEADENDS IN LIEU OF THAT SHOWN ON THE RUS DRAWING. SEE UNIT E1.1La FOR MODIFICATIONS TO GUY MARKER.
5. EXISTING LOCATION TO REMAIN UNCHANGED. RECONNECT EXSISTING OVERHEAD CONDUCTORS AS INDICATED.
6. ROUTE GALVANIZED RIGID CONDUIT FROM THE BATTERY BANK PRIMARY CONNECTIONS TO THE NEW POLE. CONDUIT SHALL BE INSTALLED A MINIMUM OF 12" ABOVE GRADE ON 6"X6" TREATED POSTS, OR OTHER ENGINEER APPROVED METHOD. COORDINATE ALL WORK AT THE BATTERIES WITH THE OWNER. FINAL CONNECTIONS TO THE BATTERY BANK CONNECTIONS SHALL BE APPROVED BY THE OWNER.
7. ROUTE 4" PVC CONDUIT FROM THE EXISTING SECTIONALIZING CABINET TO THE POLE. BURY CONDUIT A MINIMUM OF 3'-0". AT THE POLE, CONVERT TO GALVANIZED RIGID CONDUIT. PROVIDE PVC COATED RIGID STEEL CONDUIT ELBOW. PROVIDE HEAT SHRINK JACKET OVER ALL CONNECTIONS AND ANY BARE CONDUIT EXPOSED TO GROUND OR WATER. EXTEND THE PVC COATED RIGID STEEL CONDUIT A MINIMUM OF 24" ABOVE GRADE.
8. INSTALL METER BASE ON H-PILE OR POLE AT NO HIGHER THAN 5'-0" FROM GRADE TO THE TOP OF THE METER BASE. ROUTE 3-#2AWG COPPER CONDUCTORS IN A 2" GALVANIZED RIGID CONDUIT UP TO A WEATHERHEAD. WEATHERHEAD SHALL BE MINIMUM 12'-0" ABOVE GRADE.
9. SEE PLAN SHEETS FOR ADDITIONAL INFORMATION ON REQUIREMENTS FOR BASE BID AND ADDITIVE ALTERNATES.
10. ON UNITS C6.21, INSTALL ANCHOR SHACKLES AS IDENTIFIED IN NOTE 2 OF THE RUS CONSTRUCTION UNIT TO INCREASE THE LINE ANGLE TO 15 DEGREES.
11. INSTALL TWO HUGHES BROTHERS 48 INCH CONDUCTOR PHASE SPACER, STOCK NUMBER CF800-48C AT MID SPAN.

SECTION 16401

DISTRIBUTION POLES

PART 1 - GENERAL

1.01 SCOPE

This specification describes the minimum acceptable quality of wood poles. Where there is conflict between this specification and any other specification referred to herein, this specification shall govern. The poles shall be constructed in accordance with these specifications.

1.02 STANDARDS

All characteristics, definitions, and terminology, except as specifically covered in this specification, shall be in accordance with the latest revision of the following standards.

RUS Bulletin 1728F-700:	Specification for Wood Poles, Stubs, and Anchor Logs.
ANSI 05.1	Wood Poles - Specifications and Dimensions.
AWPA-C4:	Poles - Preservative Treatment by Pressure Processes, American Wood Preservers Association.

PART 2 – PRODUCTS

2.01 WOOD POLES

A. Wood poles shall meet the requirements of ANSI 05.1 and shall be Douglas Fir drilled and gained in accordance with RUS W1.1G Pole Framing Guide. Wood poles shall have pole markings located 10 feet from pole butts. Other locations will not be acceptable. Poles shall be machine trimmed by turning smooth full length, and shall be roofed, gained, and bored prior to pressure treatment. No climbing rungs shall be provided.

B. Poles shall be full length pressure treated using a pressure injection method approved by the Western Wood Preserves Institute that prevents leaching. Pressure treatment shall be by the Copper Naphthenate process in accordance with AWPA C4. Other treatment processes will not be accepted.

