INVITATION TO BID
17068

CONSTRUCTION

Kipnuk Bulk Fuel and Power System Upgrades

March 2017

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DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS (yellow)

Pages

DIVISION 01 – GENERAL REQUIREMENTS

DIVISION 02 – EXISTING CONDITIONS

DIVISION 03-04 (NOT USED)

DIVISION 05 – METALS

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

DIVISION 08 (NOT USED)

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DIVISIONS 11 – 25 (NOT USED)

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DIVISION 27 (NOT USED)

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ALASKA ENERGY AUTHORITY

INVITATION TO BID

for Construction Contract

Date March 29, 2017

Kipnuk Bulk Fuel and Power System Upgrades

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

State Funded [x] Federal Aid [ ]

Description of Work: Work under this Contract consists of the construction of bulk fuel upgrades (BFU) and rural power system upgrades (RPSU) in the community of Kipnuk, Alaska. The Contractor shall provide all labor, materials, and equipment required to construct the bulk fuel and rural power system upgrades.

The Engineer's Estimate is between **$5,000,000.00 - $7,000,000.00**
All work shall be substantially completed by**: September 12th, 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 April 20, 2017.

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: **Kipnuk Bulk Fuel and Power System Upgrades** **Project Number:17068**	**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, Project Manager 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 Email: rwooten@AIDEA.Org

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 April 11, 2017, 11:00am in the Aspen Conference room. This is not a mandatory meeting, and there will not be a scheduled site visit prior to the bid opening. Attend by teleconference dial 1-888-585-9008 and when prompted enter code 434756425#.

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.

All questions must be received 72 hours before the bid opening. Questions submitted after the deadline may be rejected by the Authority.

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.

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)**
2. **Bid Breakdown Form (see 01 11 13)**

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 **March 29, 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

Kipnuk Bulk Fuel and Power System Upgrades

Project No. 17068

Located at **Kipnuk, 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 **September 12th, 2018**, unless extended in writing by the Contracting Officer. Final inspection and completion shall be on or before **October 10th, 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

Kipnuk Bulk Fuel and Power System Upgrade

Project No. 17068

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

Bid Item	Description	Lump Sum Price
A & B	Construct Base Bid: RPSU plus BFU Bulk Tank Farm containment structure, Council Bulk Storage Tanks, marine header piping, power plant Intermediate Tank, distribution pipeline, plus associated electrical and controls. As further detailed in Section 011113 Summary of Work.	$
	Total Base Bid	

Additive Alternates:

Bid Item	Description	Lump Sum Price
C	Construct Additive Alternate #1: BFU Corporation Bulk Storage Tanks, Gasoline Marine Header, manifold piping, plus associated electrical and controls. As further detailed in Section 011113 Summary of Work.	$
D	Construct Additive Alternate #2: BFU Corporation Dispensing Tank, Dispensing Station, dispensing pipelines, plus associated electrical and controls. As further detailed in Section 011113 Summary of Work.	$
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 01 11 13 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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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

Kipnuk Bulk Fuel and Power System Upgrades

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 00 70 00
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 00 02 00 - Invitation for Bids, Document 00 70 00 – General Conditions, and Document 01 60 00 – Materials and Equipment.

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.I 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.

I0.5 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 I0.4.I or specifically covered by paragraph I0.4.4 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) 01 77 00, 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 l4 - SUSPENSION OF WORK, DEFAULT AND TERMINATION

14.l 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 01 32 00**.

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 00 80 00
SUPPLEMENTARY CONDITIONS
MODIFICATIONS TO THE GENERAL CONDITIONS

The following supplements modify, change, delete from, or add to Section 00 70 00 "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."

At General Conditions Article 5.4.2 add the following Paragraph:

f. Contractor to provide Marine Cargo Carriage Insurance for the full value of all materials in transport, including the Alaska Energy Authority provided power plant
generator module.

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-11.8–DELAY DAMAGES

At General Condition Article 11.8, add the following paragraphs:

11.8.1 For each calendar day that the Schedule A,B, C, & D Work is not Substantially Complete after the expiration of the Contract Time or the completion date has passed, the AUTHORITY shall deduct $500 from progress payments.

11.8.2 If no money is due the CONTRACTOR, the AUTHORITY shall have the right to recover these sums from the CONTRACTOR, from the Surety, or from both. These are liquidated damages and not penalties. These charges shall reimburse the AUTHORITY for its additional administrative expenses incurred due to CONTRACTOR'S failure to complete the work within the time specified.

11.8.3 Permitting the CONTRACTOR to continue and finish the work or any part of it after the Contract time has elapsed or the completion date has passed does not waive the AUTHORITY'S rights to collect liquidated damages under this section.

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-15.6– Construction Contract Claim Appeals.

Delete 15.6 in its entirety.

END OF SECTION 00 80 00

REQUIRED CONTRACT PROVISIONS

For

FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the Contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of these Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4, and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States, or

b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION (Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the Alaska Energy Authority (AEA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the AEA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: “An Equal Opportunity Employer.” All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor’s compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor’s work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the AEA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the AEA.

8. Selection of Subcontractors, Procurement of Materials, and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 26 shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from AEA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years

following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the AEA and the U.S. DOT.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the AEA each July for the duration of the project, indicating the number of minority, women, and non minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on the job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES (Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO Provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

2. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, or national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

3. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to the award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGES (Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on

any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The AEA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) The work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) The additional classification is utilized in the area by the construction industry;

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the U.S. Department of Labor, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days

of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U. S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers: Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, which is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT): Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and

trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding: The AEA shall, upon its own action or upon written request of an authorized representative of the DOL, withhold or cause to be withheld from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the AEA Procurement Officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements: No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such work week unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation: Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible therefor shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages: The AEA shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS (Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3): The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b) (2) (B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish each week in which any contract work is performed a payroll of wages paid each of its employees (including apprentices, trainees, and helpers described in Section IV, paragraphs 4 and 5 and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402 or the Government Bookstore, 915 Second Avenue, Seattle, WA 98174. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a “Statement of Compliance”, signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid in full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions set forth in the Regulations, 29 CFR 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this section V available for inspection, copying, or transcription by authorized representatives of the AEA, the U.S. DOT, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the AEA, the U.S. DOT, DOL, or all may, after written notice to the contractor , sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any

further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORDS OF MATERIALS, SUPPLIES, AND LABOR (Applicable to highway contracts)

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR Part 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on the Form FHWA-47.

c. Furnish, upon the completion of the contract, to the AEA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items so performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR Part 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of this Section VII is computed includes the cost of materials and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the AEA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the AEA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the AEA is assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract, the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the AEA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous, or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. Title 18, United States Code, Section 1001, states:

“Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.” (June 25, 1948, ch. 645, 62 Stat. 749.)

To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all personnel concerned with the project:

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid, or the execution of this contract or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR Part 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the AEA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraphs 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILTY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions: (Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to which this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from

participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction,” provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the “Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs” (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment,
Suspension, Ineligibility and Voluntary
Exclusion—Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Covered Transactions: (Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “primary covered transaction,” “participant,” “person,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction,” without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participation in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment,

Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING (Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

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SECTION 01 11 13

SUMMARY OF WORK

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Related Requirements.

B. Work covered by Contract Documents.

C. Description of Work Items.

D. Contract Method.

E. Work by Others.

F. Shutoffs / Disruptions to Service.

G. CONTRACTOR's Use of Premises.

H. Coordination.

I. Access for Testing and Inspection.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 General Conditions.

B. Section 00 80 00 Supplementary Conditions.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. Work under this Contract consists of the construction of bulk fuel upgrades (BFU) and rural power system upgrades (RPSU) in the community of Kipnuk, Alaska.
   1. Base Bid: Construct Rural Power System Upgrades: Provide all labor, materials, and equipment required to construct the rural power system upgrades as described in 1.04 Description of Work below, and within the Contract Documents.
   2. Base Bid, Add. Alt. #1 &#2: Construct Bulk Fuel Upgrades: Provide all labor, materials, and equipment required to construct the bulk fuel upgrades as described in 1.04 Description of Work below, and within the Contract Documents.

3. Bid Breakdown: Bidders are required to provide a bid breakdown of advisory numbers for the AUTHORITY's allocation of project funding. Breakdown numbers will not be used for purposes of evaluating Bids or Award of the Contract. Bid Breakdown is to follow the format on attached Form for each of the Bid Items as described in 1.04 Description of Work below.

B. The intent of the Contract is to provide for the construction and completion of every detail of work described in the Contract Documents. The CONTRACTOR shall furnish all labor, materials, supervision, equipment, tools, transportation, quality control, and supplies required to complete the work in accordance with the Contract Documents. A brief description of the work is as follows:

Base Bid, Construct Rural Power System Upgrades: Work consists of providing all labor, materials, and equipment required to complete the Kipnuk Rural Power System Upgrades Project as shown in Section 00 32 00 – Bid Schedule. This work includes site work consisting of survey, relocation of existing structures and equipment, installation of power plant components including pile foundation, power plant structural system, decking, boardwalks, mobilization and installation of the Owner-furnished power plant module, overhead distribution upgrades, above grade fuel supply piping from the bulk tank farm, intermediate tank manifold piping, electrical control wiring to tank farm, heat recovery piping, site clean-up, testing, commissioning, training, quality control, and other related work as described in the Contract Documents.

Base Bid, Add. Alt. #1 &#2; Construct Bulk Fuel Upgrades: Work consists of providing all labor, materials, and equipment required to complete the Kipnuk Bulk Fuel Upgrades Project as shown in Section 00 32 00 – Bid Schedule. This work includes site work consisting of survey, installation of all tank farm components including pile foundation, tank farm structural system, tank farm containment system, grounding grid, fuel tanks and appurtenances, tank farm manifold piping, marine header piping, transfer pumps, dispensing pumps, dispensing system piping, motor vehicle dispensing station, marine header, chain-link fencing, signage, electrical service, lighting, controls, spill response equipment, site clean-up, testing, commissioning, training, quality control, and other related work as described in the Contract Documents. The work also includes fuel transfer, tank cleaning and other work related to decommissioning of the existing bulk fuel storage and distribution systems that are displaced by this project as described in the Contract Documents. This complete description of work is subject to award of Additive Alternate #1 and Additive Alternate #2, as further described in 1.04 Description of Work below, and within the Contract Documents.