C. Poles exhibiting any of the following defects will not be accepted; cross-breaks (horizontal cracks), catface (scars), compound through checks, decay, double sweep (poles having sweep in two planes), hollow butts or tops, improper framing, plugged holes (other than increment core holes), spike knots or any knot with bark inclusion, and split top.

D. Checks:

1. Checks (vertical cracks) are permitted in the top of pole except for any check more than 1/8 inch wide and extending down from the top of the pole more than 12 inches and within 30 angular degrees from the axis of the face of pole directly above ground; and any through checks or splits.

2. Through checks or splits in the butt surface of the pole are not permitted.

3. A check is considered to be continuous if it is not separated by at least 1/2 inch of wood. The maximum allowable width and length of any single check are found in Table II "Maximum Allowable Check Dimensions".

TABLE II. MAXIMUM ALLOWABLE CHECK DIMENSIONS

LENGTH OF POLE	MAXIMUM WIDTH	MAXIMUM LENGTH
30 feet	¼ inch	5 inches
35 and 40 feet	5/16 inch	5 inches
45 and 50 feet	3/8 inch	8 inches

E. Knots:

1. The diameter of any single knot or sum of the diameters of all knots in any one foot section shall not exceed the limits of Table III "Maximum Allowable Knot Dimensions". Knots 1/2 inch or less in diameter shall be ignored in applying the limitations for the sum of diameters.

2. The maximum single knot in any "sworl" shall be 2 inches in diameter. Maximum sum of knots in any "sworl" shall not exceed 20% of the pole circumference at the point of the sworl or more than allowed in Table III.

TABLE III. MAXIMUM ALLOWABLE KNOT DIMENSIONS

SUMMARY OF DIAMETERS		
DIAMETER OF KNOTS IN ANY		
POLE LENGTH	ANY SINGLE KNOT	1 FOOT SECTION
45 feet and shorter	2.5 inches	8 inches
50 feet	3.0 inches	10.0 inches

PART 3 – EXECUTION

3.01 CERTIFICATION

A. Provide a certificate of compliance, signed by an authorized employee of the producer, that the material shipped meets the requirements of this specification and any supplementary requirements cited in a contract or order under which it was purchased.

B. Provide independent inspection certification.

END OF SECTION

SECTION 16402

PRIMARY CONDUCTORS

PART 1 - GENERAL

1.01 SCOPE

A. This specification describes the minimum acceptable quality of primary conductor. Where there is conflict between this specification and any other specification referred to herein, this specification shall govern.

B. The specification herein is for the materials, design, fabrication, protective coating, and delivery of Aluminum Conductor Steel Reinforced (ACSR) conductors. This specification also describes the requirements for the design, manufacture, and delivery of the conductor.

C. Provide sag and tension and stringing tables for each type of conductor provided, based on the conditions specified herein. Submit tables for review.

1.02 STANDARDS

All characteristics, definitions, and terminology, except as specifically covered in this specification, shall be in accordance with the latest revision of the following standards.

ASTM B-230: Aluminum Wire, 1350-H19 for Electrical Purposes

ASTM B-231: Aluminum Conductors, Concentric-Lay Stranded.

ASTM B-232: Aluminum Conductors, Concentric-Lay Stranded, Coated Steel Reinforced (ACSR).

ASTM B-500: ASTM Standard Specification for Metallic Coated Stranded Steel Core for Aluminum Conductors, Steel Reinforced (ACSR)

1.03 CONDUCTOR SPECIFICATIONS

A.	CODE WORD:	#2 AWG	Sparate
B.	STRANDING:	#2 AWG	7/1
D.	RATED STRENGTH (pounds) for overall Conductor:	#2 AWG	3460
E.	Overall Conductor Diameter:	#2 AWG	0.325 inches
F.	Weight (pounds per 1000 feet):	#2 AWG	106.7
G.	Resistance (ohm/1,000 ft):		
	DC @ 25C:	#2 AWG	0.251
	AC @ 75C:	#2 AWG	0.338

PART 2 – PRODUCTS

2.01 CONDUCTOR

A. The conductors shall be capable of withstanding normal handling incident to manufacture, shipment, and field installation without being deformed or abraded. Such handling includes reeling, lifting and movement of full reels, unreeling, pulling through controlled tension stringing equipment, over stringing sheaves, compression fittings and other standard accessories as required.