C. IMPORTANT NOTES TO CONTRACTOR:

1. Site conditions may include flooding from storm surge and/or snowmelt. Shoreline erosion is possible. CONTRACTOR shall stage all material and equipment in areas that are above flood stage elevation and adequately removed items from locations susceptible to shoreline erosion. CONTRACTOR will be responsible for any damage or loss of materials and equipment during transport, storage and construction.
2. No clearing or damage of existing vegetation shall occur. CONTRACTOR shall construct and utilize ice roads and pads, as necessary throughout construction, to prevent damage to existing vegetation.
3. No damage to existing river banks shall occur as the result of the CONTRACTOR's activities. Protect river banks from compression and sloughing by use of rig mats to spread loads over larger areas, or other equivalent means to spread or eliminate loads on river banks.
4. CONTRACTOR shall make his own arrangements for staging of construction materials and equipment and shall coordinate and pay for the use of these areas with the associated landowners and other appropriate parties. No staging areas are provided by the AUTHORITY, except for the proposed construction areas as shown on the Drawings.
5. The project manual Divisions 02 through Division 33 Technical Specifications are for the BFU project and the RPSU site work, or the RPSU work shown on the Civil Drawings, unless otherwise noted. RPSU Architectural, Structural, Mechanical, Fire Suppression, Electrical, and Exterior Electrical technical specification are on the Drawings. The project manual Technical Specification means, methods, tolerances, workmanship, quality, and quality control applies to all Work. Submittals are required for the items specified on the Drawings; see Sheet C0.0 for a list of required submittals for the portions of work specified on the Drawings.
6. RPSU Power Plant Module Pile Option: At the CONTRACTOR's Option the power plant module foundation piles can be 14-inch diameter by 0.5-inch wall ASTM A252 Grade 2 HSS pipe; the same size, thickness, Material and Grade as specified for the BFU project.

1.04 DESCRIPTION OF WORK

A. Base Bid (A): Construct Rural Power System Upgrades (all associated bid items are part of the Base Bid).

1. Bid Item A1: Mobilization and Demobilization.
2. Bid Item A2: Relocation of Existing Structure and Equipment.
3. Bid Item A3: Furnish and Install Pile Foundation and Structural Framing.
4. Bid Item A4: Furnish and Install Decking and Stairs.
5. Bid Item A5: Furnish and Install Boardwalks.

6. Bid Item A6: Mobilization of Power Plant Module to Kipnuk, AK.
    a. Power Plant Module Mobilization: Mobilize the power plant module and all accessories from the AUTHORITY's storage yard located at 2601 Commercial Drive, Anchorage, Alaska, 99501 to the project site in Kipnuk, AK.
        i. Power Plant Disassembly and Packaging: The power plant module will be assembled as a single unit and be fully operational and tested while in the AUTHORITY's yard. Access shall be provided to the CONTRACTOR for inspection during final assembly and testing. Prior to shipment the Contactor shall disassemble the module, weatherproof the module shipping splits (shipping breakdown components), and pack all exterior equipment for shipment.
            1) The power plant shall be disassembled and ship as two separate module sections. One section will be 30 feet long and weigh approximately 65,000 lbs. The second section will be 26 feet long and weigh approximately 55,000 lbs. Each section is equipped with lifting eyes at all four corners as indicated on the Drawings.
            2) Disassembly shall include, as a minimum, the following tasks as indicated by the Drawings: draining and disconnecting piping; disconnecting electrical; removing external equipment and devices; disconnecting structural fasteners at the shipping split, and physically separating the two sections.
            3) Engine coolant removed from remote radiators and other areas of the system, as required, can be placed in the two (2) power plant module 60-gallon glycol makeup mix tanks and reused to recharge the system after field installation is complete. Provide additional clean glycol drums to store coolant drained from the system for shipping and reuse if necessary. Provide additional quantities of new premix glycol to recharge the system if necessary.
            4) Weatherproofing shall include, as a minimum, closing all openings and covering each shipping split with a waterproof custom fit tarpaulin (closure). The tarpaulins shall be configured to allow access into at least one door on each shipping split. Protection shall be adequate to prevent moisture from getting into any part of the modules during shipping and storage until the module is completely installed and operational.

5) The CONTRACTOR shall be responsible for any damage to the power plant module and associated external equipment and devices during disassembly, mobilization to the project site, and installation.

7. Bid Item A7: Power Plant on Site Storage.
   a. Physical Protection: From the time of delivery until the time of installation the power plant module shall be stored in a secure location where it will be protected from damage due to environmental conditions, traffic, or vandalism.
   b. Temporary Heat: The following steps shall be taken to protect critical electronic items from damage due to condensation.
      i. Prior to mobilizing from Anchorage, the AUTHORITY will make provisions in the larger shipping split for temporary heat at no cost to the CONTRACTOR. Critical components will be stored in the Control Room and electric heaters will be installed. The heat will be configured for 120/240VAC single phase service and be equipped with a single power cord for connection.
      ii. Within one month of delivery to Kipnuk, the CONTRACTOR shall connect a 120/240 VAC service protected by a 20 Amp circuit breaker. The CONTRACTOR shall inform AUTHORITY of the date of connection to temporary power.
      iii. The CONTRACTOR shall keep the temporary power service energized from the time of connection until the time the module is turned over to the AUTHORITY for startup.
      iv. The CONTRACTOR shall pay for electric energy to maintain temporary heat. Assume the average electrical load is 1 kW, continuous.
8. Bid Item A8: Power Plant Module Installation.
   a. Install the power plant module on the foundation and reconnect the two module sections including gaskets and structural fasteners. Install Door #107 and the interior Window A on Grid Line 3 as indicated on the Drawings.
   b. Power Plant Module Re-Assembly and Installation: The CONTRACTOR shall re-assemble the module and associated external equipment and devices in the configuration the module was received in Anchorage including:
      i. Installation of all the external equipment and devices in the permanent location as indicated on the Drawings.
      ii. Reconnection of all piping as indicated on the Drawings. Pressure testing and refilling each piping systems with the correct fluid as Specified for each system.
      iii. Installation of new exterior piping and venting as indicated on the Drawings.
      iv. Installation of exhaust hoods as indicated on the Drawings.

v. Reconnection of all electrical devices and circuits as indicated on the Drawings.

c. Power Plant Module Roof: Furnish and install the power plant module roof in accordance with the Drawings.

9. Bid Item A9: Site Utility Mechanical and Electrical Installation.
   a. Fuel Piping: Furnish and install fuel piping, valves, and accessories from the power plant module to the new bulk tank farm clean and pressure test completed piping after installation.
   b. Heat Recovery: Furnish and install insulated arctic pipe, valves, and accessories from the module to the old power plant and the Traditional Council Building. Pressure test, flush, and charge piping with glycol and purge of air as indicated.
   c. Miscellaneous Electrical: Furnish and install conduit, conductors, fittings, and accessories from the module to the bulk tank farm, existing power plant, and the Traditional Council Building.
   d. Step-up Transformer: Install Owner furnished 500kVA step-up transformer and associated primary and secondary conduits and conductors.
   e. Modifications and Connections to the Electrical Distribution System: Furnish and install all materials to complete the power plant module electrical connection to the existing power distribution system, install new power poles, anchors, reconnect existing systems, and perform other related work as indicated.

B. Base Bid (B): Construct portions of the Bulk Fuel Upgrades that are within the Base Bid (reference Drawing M1.1 for further delineation of work included in the BFU Base Bid). Include the following work in accordance with the Contract Documents:
   1. Bid Item B1: Mobilization and Demobilization.
   2. Bid Item B2: Furnish and Install Tank Farm Pile Foundation.
   3. Bid Item B3: Furnish and Install Tank Farm Structural System.
   4. Bid Item B4: Furnish and Install Containment System and all Tank Foundations.
   5. Bid Item B5: Furnish and Install Kipnuk Traditional Council (Kipnuk Light Plant) Bulk Tanks and Appurtenances.
   6. Bid Item B6: Furnish and Install Council Intermediate Tank and Appurtenances.
   7. Bid Item B7: Furnish and Install Tank Farm Piping and Equipment for Council Bulk Fuel and Distribution System:
      a. Tank Farm Manifold Piping for Council.
      b. Tie into Existing Diesel Marine Header Piping for Council tanks.
      c. Council Transfer Pump and Pump Enclosure.
   8. Bid Item B8: Furnish and Install all Tank Farm Stairs, Chain Link Fencing, Gates and Signage.

9. Bid Item B9: Furnish and Install Tank Farm Electrical Service Meter Base, Council Lighting and Controls include the Area Lighting and the Security Light.
10. Bid Item B10: Furnish Spill Response Equipment and Materials.
11. Bid Item B11: Transfer Fuel from Existing Council Tanks to New Council Tanks while double filtering fuel.
    a. CONTRACTOR shall submit a Fuel Transfer Plan detailing the Fuel Transfer Operations.
12. Bid Item B12: Decommission Existing Council Fuel Tanks and Piping as indicated.

C. Additive Alternate #1: IF AWARDED, Construct Bulk Fuel Upgrades that are within Additive Alternate #1 (reference Drawing M1.1 for further delineation of work included in BFU Additive Alternate #1). Include the following work in accordance with the Contract Documents:
1. Bid Item C1: Furnish and Install Corporation Bulk Tanks and Appurtenances.
2. Bid Item C2: Furnish and Install Tank Farm Piping for Corporation Bulk Fuel System:
    a. Tank Farm Bulk Fuel Manifold Piping for Corporation.
    b. Gasoline Marine Header and Piping.
    c. Tie into Existing Diesel Marine Header Manifold Piping for Corporation.
3. Bid Item C3: Furnish and Install Corporation Tank Farm Lighting and Controls.

D. Additive Alternate #2: IF AWARDED, Construct Bulk Fuel Upgrades that are within Additive Alternate #2 (reference Drawing M1.1 for further delineation of work included in BFU Additive Alternate #2). Complete all of the following work in accordance with the Contract Documents:
1. Bid Item D1: Furnish and Install Corporation Dispensing Tank and Appurtenances.
2. Bid Item D2: Furnish and Install Corporation Dispensing Station.
    a. Enclosure.
    b. Dispenser.
    c. Dispenser Enclosure Timber Foundation.
3. Bid Item D3: Furnish and Install Corporation Transfer Pumps, Fuel Transfer Piping, and Dispensing Station Piping.
    a. Corporation Transfer Pumps and Pump Enclosures.
    b. Bulk Tank transfer piping to Corporation Dispensing Tank.
    c. Piping from Tank Farm to Corporation Dispensing Station.
4. Bid Item D4: Furnish and Install Corporation Dispensing Electrical, Lighting and Controls.

5. Bid Item D5: Transfer Fuel from Existing Corporation Tanks to New Corporation Tanks while double filtering fuel.
    a. CONTRACTOR shall submit a Fuel Transfer Plan detailing the Fuel Transfer Operations.
6. Bid Item D6: Decommission Existing Corporation Fuel Tanks and Piping as indicated.

1.05 CONTRACT METHOD

A. This Contract is lump sum and is composed of multiple lump sum items as shown on the Section 00 32 00 – Bid Schedule. This work shall be measured and paid for in accordance with Section 00 70 00 – General Conditions, Article 13 – Payment to Contractors and Completion.

1.06 WORK BY OTHERS

A. Other projects may run concurrently with Work required by this project. Cooperate with other contractors, force account construction crews and superintendents, agencies, and the AUTHORITY to minimize conflicts.

B. Notify the Project Manager immediately if conflicts will interfere with the progress of the work.

C. The AUTHORITY will manufacture the Power Plant Module.

1.07 SHUTOFFS / DISRUPTIONS TO SERVICE

A. No unscheduled disruptions in fuel or power supply will be allowed. Provide provisions for temporary fuel dispensing and fuel/power distribution in accordance with the specifications as necessary to avoid outages during construction. Provide not less than 72 hours' notice to Project Manager for activities that will affect normal day to day village operations.

1.08 CONTRACTOR'S USE OF PREMISES

A. Coordinate with the Project Manager prior to placing equipment or supplies at CONTRACTOR provided staging areas, or within the Project boundary. Do not disturb areas outside of Project boundaries.

B. Do not disrupt access to adjacent areas unaffected by the Work. Keep driveways and entrances serving premises clear and available for use at all times. Cooperate with the AUTHORITY during construction operations to minimize conflicts and facilitate operations.

C. Assume full responsibility for protection and safekeeping of materials and products provided under this Contract.

D. Assume full responsibility for the protection of existing facilities and contents from damage due to construction operations.

1.09 COORDINATION

A. CONTRACTOR is responsible for coordination required with the associated landowner, or entity having jurisdiction, for use of the Village barge landing(s), and/or for utilizing any other area for landing and storing materials and equipment.

B. Coordinate with the Project Manager, Corporation and/or Council for the relocation of structures, equipment and any materials inside the project areas.

C. CONTRACTOR is responsible for any areas utilized by the CONTRACTOR for stored materials.

D. Coordinate Work to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

E. Sequence Work to maximize worker efficiency and minimize construction time.

F. Prior to procurement, verify that characteristics of interrelated equipment are compatible.

G. Coordinate space requirements and installation of components. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.

1.10 ACCESS FOR TESTING AND INSPECTION

A. Provide access for the AUTHORITY, the Project Manager, and the Engineer to the site. Provide on-site transportation, ladders, lifts, eye and ear protection, hard hats, appropriate and clean respiratory protection, etc. for inspections and testing of the work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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KIPNUK RPSU & BFU
BID BREAKDOWN FORM

Bid Item #	Description	Cost

A. BASE BID – RPSU

1.	Mobilization &Demobilization	_____
2.	Relocate Existing Structures &Equipment	_____
3.	Pile Foundation &Structural Framing	_____
4.	Decking and Stairs	_____
5.	Boardwalks	_____
6.	Disassemble and Mobilize Module	_____
7.	Onsite Power Plant Module Storage	_____
8.	Power Plant Module Installation	_____
9.	Site Utility Mech. &Elect. Installation	_____

B. BASE BID – BFU

1.	Mobilization &Demobilization	_____
2.	Tank Farm Pile Foundation	_____
3.	Tank Farm Structural System (framing)	_____
4.	Containment System &Tank Foundations	_____
5.	Council Bulk Tanks	_____
6.	Council Intermediate Tank	_____
7.	Council Piping &Equipment	_____
8.	Tank Farm Stairs, Fence, Gates &Signage	_____
9.	Tank Farm Electrical	_____
10.	Spill Response Equipment	_____
11.	Transfer Fuel from Existing to New Tanks	_____
12.	Decommission Existing Council Fuel Tanks	_____

Total Cost - Base Bid _____

C. ADDITIVE ALTERNATE #1 – Corporation Bulk Fuels System

1.	Corporation Bulk Tanks	_____
2.	Corporation Bulk Tank Piping	_____
3.	Corporation Tank Farm Lighting and Controls	_____

Total Cost - Add. Alt. #1 _____

D. ADDITIVE ALTERNATE #2 – Corporation Dispensing System

1.	Corporation Dispensing Tank &Appurtenances	_____
2.	Corporation Dispensing Station	_____
3.	Transfer Pumps, Piping and Equipment	_____
4.	Dispensing Electrical, Lighting and Controls	_____
5.	Transfer Fuel from Existing to New Tanks	_____
6.	Decommission Existing Corporation Fuel Tanks	_____

Total Cost - Add. Alt. #2 _____

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SECTION 01 12 19

CONTRACTOR'S CERTIFICATION OF SUBCONTRACTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparing, submitting and accepting subcontracts.

1.02 RELATED REQUIREMENTS

A. Section 00 10 00 – Information to Bidders.

B. Section 00 43 00 – Subcontractor List.

C. Section 00 70 00 – General Conditions: Subcontractor Certification and Approval.

D. Section 00 80 00 – Supplementary Conditions: Subcontract Provisions.

E. Section 01 33 00 – Submittal Procedures.

1.03 PREPARATION OF CERTIFICATION

A. Certification Forms: Use forms provided by AUTHORITY.

B. CONTRACTOR shall prepare certification form and submit to the AUTHORITY prior to the start of work. Where required, attach additional information to the certification form.

C. Substitute certification forms will not be considered.

1.04 SUBMITTAL OF CERTIFICATION

A. The CONTRACTOR shall submit certification forms for all subcontractors for review and approval by the AUTHORITY.

1.05 CONSIDERATION OF CERTIFICATION

A. Following receipt of submitted subcontractor certification forms, the AUTHORITY will review for the following, at minimum:
   1. Completeness of forms and attachments
   2. Proper execution (signatures) of forms and attachments

B. Incomplete or improperly executed subcontractor certification forms will be returned to the CONTRACTOR for revision and resubmittal.

C. CONTRACTOR shall remove its subcontractor from the project site until its subcontractor certification form is submitted, reviewed, and approved.

D. The AUTHORITY will not process payments for work performed by a non-certified subcontractor.

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 Project Engineer's signature.

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: Kipnuk Bulk Fuel and Power System Upgrade, ITB #17068 PROJ. #: TBD

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: Kipnuk Bulk Fuel and Power System Upgrade, ITB #17068 **PROJ. #:** TBD

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 Approval to reject defective work.

Signature: _____ Date: _____
Project Engineer

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

_____

_____

Signature: _____ Date: _____
Project Engineer

SECTION 01 26 63

CHANGE PROCEDURES

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00 32 00 – Bid Schedule.

B. Section 00 51 00 – Construction Contract.

C. Section 00 70 00 – General Conditions.

D. Section 00 80 00 – Supplementary Conditions: Modifications to General Conditions Section 00 70 00.

E. Section 01 29 73 – Schedule of Values.

F. Section 01 29 76 – Application for Payment.

G. Section 01 32 00 – Work Schedules and Reports.

H. Section 01 73 00 – Execution Requirements.

1.02 SUBMITTALS

A. Submit the 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. Submit with each price proposal a complete, detailed, itemized cost breakdown defining all impacts on Contract Price and Contract Time, in sufficient detail to fully explain the basis for the proposal.

C. All change forms shall be provided by the AUTHORITY.

1.03 CHANGE AUTHORIZATION

A. In accordance with Section 00 70 00 – General Conditions, Part 9 Changes, the AUTHORITY may authorize changes to the Work. The AUTHORITY may authorize changes in one of the following ways:

1. Directive (Section 00 70 00, Article 9.3).
2. Change Order (CO) (Section 00 70 00, Article 9.4).
3. Acceptance of Shop Drawing variations, which have been identified by CONTRACTOR. (Section 00 70 00, Article 9.5).
4. Interim Work Authorization (IWA) (Section 00 70 00, Article 9.10).

1.04 CHANGE PROCEDURES

A. The AUTHORITY may initiate change to the contract by issuing to the CONTRACTOR a Request for Proposal (RFP) document. The RFP may include:
   1. Change narrative.
   2. Supplementary revised drawings, specifications, additional details, or sketches.
   3. Other information as deemed appropriate.

B. The CONTRACTOR shall request a change to the contract by submitting to the AUTHORITY a written Change Notice on a form provided by the AUTHORITY. The AUTHORITY may respond by rejecting it, or with a RFP to initiate contract change. The CONTRACTOR'S Change Notice shall include, at minimum:
   1. A description of the proposed change with a statement of the justification of the change.
   2. Statement of the effect of the change on Contract Price and Contract Time.
   3. The information required in Section 00 70 00 – General Conditions, Part 15 Claims for Adjustments and Disputes.

C. Upon receipt of a Request for Proposal (RFP) from the AUTHORITY, the CONTRACTOR shall respond with a price proposal. The CONTRACTOR shall make every effort to return its price proposal in response to the RFP within the time frame requested by the AUTHORITY, but in no event later than 14 calendar days from date the RFP is issued. For work to be performed after the execution of a Change Order or Contingency Authorization, the basis of pricing shall be estimated. For work performed prior to the execution of a Change Order or Contingency Authorization, the pricing shall be based upon documentation of actual incurred costs. The price proposal shall include:
   1. A complete, detailed, itemized price breakdown.
   2. For the prime contractor and subcontractors, detailed documentation of costs for direct costs, labor, equipment, consultants, sub-contractor markups, overhead and profit, and other items set forth in General Conditions Section 00 70 00, Part 10.
   3. Other information as required by the AUTHORITY.

D. Upon receipt of pricing response to a RFP, the AUTHORITY may execute a change to the contract. The issuance of an RFP or the receipt of pricing response to an RFP shall not obligate the AUTHORITY to execute a change to the contract.

1.05 DIRECTIVES

A. The AUTHORITY may issue Directives as per Section 00 70 00 – General Conditions, Article 9.3.

1.06 INTERIM WORK AUTHORIZATIONS (IWA)

A. The AUTHORITY may issue Interim Work Authorizations in accordance with Section 00 70 00 – General Conditions, Article 9.10.