1. The conductor shall be Class AA stranding in accordance with Table 1 of ASTM B232.
2. The conductor size and number of wires shall be as specified herein.
3. The aluminum wire shall be made of 1350-H19 aluminum alloy in accordance with ASTM B230. The minimum average conductivity of the aluminum shall not be less than 61.2% IACS.
4. The zinc-coated (galvanized) steel core wire (Class A weight coating) shall be in accordance with ASTM B498. The minimum average conductivity of the steel shall not be less than 8% IACS.
5. The component conductors shall be made with standard right hand lay.

B. All tension tests shall meet or exceed ASTM B498, B230, and B232. The surface of the conductors shall remain smooth, free from points, sharp edges, abrasions, or other departures from smoothness that would tend to increase radio interference and corona loss. The conductors shall be free from excessive amounts of grease, metal particles, dirt, or other foreign matter. The conductors shall not deform from the cylindrical form nor shall longitudinal smoothness be affected by strand movement when subjected to tension. Conductor components shall be formed so that there is no slack in the outer layer.

PART 3 – EXECUTION

3.01 TESTING

The MANUFACTURER shall use a statistically based quality control sampling and testing plan to assure acceptable quality levels. As a minimum, sampling and testing shall be as required by ASTM B230, ASTM B232, and ASTM B498.

3.02 SAG & TENSION AND STRINGING TABLES

The Contractor shall provide a sag table and stringing table for each conductor based on the following information. All costs associated with these tables shall be included in the cost of the conductor. Contractor shall submit the sag and stringing table for review.

A. Design Conditions:

1. NESC Heavy Loading District.
2. Ruling Span: 160 Feet.
3. Initial Tension: 15% of Conductor Tensile Strength.
4. Final Tension: 25% of Conductor Tensile Strength.
5. Maximum Tension: 50% of Conductor Tensile Strength.

B. Creep is not a factor.

C. Stinging table shall provide sag and tensions at spans of 100 feet to 300 feet at a minimum temperature of -40ºF.

3.03 CERTIFICATION

A. Provide a certificate of compliance, signed by an authorized employee of the MANUFACTURER, that the material shipped meets the requirements of this specification and any supplementary requirements cited in a contract or order under which it was purchased.

END OF SECTION

SECTION 16451

OVERHEAD TRANSFORMERS

PART 1 - GENERAL

1.01 SUMMARY

A. This specification covers the electrical and mechanical characteristics of Single-Phase Overhead-Type Distribution Transformers. The transformers shall be designed and constructed in accordance with these specifications All characteristics, voltage designations and tests shall be in accordance with the latest editions of ANSI Standards C57.12.26 and C57.12.00, except as modified herein.

B. Transformers shall be designed in accordance with RUS requirements and shall be of new construction.

C. Transformers shall have amorphous metal cores. Other core types will not be acceptable.

D. Transformers shall be suitable for step-down service.

E. Quantities and ratings shall be as indicated on the Staking Sheets.

1.02 STANDARDS

All characteristics, definitions, and terminology, except as specifically covered in this specification, shall be in accordance with the latest revision of the following ANSI and NEMA standards.

C57.12.00	IEEE Standard General Requirements for Liquid-Immersed Distribution, Power and Regulating Transformers.
C57.12.20	Overhead-Type Distribution Transformers, 500 KVA and Smaller: High Voltage, 34500 Volts and Below: Low Voltage, 7970/13800Y Volts and Below.
C57.12.35	Bar Coding for Distribution Transformers.
C57.12.90	IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers and IEEE Guide for Short-Circuit Testing of Distribution and Power Transformers.
C57.12.91	Guide for Loading Mineral-Oil-Immersed Overhead and Pad-Mounted Transformers rated 500 kVA and less with 55°C or 65°C average winding rise.
NEMA TR-1	Transformers, Regulators, and Reactors.
NEMA TP-1	Guide for Determining Energy Efficiency for Distribution Transformers
NEMA TP-3	Standard for Labeling of Distribution Transformer Efficiency.