B. IWAs may be issued to authorize the commencement of additional work in advance of the execution of a Change Order or Contingency Authorization.

C. Work authorized by IWA shall be converted to a negotiated Change Order.

D. The price on the IWA form shall be an estimated limit not to be exceeded by the CONTRACTOR without prior amendment of the IWA by the AUTHORITY. The AUTHORITY shall not be obligated to compensate the CONTRACTOR for costs in excess of the amount on the IWA.

E. Upon the execution of an IWA, the CONTRACTOR is authorized to begin the specified work. The CONTRACTOR shall track its costs using Cost of Work procedures. The CONTRACTOR shall use the AUTHORITY's Cost of the Work form and shall submit the data to the AUTHORITY at the close of each work day. A separate Cost of Work form is required for each IWA.

1.07 CHANGE ORDER

A. Any change in Contract Time, Contract Price, or associated responsibility within the general scope of the Contract, shall be made by Change Order.

B. The CONTRACTOR shall use forms furnished by the AUTHORITY for Change Orders.

1.08 CHANGE PRICING AND TIME ANALYSIS

A. Unless specified elsewhere, Section 00 70 00 – General Conditions, Part 10 shall be applied to the negotiation of all changes to the scope of the contract.
   1. Unit Price, when unit prices are contained in the Contract.
   2. Mutually acceptable Lump Sum Price, including overhead and profit.
   3. Cost of the Work.

B. UNIT PRICE CHANGE – For unit price CHANGE PROCEDURES, prices shall be determined by multiplying the contractual unit price(s) by the estimated quantities of Work associated with changed scope. Payment will be based on the actual installed quantities. Document actual installed quantities and submit information requested by the AUTHORITY on a daily basis for its approval and certification. Refer to Section 00 70 00 – General Conditions, Part 10 for additional requirements.

C. LUMP SUM PRICE CHANGE – The CONTRACTOR and the AUTHORITY shall negotiate an equitable price (and time adjustment if appropriate) in good faith. If negotiations do not result in a mutually acceptable lump sum price, the AUTHORITY may, at its discretion, direct the CONTRACTOR to perform the work under Cost of the Work Change Order.

D. COST OF THE WORK CHANGE – The CONTRACTOR shall document Cost of the Work on forms acceptable to the AUTHORITY, and shall submit documented costs to the DEPARTMENT daily for verification and certification. Cost of the Work pricing proposals shall be supported by invoices for substantiation of purchase and rental costs and with additional data as may be requested by AUTHORITY.

E. Time Analysis for CHANGE ORDER PROCEDURES shall be performed as described in Section 01 32 00 – Work Schedules and Reports.

F. The AUTHORITY shall have the right to audit all records in possession of CONTRACTOR relating to activities covered by CONTRACTOR's pricing of Contract CHANGE ORDER PROCEDURES, including Cost of the Work pricing, as set forth in Section 00700 – General Conditions. If CONTRACTOR is a joint venture, the right of AUTHORITY shall apply collaterally to the same extent to the records of joint venture sponsor, and of each individual joint venture member.

1.09 FORM EXECUTION

A. Contract forms issued under this section shall be effective the date the AUTHORITY's authorized person signs the form.

B. For Change Orders, CONTRACTOR signature will indicate acceptance of the terms or acknowledgment of order, depending on box checked. Acknowledgment of Change Order does not substitute for notification requirements of Section 00 70 00 – General Conditions, Article 15.1.

1.10 PAYMENT

A. The CONTRACTOR shall promptly revise its Schedule of Values and Application for Payment forms to record each authorized Change Order and each authorized Contingency Authorization as a separate line item. For Change Orders, adjust the Contract Price as shown on the Change Order.

B. The CONTRACTOR shall promptly revise and resubmit its progress schedules to reflect any change in Contract Time, including adjustments for other items of Work affected by the change.

C. Payment for contract changes shall be made only following the execution of Change Orders or Contingency Authorizations and the inclusion of these change documents by reference on the Application for Payment form.

D. Payment shall not be made for Work authorized via Interim Work Authorization.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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SECTION 01 29 73

SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for preparing and submitting the schedule of values.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions.

B. Section 01 11 13 – Summary of Work.

C. Section 01 26 63 – Change Procedures.

D. Section 01 29 76 – Application for Payment.

E. Section 01 32 00 – Work Schedules and Reports.

F. Section 01 33 00 – Submittal Procedures.

G. Section 01 71 13 – Mobilization and Demobilization.

H. Section 01 77 00 – Contract Closeout Procedures.

1.03 FORMAT

A. Form and content must be acceptable to AUTHORITY.

B. Form shall have a signature block for submission by CONTRACTOR and a signature block for approval by AUTHORITY.

C. Content shall include the following column headings.
   1. CPM Activity Number.
   2. CPM Activity Description.
   3. CPM Dollar Value.
   4. Current Percent Complete.
   5. Current Dollar Complete.
   6. Previous Percent Complete.

7. Previous Dollar Complete.
8. Percent Complete this Period.
9. Dollar Complete this Period.

1.04 CONTENT

A. List installed value of each activity shown on the submitted and approved CPM Schedule.

B. For items on which payments will be requested for stored products, list sub values for cost of stored products with taxes paid.

C. Limits for specific line item values shall be as specified below and shall be included on all approved Schedules of Values and Applications for Payment.

1. Mobilization and Demobilization: Unless specified elsewhere, the assigned values for mobilization and demobilization shall be based upon the estimated value of specified Work for each of these tasks.
2. Contract Closeout Procedures: Unless specified elsewhere, the assigned values for tasks specified under Contract Closeout Procedures shall be based upon the estimated value of each task. The breakdown shall include separate amounts for the requirements of Final Completion and Final Acceptance, as set forth below:

Contract Price	Value for Final Completion	Value for Final Acceptance
Less than $200,000	$2,000	$2,000
$200,000 - $500,000	$5,000	$5,000
$500,001 - $1,000,000	$10,000	$10,000
$1,000,001 - $5,000,000	$20,000	$20,000
Greater than $5,000,000	$30,000	$30,000

D. The sum of values listed on the Schedule of Values shall equal total Contract Price.

E. A Schedule of Values containing costs for early activities in excess of actual value (“front end loading”) will be rejected by the AUTHORITY until the CONTRACTOR corrects the deficiency. The AUTHORITY shall not be obligated to pay the CONTRACTOR until front end loading is eliminated and the Schedule of Values is approved.

1.05 SUBMITTAL

A. Submit proposed Schedule of Values with updated CPM Schedule per specification sections for Summary of Work, Work Schedules and Reports, and Submittals.

B. Submit Schedule of Values with updated completion percentages sufficiently in advance of each Application for Payment to enable the AUTHORITY to resolve differences.

1.06 SUBSTANTIATING DATA

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

B. Provide one copy of data with cover letter for each copy of the Application for Payment. Show application number and date, and line item by number and description.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 29 76

APPLICATION FOR PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

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

1.02 RELATED REQUIREMENTS

A. Section 00 32 00 – Bid Schedule.

B. Section 00 70 00 – General Conditions.

C. Section 00 80 00 – Supplementary Conditions.

D. Section 01 11 13 – Summary of Work.

E. Section 01 26 63 – Change Procedures.

F. Section 01 29 73 – Schedule of Values.

G. Section 01 32 00 – Work Schedules and Reports.

H. Section 01 33 00 – Submittal Procedures.

I. Section 01 45 00 – Quality Control.

J. Section 01 51 00 – Construction Facilities.

K. Section 01 71 13 – Mobilization and Demobilization.

L. Section 01 77 00 – Contract Closeout Procedures.

M. Section 01 78 39 – Project Record Documents.

1.03 FORMAT

A. Submit Application for Payment on form approved by the AUTHORITY.

1.04 PREPARATION OF APPLICATIONS

A. Type required information on Application for Payment form acceptable to the AUTHORITY.

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

C. Show breakdown of costs for each item of the Work on accepted Schedule of Values as specified in Section 01 29 73 – Schedule of Values.

D. 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.

E. Submit Stored Materials Worksheet with every Application for Payment requesting payment for stored materials. Show only direct costs of materials and freight. Submit documentation in accordance with Section 00 70 00 – General Conditions, Article 13.5 Stored Materials and Equipment, for materials shown in column titled "New Material This Pay Request Period."

1.05 SUBMITTAL PROCEDURES

A. Submit two originals of each Application for Payment at one-month intervals. Each document shall bear original signature of authorized executive.

B. Submit with AUTHORITY-approved transmittal letter bearing AUTHORITY's project number.

1.06 SUBSTANTIATING DATA

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

B. Provide one copy of data with cover letter for each copy of Application for Payment. Show Application for Payment number and date, and line item by number and description.

1.07 SUBMITTALS WITH APPLICATION FOR PAYMENT

A. Submit the following for review sufficiently in advance of Application for Payment to allow detailed review by AUTHORITY and resolution of differences.

1. Schedule of Values with updated percentages of completion as required by Section 01 29 73 – Schedule of Values.

B. Submit the following with each Application for Payment.
   1. Updated construction schedule as required by Section 01 32 00 – Work Schedules and Reports.
   2. Updated Project Record Documents as required by Section 01 78 39 – Project Record Documents.
   3. Letter certifying that all Project Record Documents, including as-built drawings and submittals are current.

1.08 ADDITIONAL REQUIREMENTS FOR FIRST APPLICATION FOR PAYMENT

A. The first Application for Payment will be processed after the Resident Engineer has received all of the following:
   1. Superintendent Data (Section 00 70 00 – General Conditions, Article 6.2).
   2. Progress Schedule (Section 00 70 00 – General Conditions, Paragraph 6.6.1, & Section 01 32 00 – Work Schedules and Reports).
   3. Schedule of Values (Section 00700 – General Conditions, Paragraph 6.6.2, & Section 01 29 73 – Schedule of Values).
   4. Submittal Schedule (Section 00 70 00 – General Conditions, Paragraph 6.6.2).
   5. Safety Representative Designation (Section 00 70 00 – General Conditions, Article 6.18).
   6. Building Permits (Section 00 70 00 – General Conditions, Article 7.2).
   7. Name of Individual Authorized to Accept Changes (Section 01 26 63 – Change Procedures).
   8. CONTRACTOR Quality Control Program and Plan (Section 01 45 00 – Quality Control).
   9. Freeze Protection Plan (Section 01 51 00 – Construction Facilities).
   10. Construction Site Layout Plan (Section 01 71 13 – Mobilization and Demobilization).

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for various meetings during the construction project.

1.02 RELATED REQUIREMENTS

A. Section 01 11 13 – Summary of Work.

B. Section 01 32 00 – Work Schedules and Reports.

C. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

D. Section 01 45 00 – Quality Control.

E. Section 01 73 00 – Execution Requirements.

1.03 PRECONSTRUCTION CONFERENCES

A. AUTHORITY will administer preconstruction conference for execution of Contract and exchange of preliminary submittals. Attendance by all key CONTRACTOR and Subcontractor project personnel is required. The CONTRACTOR shall notify and invite in writing to the pre-construction conference all serving utilities at least 72 hours in advance of the conference.

B. AUTHORITY may administer site mobilization conference at Project site for clarification of CONTRACTOR responsibilities in use of site and for review of administrative procedures.

C. AUTHORITY will document the meeting and distribute minutes within 48-hours of adjournment. Minutes will be typed, reflecting date, list of attendees and in format to facilitate correction of previous meeting minutes. Distribution will be to all attendees and those affected by discussions or decisions made at meeting.

1.04 PREINSTALLATION CONFERENCES

A. When required in an individual specification section, and as shown in the CONTRACTOR's quality control plan, or as directed by the AUTHORITY, convene a pre-installation conference prior to commencing Work for a specific item.

B. Require attendance of entities directly affecting, or affected by, Work of the section.

C. Review conditions of installation, preparation and installation procedures, and coordination with related Work.

D. Record significant discussions and agreements and disagreements of each conference, and approved schedule. Distribute record of conference to all attendees within 24-hours of adjournment.

1.05 PROGRESS MEETINGS

A. The CONTRACTOR shall attend Progress Meetings when scheduled by the Project Manager or requested by the CONTRACTOR. Progress Meetings will be held on a day and time which is mutually convenient to both the AUTHORITY and the CONTRACTOR. These meetings shall be documented by the CONTRACTOR as well as the Project Manager.

B. Progress Meeting shall be attended by all key CONTRACTOR personnel and, as appropriate, Subcontractor project personnel.

C. The CONTRACTOR shall furnish copies of its current Two Week Look Ahead Schedule, per Section 01 32 00 – Work Schedules and Reports, to all attendees of the meeting. This schedule will be reviewed in detail during the meeting and will be used for the coordination of activities by others.

D. Progress Meetings will also be used to review other key aspects of the Work, such as safety, quality, critical items, etc.

E. Meeting Minutes: The CONTRACTOR shall document the meetings and distribute minutes within 48-hours of adjournment. Minutes shall be typed, reflecting date, attendees followed by company or organization, who stated each item, and in format to facilitate correction of previous meeting minutes. Distribution shall be to all attendees and those affected by discussions or decisions made at meeting.

1.06 SAFETY MEETING

A. The CONTRACTOR shall conduct Safety Meetings as required by its project Safety Program.

B. The CONTRACTOR shall invite the AUTHORITY to attend Safety Meetings.

1.07 OTHER MEETINGS

A. At various times throughout the duration of the Contract, the CONTRACTOR will be required to attend meetings as requested by the AUTHORITY. It is anticipated that such meetings will involve coordination with others, project schedule review, problem resolution, change order negotiations, and other topics of mutual importance.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 32 00

WORK SCHEDULES AND REPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for the preparation and maintenance of the construction CPM schedule, recovery schedules, time impact evaluation, monthly project status reports, two week look-ahead schedules, and weekly construction reports.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions.

B. Section 00 80 00 – Supplementary Conditions.

C. Section 01 11 13 – Summary of Work.

D. Section 01 26 63 – Change Procedures.

E. Section 01 29 73 – Schedule of Values.

F. Section 01 29 76 – Application for Payment.

G. Section 01 31 19 – Project Meetings.

H. Section 01 33 00 – Submittal Procedures.

1.03 SUMMARY

A. Scheduling of Work under this Contract shall be performed by CONTRACTOR in accordance with the requirements of this Section.

B. CPM Schedule shall be based upon, and incorporate, Contract milestone and completion dates as specified in Section 00 80 00, Supplementary Conditions, and Section 01 11 13 – Summary of Work.

C. Definitions:

1. Project Schedule – The schedule prepared or updated by the CONTRACTOR to the requirements specified herein. The project schedule shall be used to measure the progress of the work and aid in the evaluation of time impacts to the project.
2. Anticipated CPM Schedule – The schedule prepared by the CONTRACTOR defining the planned work in the first 90 calendar days of the contract.
3. Finalized CPM Schedule – The baseline schedule prepared by the CONTRACTOR that shows the sequence and dates in which the CONTRACTOR proposes to perform the work. Once approved, it becomes the basis upon which the CONTRACTOR performs periodic schedule updates.
4. Periodic Schedule Updates – Progress updates to the approved project schedule, shall occur monthly prior to, and included with, each pay application.
5. Time Impact Evaluation (TIE) – Forward looking schedule analysis technique that adds a modeled delay to an accepted contract schedule to determine the possible impact of that delay to the project completion.
6. Fragnet – A sequence of new activities that are proposed to be added to project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. A Fragnet is created using a 'Reflection' of the approved project schedule that immediately preceded the delay.

D. Required Schedules:

1. Anticipated CPM Schedule – Submit the Anticipated CPM Schedule, defining the CONTRACTOR's planned operations for the first 90 Calendar days after Notice-to-Proceed, for approval within 15 Calendar days after the NTP is acknowledged, or at the preconstruction conference, whichever comes first. The Anticipated CPM Schedule forms the basis for the Finalized CPM Schedule specified herein, and must include all of the required Plan and Program preparations, submissions, and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, Environmental Protection Plan, etc.). The AUTHORITY and CONTRACTOR shall meet to discuss the Anticipated CPM Schedule within 10 working days after its submittal. The CONTRACTOR shall make corrections to the schedule necessary to comply with Contract requirements and shall adjust the schedule to incorporate any missing information requested by the AUTHORITY. The CONTRACTOR shall resubmit the Anticipated CPM Schedule if requested by AUTHORITY.

2. Finalized CPM Schedule – Submit the Finalized CPM Schedule for approval within 60 Calendar days after NTP. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. In accordance with Section 00 70 00 – General Conditions, the Finalized CPM Schedule shall be submitted prior to the first progress payment. The AUTHORITY's review and approval of the Finalized CPM schedule shall be a prerequisite to the application for the second progress payment. The Finalized CPM Schedule shall be at a reasonable level of detail as determined by the AUTHORITY.
3. Monthly Updates and Status Reports.
4. Revision, Time Impact Evaluation (TIE), and Recovery Schedules.
5. Record Drawing Schedule.

E. Failure of the CONTRACTOR to meet the requirements of this specification may result in the disapproval of the Anticipated, Interim, Finalized, or Periodic Schedule Updates. In the event that the AUTHORITY directs schedule revisions, and those revisions have not been included in subsequent project schedule revisions or updates, the Contracting Officer may not pay for the applicable activities until such revisions to the project schedule have been made.

F. Basis for Payment and Cost Loading – Inspections of work progress shall be the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The schedule shall be updated to reflect the outcome of these inspections. Activity cost loading shall be reasonable, as determined by the AUTHORITY. Front loading activities will not be allowed.

G. Schedules and Reports shall be submitted as specified in Sections 01 33 00 – Submittal Procedures.

H. CPM Schedule shall be the basis for Two Week Look Ahead Schedule presentation at Progress Meetings as specified in Section 01 31 19 – Project Meetings.

1.04 GENERAL REQUIREMENTS

A. Develop the Project Schedule to an appropriate level of detail, as determined by the AUTHORITY. Failure to develop the Project Schedule to the appropriate level of detail will result in its disapproval. Inaccuracy and/or the omission of any element of the Work by the CONTRACTOR will not relieve the CONTRACTOR of the responsibility for accomplishing the Work, in accordance with Contract

Documents. The AUTHORITY's acceptance of the schedule shall be for its use in monitoring and evaluating job progress, payment requests, time extension requests, and the like; and shall not, in any manner, impose a duty of care upon the AUTHORITY; nor act to relieve the CONTRACTOR of its responsibility for the means and methods of construction. The AUTHORITY will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

1. Activity Durations – Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. No construction activity shall have Original Durations greater than one month's worth of work (20 working days or 30 calendar days).
2. Permit Activities – Include permit activities with the necessary submission dates.
3. Procurement Activities – Include activities associated with the submittal, approval, procurement, fabrication and delivery; of critical materials, equipment, fabricated assemblies and supplies. This will include all procurement activities that will have a direct impact on construction activities. Additionally, include activities on all long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 30 calendar days. These activities shall be logically tied to the submission and approval of product info/shop drawings, and the related construction installation activity.
4. Mandatory Task – The following activities, if applicable, shall be included in the initial project schedule and all updates. The CONTRACTOR shall be responsible for all impacts resulting from resubmittal of shop drawings and submittals.
    a. Long material procurement activities.
    b. Submission and approval of mechanical, structural, and electrical materials and equipment.
    c. Submission and approval of O&M Manuals.
    d. Submission and approval of Record Drawings.
    e. Request for Substantial Completion Inspection as specified in 01 77 00 – Contract Closeout Procedures.
    f. Performance Verification Testing.
    g. Other systems testing, as specified.
    h. Demonstration and Training.
    i. Final Cleaning.
    j. Substantial Completion Inspection.
    k. Substantial Completion.

l. Final Completion Inspection.
m. Final Completion.

5. AUTHORITY Activities – Show AUTHORITY activities that could impact progress. These activities include commissioning of AUTHORITY furnished equipment (i.e. modular power plant). Unless otherwise agreed upon by CONTRACTOR and AUTHORITY, AUTHORITY activities shall be have an originally scheduled duration of 30 days.

6. Work Break-down Structure (WBS) – The project schedule shall be organized using WBS. (This is separate from, and in addition to, the use of Activity Codes; which are addressed below). The WBS shall include all major elements of the scope of work including, but not limited to, the following elements:
   a. Milestones
   b. Submittals
   c. Approvals
   d. Procurement
   e. Construction
   f. Commissioning/Testing/Start-up
   g. Close-out Submittals
   h. Close-out Approvals
   i. Inspections

7. Activity Coding – All Activity Codes shall be developed and assigned to activities as detailed herein. Some Activity Codes may not be used, but only at AUTHORITY's discretion.