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

1.03 SUBMITTALS

A. Submit complete electrical data, mechanical and layout drawings, and wiring and connection diagrams for each type of transformer provided.

B. Drawings shall indicate the kVA rating, dimensions, transformer impedance, voltage (both primary and secondary), phase of the transformer, and winding connecting.

C. Provide a nameplate drawing of each rating and type of transformer.

D. Provide certified test reports prior to shipment of the transformers. Test reports shall indicate the impedance, no load, and full load loss of each transformer, by serial number, and shall include the transformer efficiency, expressed in percent, of the transformer based on the test procedures specified herein.

E. Certified test reports shall contain a statement identifying the amount of PCB in the insulating oil.

F. Submittals shall be made separately for transformers used for single-phase services and transformers used for three-phase services.

1.04 WARRANTY

The failure of any transformer due to defective design, material and/or workmanship within 12 months after being energized or eighteen months after being delivered, whichever comes first, shall be repaired or replaced without cost. Any defect in design, material and/or construction discovered within this period shall be corrected at the manufacturer's expense, either by repair or replacement.

PART 2 - PRODUCTS

2.01 RATINGS

A. General:

1.	Primary Voltage Rating:	7,200 volts.
2.	Secondary Voltage Rating:	As specified herein or on the drawings or staking sheets.
3.	Frequency:	60 Hz.
4.	Phase:	Single.
5.	Impedance:	3% ± 7.5%.
6.	kVA Rating:	As indicated on the Staking Sheet.
7.	BIL Rating:	125 kV.
8.	Temperature Rating:	Self-cooled, 65° C above a 30° C ambient.

2.02 ACCEPTABLE MANUFACTURERS

Acceptable manufactures shall be as follows.

A. ABB.
B. Cooper Power.

C. Ermco.
D. General Electric.
E. Howard Transformers.
F. Other manufacturers not acceptable.

2.03 TRANSFORMER VOLTAGES

A. Transformer primary voltage shall be 7,200 volts.

B. Unless otherwise indicated on the drawings or in the staking sheets, transformer secondary voltages shall be as follows:

1. Transformers used for single-phase service shall be 120/240 volt.

2. Transformers used as part of a three-phase transformer bank shall be rated 120 volts to provide utilization of the full transformer capacity for 120/208 volt, three-phase service.

2.04 TRANSFORMER LOSSES

A. Transformer no load and load losses shall be quoted with the transformer bid and shall be guaranteed by the manufacturer. Transformer losses determined by the factory tests on the individual transformers shall be less than 10% greater than the guaranteed bid losses. No individual unit shall be shipped that exceeds guaranteed no load losses by more than 10%.

B. Transformer losses shall not exceed the following:

Transformer Rating	Maximum No Load Loss	Maximum Load Loss
10 kVA	10 watts	100 watts
15 kVA	14 watts	125 watts
25 kVA	20 watts	200 watts
37.5 kVA	25 watts	350 watts

2.04 TRANSFORMER TAPS

Transformers shall be furnished with four full capacity high-voltage taps. Two 2-½% above and two 2-½% below rated nominal voltage. The tap changer switch shall be an externally operated switch with a hot stick operable handle. The tap changer shall be clearly labeled to reflect that the transformer must be de-energized before operating the tap changer as required in Section 3.3 of ANSI C57.12.26. Taps shall be provided on the higher voltage of dual voltage primary units.

2.05 HIGH VOLTAGE BUSHINGS AND TERMINALS

A. Provide two high voltage bushings. Single bushing transformers will not be acceptable.

B. The bushing terminals provided shall be tin-plated to accommodate both aluminum and copper conductors. The size of the terminals shall be 5/8”.

C. The color of the bushings shall match Light Gray Number 70, Munsell Notation 5BG7.0/0.4.

D. High voltage bushings shall be porcelain.

E. Provide high voltage bushings rated at 110 kV BIL.

2.06 LOW VOLTAGE BUSHINGS AND TERMINALS

A. Low voltage bushings shall be provided with the following ratings.

30 kV BIL Rating.
10 kV 60 Hz Dry 1-Minute Withstand Voltage.
6 kV 60 Hz Wet 10 Second Withstand Voltage.