RESP	Responsible Party (e.g. Prime CONTRACTOR, Subcontractor, AUTHORITY)
AREA	Area of Work
PHAS	Phase of Work
MODF	Modification to Contract
CATW	Category of Work
FOW	Feature of Work

   a. RESP Responsible Party – Assign responsibility code for all activities to the Prime CONTRACTOR, Subcontractor, or AUTHORITY who is responsible for performing the activity. The list of activities to be coded with AUTHORITY Responsibility include, but is not limited to, AUTHORITY approvals, AUTHORITY furnished property/equipment, and Notice to Proceed (NTP). Code all activities not coded to the AUTHORITY to the Prime CONTRACTOR or Subcontractor responsible to perform the work. Activities shall not have more than one

Responsibility Code. Codes should be descriptive of the scope of work, for example ELEC (for electrical Subcontractor), MECH (for mechanical Subcontractor), PRIM for Prime CONTRACTOR, and AUTH (for AUTHORITY activities).

b. AREA (Area of Work) – Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based upon resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include the power plant, bulk tank farm, electrical distribution, site work, etc. Activities shall not have more than one Work Area Code. Not all activities are required to be Work Area coded. A lack of Work Area coding will indicate the work area is not resource or space constrained.

c. PHAS Phase of Work Coding – Assign Phase of Work code to all construction activities if the work has a separately defined performance periods. Identify a Phase Code to allow filtering and organizing the schedule accordingly. Each activity shall have only one Phase of Work code.

d. MODF Modification of Contract – Assign a Modification of Contract code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, after approval by AUTHORITY. An activity can have only one Modification of Contract code.

e. CATW Category of Work – Assign a Category of Work code to all activities. Category of Work codes include, but are not limited to, milestone, submittal, approval, procurement, permit, installation, weather sensitive installation, commissioning/testing, inspection, contract closeout. Each activity shall have only one Category of Work Code.

f. FOW Feature of Work – Assign a Feature of Work code to all construction activities based upon the definable feature of work to which the activity belongs.

B. Project Schedule Submissions – Provide the submissions as described below.

1. Periodic Schedule Updates:

a. As a minimum the CONTRACTOR shall update the project schedule on a monthly basis. These submissions will enable the AUTHORITY to assess CONTRACTOR's progress. If the CONTRACTOR fails or refuses to furnish the information and

schedule updates as set forth herein, then the CONTRACTOR shall be deemed not to have provided an estimate upon which a progress payment can be made.

b. Neither updating, changing or revising of any report, schedule or narrative submitted to the AUTHORITY by the CONTRACTOR under this Contract, nor the AUTHORITY's review or acceptance of any such report, schedule or narrative shall have the effect of amending or modifying, in any way, the Contract Substantial Completion date or milestone dates or of modifying or limiting, in any way, the CONTRACTOR's obligations under this Contract.

2. Submittal Requirements – Each submittal shall have as its face document a completed AUTHORITY-furnished submittal summary form. Submittals received from sources other than the CONTRACTOR will be returned to the CONTRACTOR without the AUTHORITY's review. Submit the following items for the Anticipated CPM, Interim CPM, Finalized CPM, and every Periodic Schedule Update throughout the life of the project:

   a. Narrative Report – Provide a Narrative Report with each schedule submission. The narrative report is expected to communicate to the AUTHORITY the CONTRACTOR's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis. The Narrative Report shall include the following information as a minimum:

      i. Project number, Date, Update Number.

      ii. Critical Path - Show all activities on the critical path. The critical path is defined as the longest path of logic.

      iii. Added Activities - Include Activity ID, Activity Name, Original Duration, Calendar, Predecessor(s), Successor(s), AREA, PHAS, CATW, FOW, and MODF codes.

      iv. Deleted Activities.

      v. Duration Changes.

      vi. Calendar Changes.

      vii. SOV Changes.

      viii. Current and Anticipated Delays – Include a description of current and anticipated problem areas, impacts, whether it/they are the responsibility of the AUTHORITY or CONTRACTOR, and an explanation of corrective actions taken or required to be taken.

ix. Scheduler Comments – Explain in narrative form, anything the AUTHORITY should know or understand as to the reasons for the changes contained herein.

b. Network Diagram Report – The network diagram report is required for the Anticipated, Interim, Finalized, and all Periodic Updates. 11”x17” color copies of the Network Diagram Report shall be provided. Include the following columns:

i. Activity ID
ii. Activity Name
iii. Original Duration
iv. Remaining Duration
v. Start
vi. Late Start
vii. Finish
viii. Late Finish
ix. Percent Complete
x. Total Float

3. Update Submission Following Progress Meeting – Submit a complete update of the project schedule containing all approved progress, revisions, and adjustments not later than 4 working days after Progress Meeting.

C. Progress Meetings – The CONTRACTOR shall meet with the AUTHORITY (or as otherwise mutually agreed to) for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress, and to review planned activities for the upcoming two weeks. The current approved schedule update shall be used for the purposes of this meeting. Progress meetings will address the status of RFI's, RFP's and Submittals. CONTRACTOR shall provide and present a time scaled two-week look ahead schedule that is based and correlated to the current CPM schedule. The schedule shall look out two weeks from the day of the Progress Meeting.

D. Subcontractor Agreement – Submit for each Subcontractor and supplier on their corporate letterhead, a statement certifying that the Subcontractor or supplier accepts the CONTRACTOR’s Finalized CPM Schedule, and that the Subcontractors’ or suppliers’ related schedules have been properly incorporated. The certification statements shall confirm that task durations and resource have been correctly included in the Finalized CPM schedule.

E. Weekly Construction Reports – The CONTRACTOR shall, on a weekly basis, submit a task report to the AUTHORITY for each work week, including weekends and holidays, when work occurred on the project. The CONTRACTOR shall develop the weekly construction reports, in Microsoft Work or Excel format, including manpower and labor hours by the CONTRACTOR, Subcontractor, Area, Change Order, etc. Upon request of the AUTHORITY, the CONTRACTOR shall furnish electronic file(s) or the reports which are easily sortable by week ending date. The CONTRACTOR shall obtain the AUTHORITY's approval of weekly construction report format prior to implementation. The following shall be included in report:

1. Project name and Project number.
2. CONTRACTOR's name and address.
3. Weather, temperature and any unusual site conditions.
4. Was this week adversely affected by the weather?
5. Brief description and location of the week's scheduled activities and any special problems and accidents, including Work implemented by Subcontractors.
6. Activities Started this week.
7. Activities Completed this week.
8. Equipment, other than hand tools, utilized by CONTRACTOR and Subcontractors. Include equipment identification, number of hours in service, and number of hours idle. Include any equipment inspections and equipment maintenance performed, if any.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for the preparation, tracking, and review of submittals for the project.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Requirements.

B. Section 00 80 00 – Supplementary Conditions.

C. Section 01 11 13 – Summary of Work.

D. Section 01 12 19 – Contractor's Certification of Subcontracts.

E. Section 01 29 73 – Schedule of Values.

F. Section 01 29 76 – Applications for Payment.

G. Section 01 32 00 – Work Schedules and Reports.

H. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

I. Section 01 45 00 – Quality Control.

J. Section 01 60 00 – Material and Equipment.

K. Section 01 73 00 – Execution Requirements.

L. Section 01 77 00 – Contract Closeout Procedures.

M. Technical Product Specifications.

N. Operations and Maintenance Manuals.

O. Equipment Installation Data.

1.03 SCHEDULE OF SUBMITTALS

A. Submit preliminary Schedule of Submittals as required by Section 00 70 00 – General Conditions in the first 30 calendar days of the contract. In addition to manufacturers data and shop drawing submissions, include all submittals required by the Contract Documents in the Schedule of Submittals.

B. Schedule of Submittals will be used by the AUTHORITY to schedule time in their activities relating to review of submittals. Schedule of Submittals shall portray an orderly sequence of submittals, early submittals for long lead-time items, and submittals which require extensive review.

C. Schedule of Submittals shall be reviewed by the AUTHORITY and shall be revised and resubmitted until accepted by the AUTHORITY.

1.04 CONTRACTOR REVIEW

A. The CONTRACTOR shall prepare and review submittals as required by the provisions of Section 00 70 00 – General Conditions and Section 00 80 00 – Supplementary Conditions.

1.05 SUBMITTAL REQUIREMENTS

A. Number of copies: Submit the number of copies of submittals which the CONTRACTOR requires to be returned to it following review, plus four (4) copies for retention by the AUTHORITY. Provide electronic portable document format (PDF) file of each submittal.

B. Submit each submittal with a Submittal Summary form as its face document. Use a Submittal Summary form provided by the AUTHORITY, or a substitute approved by the AUTHORITY.

C. Label submittals with a numbering system approved by the AUTHORITY. Identify the project by title and AUTHORITY'S project number; identify Work and product by Specification section and Article number.

D. Submit items required by individual specification sections together. Do not mix items specified in different sections in the same submittal. Sequence the submission of submittals to correspond with the approved Schedule of Submittals.

E. Before the submission of each submittal, 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 submittal with other submittals and with the requirements of the Work and the Contract Documents, upon which the CONTRACTOR shall certify in writing on each submittal that it has made this determination. The failure to review and certify a submittal shall be cause for the AUTHORITY to return the submittal without review.

F. On the submittal, notify the AUTHORITY in writing of any deviations from requirements of the Contract Documents.

G. Organize the submittals into logical groupings to facilitate the processing of related submittals, such as:

1. By Specification Section number. Sequentially number each submittal. Resubmittals shall be identified with the original submittal number followed by a sequential alphabetic suffix.
2. Finishes which involve AUTHORITY selection of colors, textures, or patterns.
3. Items required by the individual Technical Product Specification Sections.
4. Associated items, which require correlation for efficient function or for installation.

H. Submit all required color and finish samples in order to receive approval for colors and finishes.

1.06 RESUBMITTALS

A. Provide the same number of submittals required for the first submission. For example, if 6 are required and 2 are returned marked “rejected” or “revise and resubmit”, re-submit 6 copies. The AUTHORITY will not return any of its copies from the prior submittal for the CONTRACTOR’S use in preparing the re-submittal.

B. Provide complete copies of re-submittals. Do not re-submit partial copies of submittals for incorporation into the AUTHORITY’S retained submittals from the prior submission.

C. If drawings, product submittals, samples, mockups, or other required submittals are incomplete or not properly submitted, the AUTHORITY will not review the submittal and will return it to the CONTRACTOR. The AUTHORITY will

review a submittal no more than 2 times without additional charge to the CONTRACTOR (incomplete or improperly submitted submittals count as one of these submittals). The CONTRACTOR shall pay all review costs associated with more than 2 reviews.

1.07 AUTHORITY REVIEW

A. The AUTHORITY will review submittals and re-submittals, and return submittal comments within 30 calendar days of receipt.

B. The AUTHORITY or authorized agent will receive, review and return submittals to the CONTRACTOR with one of the following dispositions noted:

"No Exceptions Taken" – denotes that the submittal is generally consistent with the requirements of the Contract Documents. A resubmittal is not required.

"Make Corrections Noted" – denotes that the submittal is generally consistent with the requirements of the Contract Documents but only as conditioned by notes and corrections made on the submittal. A resubmittal is not required provided the CONTRACTOR understands the review comments and desires no further clarification.

"Revise and Resubmit" – denotes that revisions are required in the submittal in order for the submittal to be generally consistent with the requirements of the Contract Documents. The AUTHORITY will indicate on the returned submittal what revisions are necessary. A resubmittal is required.

"Rejected" – denotes that the submittal does not meet the requirements of the Contract Documents and shall not be used in the Work. The AUTHORITY will indicate on the returned submittal the reasons for its rejection. A resubmittal is required.

C. Review by the AUTHORITY of submittals shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is consistent with the requirements of the Contract Documents. Review of submittals shall not relieve the CONTRACTOR of the responsibility for compliance with the requirements of the Contract Documents or for errors, dimensions, and quantities unless specific exception is requested and approved on the submittal.

D. The AUTHORITY's review shall not extend to the means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

1.08 DISTRIBUTION

A. The CONTRACTOR shall be responsible for making and distributing any reproductions of approved submittals that it may require for its use.

B. The CONTRACTOR shall perform work in accordance with approved submittals.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions.

B. Section 01 11 13 – Summary of Work.

C. Section 01 31 19 – Project Meetings.

D. Section 01 33 00 – Submittal Procedures.

E. Section 01 45 00 – Quality Control.

F. Section 01 60 00 – Material and Equipment.

G. Section 01 73 00 – Execution Requirements.

H. Section 01 78 39 – Project Record Documents.

I. Technical Specifications: Identification of submittal requirements.

1.02 SHOP DRAWINGS

A. Present in a clear and thorough manner. Label each Shop Drawing with AUTHORITY's Project name, Project number and date of submittal. Identify each element of the Shop Drawings by reference to specification section, sheet number and detail, schedule, or Area of Work.

B. The data shown on the Shop Drawings shall be complete with respect to specified performance and design criteria, materials and similar data to show the AUTHORITY materials and equipment the CONTRACTOR proposes to provide.

C. Identify dimensions; show relation to adjacent or critical features or Work or products.

D. Designation of work “by others”, if shown in submittals, shall mean that work will be responsibility of CONTRACTOR rather than subcontractor or supplier who has prepared submittals.

E. Minimum Sheet Size: 11"x17".

1.03 PRODUCT DATA

A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification section and Article number. Show reference standards, performance characteristics and capacities; wiring, piping and control diagrams; component parts; finishes; dimensions; and required clearances.

B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.

C. Submit manufacturer's instructions for storage, preparation, assembly, installation, start-up, adjusting, commissioning, and finishing.

1.04 SAMPLES

A. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures and patterns for AUTHORITY selection as specified in technical product sections.

B. Submit samples to illustrate functional characteristics of products, including parts and attachments.

C. Approved samples which may be used in the Work are indicated in the Specification section.

D. Samples shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which they are intended, and otherwise as the AUTHORITY may require, to enable the AUTHORITY to review the submittal.

E. Label each sample with identification required for transmittal letter.

F. Provide field sample mockup of finishes at Project, at location acceptable to AUTHORITY, as required by individual Specification section. Install each sample complete and finished. Acceptable finishes in place may be retained in completed Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 42 19

REFERENCE STANDARDS

PART 1 GENERAL

1.01 RELATED SECTION

A. Section 00 70 00 – General Conditions.

1.02 QUALITY ASSURANCE

A. For Products or workmanship specified by association, trade, or other technical standards: comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of bid advertisement, unless otherwise stated in the Contract Documents.

C. Provide copies of standards through the submittal process when required by the Contract Documents. Maintain a copy of each reference standard on site during construction.

D. Should specified reference standards conflict with Contract Documents, request clarification from the AUTHORITY before proceeding. Local code requirements, where more stringent than referenced standards, shall govern.

E. Neither the contractual relationship, duties, and responsibilities of the parties to the Contract, nor those of the Architect/Engineer, shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

1.03 CODES, STANDARDS, AND REGULATORY REQUIREMENTS

A. All work shall be in accordance with the latest edition of governing Codes, Standards and regulatory requirements, including but are not limited to:
   1. International Fire Code (IFC).
   2. National Fire Protection Association (NFPA) NFPA 30.
   3. International Building Code (IBC).
   4. National Electrical Code (NEC).
   5. American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME).

6. American Petroleum Institute (API).
7. American Society of Testing and Materials (ASTM).
8. American Society of Mechanical Engineers (ASME).
9. American Welding Society (AWS).
10. American Institute of Steel Construction (AISC).
11. Manufacturers Standardization Society of the Valve and Fitting Industry (MSS).
12. Alaska Department of Environmental Conservation (ADEC) 18 AAC 75.
13. Steel Structures Painting Council (SSPC).
14. Occupational Safety and Health Administration (OSHA) 29 CFR 1910.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality Control program requirements.

B. Manufacturer field services requirements.

C. Testing laboratory requirements.

D. Record keeping for quality control.

E. Quality surveillance by AUTHORITY.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions.

B. Section 01 29 76 – Application for Payment.

C. Section 01 31 19 – Project Meetings.

D. Section 01 33 00 – Submittal Procedures.

E. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

F. Section 01 42 19 – Reference Standards.

G. Section 01 60 00 – Material and Equipment.

H. Section 01 77 00 – Contract Closeout Procedures.

I. Individual Specification Sections: Quality Control.

1.03 REFERENCES

A. Comply with Section 01 42 19 – Reference Standards and the individual technical product specification sections.

1.04 DESCRIPTION

A. The CONTRACTOR shall provide and maintain an effective Quality Control Program related to testing and inspection. The CONTRACTOR shall perform Quality Control Testing as specified and shall provide copies of all results to the AUTHORITY for use in observing contract compliance.

B. The CONTRACTOR’s Quality Control Program shall include, but is not limited to: administration, management, supervision, reports, record-keeping, submittals, services of independent testing agencies and labs, and other related services.

C. Quality Control is the sole responsibility of the CONTRACTOR.

D. The CONTRACTOR’s Quality Control program includes International Building Code (IBC) required Special Inspection.

1. Special inspection is required in accordance with IBC Section 1704. The CONTRACTOR shall engage the services of an independent, qualified Special Inspector who meets all IBC requirements. The following items require Special Inspection:
    a. Periodic inspection and testing of structural bolted connections.
    b. Periodic inspection of field and factory single pass fillet welds less than 5/16".
    c. Continuous inspection of all other field and factory welding.
2. Special inspection is in addition to the CONTRACTOR's required quality control inspections and testing. The CONTRACTOR's quality control inspections and testing shall occur prior to Special Inspection, and the Quality Control Reports shall be available to the Special Inspector.
3. Periodic structural observation is required in accordance with IBC Section 1709.

E. Quality Control services are required to verify compliance with requirements specified or indicated and do not relieve the CONTRACTOR of responsibility for compliance with the Contract Documents.

F. Specific Quality Control requirements for individual construction fabrication and procurement activities are included in the Technical Product Specifications. General Quality Control requirements entail ensuring that all aspects of the Work conform to the technical requirements of the Contract Documents.

G. The CONTRACTOR's Quality Control Program described herein is not intended to limit the CONTRACTOR's Quality Control activities, which may be necessary to achieve compliance with the Contract Documents.

H. The CONTRACTOR shall have a full-time Quality Control Manager whose sole responsibility is to ensure compliance with Contract Documents and manage the CONTRACTOR Quality Control Program, except that the Quality Control Manager may also serve as the site safety officer.

1.05 JOB CONDITIONS

A. Where Specifications require work to be field-tested or approved, it shall be tested in the presence of the AUTHORITY after timely notice of its readiness for inspection and testing, and the work after testing shall be concealed only upon approval of AUTHORITY.

B. The AUTHORITY shall have the right to witness all offsite tests. The CONTRACTOR shall notify the AUTHORITY at least seven (7) calendar days prior to testing.

C. The results of tests are for use by the AUTHORITY to evaluate the acceptability of materials with respect to specified testing requirements. Regardless of the test results, CONTRACTOR is solely responsible for quality of workmanship and materials and for compliance with requirements of Contract Documents.

D. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality. Verify applicability and follow all manufacturers' recommendations and instructions for assembly, installation and testing of materials and equipment. In any case where the CONTRACTOR believes that such recommendations or instructions are not applicable, the CONTRACTOR shall so notify the AUTHORITY and state the reasons for the CONTRACTOR's determination. The CONTRACTOR shall then follow the AUTHORITY's written direction on whether to follow manufacturer's recommendations and instructions.

E. Upon failure of materials and equipment, which have been tested or inspected, previous acceptance may be withdrawn and material may be subject to removal and replacement with material meeting Specification requirements, at no cost to the AUTHORITY.

1.06 MANUFACTURER'S FIELD SERVICES

A. Required when technical specifications require the manufacturer or supplier to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, and to start, test, and adjust equipment as applicable.

B. Submit to the AUTHORITY the manufacturer representative's written reports containing observations and recommendations within five (5) calendar days of manufacturer's field services. Provide three (3) copies and a digital version.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. The CONTRACTOR shall provide full and complete documentation of Quality Control procedures and activities in a Quality Control Program and Plan.

3.02 QUALITY CONTROL

A. The CONTRACTOR shall establish a Quality Control Program (Program) which shall establish the methodology to perform the CONTRACTOR's inspection and tests of all items including that of its subcontractors. The Program shall ensure conformance to applicable technical specifications and drawings with respect to the materials, Codes, workmanship, storage, installation, construction, finishes, functional performance, and identification. The Program shall be established for all construction work performed under this Contract, including assigned subcontract work. The Program shall specifically include surveillance and tests required in the technical specifications.