B. 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 1.

C. Provide three porcelain bushings.

D. 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.

Table 1
Low-Voltage Terminal Sizes for Single-Phase Transformers

Size of Terminal Opening (inches)	AWG Size of Conductor Terminal will Accommodate	Low Voltage Rating (volts) 120/240
5/8	#6 Solid to No 4/0-19 Stranded	5-15 kVA
13/16	No 2 Solid to 350 MCM Stranded	25-100 kVA

2.07 PROTECTION

A. Transformers shall be protected using external fused cutouts.

2.08 CORE AND COIL

A. Windings shall be copper or aluminum. All windings shall meet the guaranteed temperature rise requirements.

B. The core and coil shall be vacuum processed to ensure maximum penetration of insulating fluid into the coil insulation system. While under vacuum, the windings will be energized to heat the coils and drive out moisture, and the transformer will be filled with preheated filtered degassed insulating fluid.

C. The core shall be manufactured from amorphous metal; and shall be precisely stacked to eliminate gaps in the corner joints. Grain-oriented silicon steel, or other metals, will not be acceptable. The coil shall be insulated with B-stage, epoxy coated, diamond pattern, insulating paper, which shall be thermally cured under pressure to ensure proper bonding of conductor and paper.

2.09 TANK

A. 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.

B. The tank coating shall meet all requirements in ANSI C57.12.31 including.

1. Salt Spray Test.
2. Crosshatch Adhesion Test.
3. Humidity Test.
4. Impact Test.
5. Oil Resistance Test.
6. Ultraviolet Accelerated Weathering Test.
7. Abrasion Resistance - Taber Abraser.

C. The tank provided shall have a recessed tank bottom to offer protection when sliding over rough surfaces.

D. The tank shall have an internal mark, which indicates the proper oil level per Section 6.2.3 of ANSI C57.12.20.

E. Permanently stamped secondary leads.

F. The tank shall be provided with a stainless 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. Provide a visible cover ground.

G. Provide a drain/sampling device.

H. All hardware shall be stainless steel.

I. The tank shall include arrester mounting pads, grounding provisions, ANSI support lugs (hanger brackets) and lift lugs. Hanger brackets shall be single.

J. The tank color shall be ANSI 70 light gray.

2.10 INSULATING OIL

Transformers shall be provided with highly refined inhibited new mineral oil and meet the minimum requirements as specified in Table 1, “Functional Property Requirements,” of ASTM D3487 and ANSI C57.106.

2.11 NOISE

Standard transformer sound level shall not exceed the values as calculated per the latest edition of NEMA Publication TR-1.

2.12 NAMEPLATES & LABELS

A. Diagrammatic nameplate that conforms to the latest edition of ANSI C57.12.00. Impedance of the transformer shall be included on the nameplate. The nameplate

shall be etched and black-filled aluminum or stainless steel. Affix to the enclosure with rivets.

B. In addition to warning labels, provide a label indicating the transformer kVA rating on the front of the transformer, in minimum 2-1/2" black letters.

PART 3 - EXECUTION

3.01 TESTING AND LOSSES

A. All units shall be tested for the following:

1. No Load (Core) Losses.
2. Load Losses at 85°C and rated current.
3. Percent Impedance at 85°C and rated current.
4. Excitation current (100% voltage) test.
5. Winding resistance measurement tests.
6. Ratio tests using all tap settings.
7. Polarity and phase relation tests.
8. Induced potential tests.

B. The manufacturer shall provide certification for all design and other tests listed in Table 17 of ANSI C57.12.00 including verification that the design has passed Short Circuit Criteria per ANSI C57.12.00 and C57.12.90.

C. One PDF copy of the factory certified test report of each test, in IEEE 1388 format, shall be delivered to the Engineer for review and acceptance prior to shipment of the transformers.

3.02 SHIPPING

A. The Manufacturer shall investigate all limitations in regard to shipping the equipment to the project site.

B. The transformers shall be packaged to protect them from damage during shipment, handling, and storage.

C. Transformers shall be installed on pallets to allow loading and unloading with a forklift.

END OF SECTION