B. The CONTRACTOR shall coordinate all work requiring Special Inspection to ensure full access by Special Inspectors and Quality Assurance testing personnel to work, work performance, and testing preparation, operations and results.

C. CONTRACTOR shall describe the Program in a detailed Quality Control Plan that must be approved by the AUTHORITY prior to the start of any construction or offsite fabrication.

D. The Program shall include, as a minimum, the following components for all definable features of work:

1. Preparatory Inspection Meeting: CONTRACTOR shall schedule and attend a preparatory meeting to review testing procedures a minimum of a week prior to beginning work on any element of Work which has been identified in the Contract Documents to require testing and inspection by the CONTRACTOR and Code-required Special Inspection. Subsequent meetings shall be conducted as necessary to ensure continued accuracy of testing and inspection procedures.
2. Document Control: CONTRACTOR's Program to include procedure for ensuring that all Work is performed in accordance with the following:
    a. Conformed sets of Contract Drawings and Specifications.
    b. Contract Change Order documents.
    c. Approved Submittals.
    d. Applicable Requests for Information (RFI's).
    e. Manufacturer's Instruction.
3. In Progress Inspection: CONTRACTOR shall perform in-progress inspections as work progresses on the Work which shall include, but not be limited to:
    a. Examination of the quality of workmanship with respect to Contract Drawings, Technical Specifications and Approved Submittals.
    b. Review of control testing for compliance with Contract requirements.
    c. Inspection for use of defective or damaged materials, omissions and dimensional requirements.
    d. Review of timeliness and scheduling requirements for all tests, retests and eventual approvals.
    e. CONTRACTOR Deficiency Reports and punch lists as appropriate to the level of completion of the work.
4. Non-Conformance Procedure: CONTRACTOR's program shall include procedure for identifying, documenting, tracking, and resolving items in the Work which do not comply with Contract Documents, Specifications, Approved Submittals, or Manufacturer's Instructions. If a quality control test indicates that the tested material does not conform to the requirements of the Contract Documents, the CONTRACTOR shall take supplemental tests at the same location from which the non-conforming result was obtained, after correction of the work, to document conformance with the Contract Documents. Otherwise, the AUTHORITY reserves the right to

reject materials for which final Quality Control tests indicate non-conformance with the Contract Documents.

5. Code Required Inspection: CONTRACTOR shall coordinate and make timely requests for inspections, tests and other activities required by Codes and Regulations as specified.

3.03 RECORD KEEPING

A. The CONTRACTOR shall maintain current Quality Control records, on forms acceptable to the AUTHORITY, of all inspections and tests performed. The records shall include factual evidence that the required inspections or tests have been performed, including, but not limited to, the following information for each such test and inspection: specification reference, date, type and number of inspections or test involved; results of the inspections, tests or retests; the nature of defect, causes for rejection, proposed remedial action, corrective action(s) taken, and similar information related to any reinspection.

B. The CONTRACTOR shall maintain and submit to the AUTHORITY the following Quality Control records and reports:

1. Daily Reports: The CONTRACTOR shall maintain a daily log of all inspections performed for both CONTRACTOR and subcontractor operations. The Daily Log shall include compliance with shop drawings submittals, identification by specification section and schedule activity of inspections, tests, and retests conducted, results of inspections and tests, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. One copy of each Daily Reports shall be submitted to the AUTHORITY weekly.
2. Immediate Notification of Deficiencies: CONTRACTOR shall provide immediate notification to the AUTHORITY whenever a failed nonconforming test or inspection occurs. This immediate notification shall be followed up with the required written reports.
3. Nonconformance Report: CONTRACTOR shall submit three copies of a weekly Nonconformance Report to the AUTHORITY identifying all substandard inspections and tests taken during the week including identification by specification section and schedule activity of the inspection or test, location and nature of defects, causes for rejection and remedial actions taken or proposed. The Nonconformance Report shall also identify corrective actions taken or proposed for any open items on prior Nonconformance Reports including a scheduled date for resolution of each item. The Nonconformance Report shall be submitted and discussed in Progress Meetings.

4. Inspection Control Log: CONTRACTOR shall maintain an inspection control log chronologically recording each inspection and test performed by the CONTRACTOR, including the nature of the inspection, test or retest, the date performed, the results, causes for rejection, remedial action or corrective action taken and dates of subsequent inspections and retests, and final acceptance. The CONTRACTOR shall submit three (3) copies of the updated Inspection Control Log weekly to the AUTHORITY; the Log will be discussed in Progress Meetings.

3.04 ORGANIZATION

A. The Program shall be implemented by the CONTRACTOR which shall as a minimum, consist of the following: Quality Control personnel shall be dedicated to Quality Control duties only, and independent of the production aspects of the CONTRACTOR's organization.

1. Quality Control Manager: The Quality Control Manager shall have the following qualifications: Minimum of 5 years' experience in a supervisory Quality Control position whose sole responsibility is to ensure compliance with the Contract Documents. This person shall be employed on this Project only, shall be physically on the Project site during performance of all Contract Work, and shall be in charge of the CONTRACTOR's Quality Control Organization. The Quality Control Manager shall report directly to the responsible corporate officer of the firm.
2. Quality Control Inspectors: The Quality Control Inspectors shall report directly to the Quality Control Manager. Quality Control Inspectors shall be provided as required to meet requirements of the Contract Documents for CONTRACTOR testing and inspection and as needed to verify that all aspects of the Work comply with the technical requirements of the Contract. Inspectors shall have minimum 5 years' experience inspecting the type of work being inspected. Submit qualifications as part of the Quality Control Plan.
3. Independent Testing and Inspection Laboratories: Provide and pay for an industry-recognized, independent laboratory or laboratories to perform all Quality Control tests and/or inspections as may be indicated by the nature of the construction or as specifically required under the terms of the Contract.
4. Pipe Weld Inspection: Contractor shall provide sufficient qualified inspection staff to adequately inspect 100% of the pipeline and piping joints visually in accordance with the Contract documents. Welding inspection shall be provided by an approved independent testing and

inspection laboratory with at least five years of experience on similar projects.

5. Tank Welding Inspection: Same as above, except the type of the required inspections shall be in accordance with the technical specifications.
6. Coating Inspector: Contractor shall provide a NACE Certified Inspector for all surface preparation and coating application covered by Section 09 97 13.23 – Exterior Steel Coatings. NACE Inspector shall be provided by an independent inspection company with five years of experience in Alaska on similar projects.
7. Welding Inspector(s): The Welding Inspector(s) shall have the responsibility of inspecting all welding operations associated with construction. He (they) shall be familiar with and have a working knowledge of AWS D1.1; ANSI/ASME 31.4, API 1104 and ASME BPVC Section IX. Duties include assuring compliance with Section 33 56 13.13 – Vertical Storage Tanks, Section 33 52 13.33 – Welded Pressure Piping and include, but are not limited to the following:
    a. Ensure that the proper procedures are used during construction. Periodically record voltage, amperage, welding speed, and consumable types used in each welding procedure.
    b. Assist with the certification of each welder and welding operator in accordance with the Engineer's Specification. Prepare and maintain a list of qualified welders, and periodically confirm that only qualified welders are working on the construction project.
    c. Verify the operational condition of all welding equipment.
    d. Maintain records of weld rejections and repairs and, where appropriate, require requalification of welders or procedures with excessive rejections.
    e. Ensure that consumables are properly stored and issued to welders.
    f. Check fit-up of manual welds prior to production welding, and periodically inspect fit-up of automatic welds including inspection of joint edge penetration.
    g. Visually inspect fit-up and general pipe condition.
    h. Monitor preheat interpass temperatures; ensure that no welding is performed on a wet surface or under conditions of excessive wind velocity at the weld.
    i. Assure good workmanship, quality welds, and satisfactory weld repairs as per Engineer's Specifications.
    j. Check material to be welded and the type of weld to be made and document, with material certification, where applicable.
    k. Audit inspections and perform any inspections as required.

l. Review electrode selection, storage, and maintenance.
m. Audit field weld quality by interpreting radiographs.
n. Troubleshoot inspection problems.
o. Report unsafe work practices and areas.
p. Assure that welders are not disposing of welding consumable and/or any other refuse in the pipeline or piping.

8. NDE Inspector(s): The NDE Inspector(s) shall be familiar with and have a working knowledge of AWS D1.1, ANSI B31.4, API 1104 and all applicable drawings, inspection requirements, and referenced standards. Individual(s) shall be certified in accordance with the American Society for Nondestructive Testing, SNT-TC-1a. His duties shall include, but are not limited to the following:
   a. Inspection of qualification of each NDE Contractor or inspector based on personal observation of their work, certification documents, training, and experience. Maintain records of all qualified personnel.
   b. Verify that the Contractor's NDE procedures have been approved by Engineer.
   c. Establish an independent records system of the Contractor's work and compare results with the Contractor's system at least weekly, and advise the Chief Inspector as appropriate of any discrepancies.
   d. Study and understand the Specifications, Drawings, and all supporting documents with respect to inspection requirements.
   e. Approve calibration and operating condition of equipment.
   f. Schedule NDE for all work activities.
   g. Perform visual inspection of welding and any other work to be subject of NDE.
   h. Report unsafe work practices and areas.

B. Staffing Levels: Provide sufficient qualified personnel to monitor the work quality at all times. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity.
   1. In cases where multiple trades, disciplines or subcontractors are on site at the same time, each activity shall be inspected and tested by personnel skilled in that portion of the work.
   2. In cases where multiple shifts are employed, the Quality Control staff shall be increased as required to monitor the work on each shift.

3.05 QUALITY CONTROL PLAN

A. Provide a Quality Control Plan to the AUTHORITY no later than 30 days after Notice to Proceed. Plan shall be updated as required by "Detailed Quality Control Procedures" below, and approved by the AUTHORITY prior to construction.

B. Quality Control Plan Contents: Include the personnel, procedures, instructions and documents to be used.

1. Organization: A description of the CONTRACTOR's Quality Control Organization, including:
    a. An organization chart showing lines of authority and relationship of the quality control personnel and the CONTRACTOR's management and project personnel.
    b. Names and resumes of work experience and qualifications of personnel in the quality control program.
    c. Area of responsibility and authority of each individual in the quality control organization.
2. Inspection:
    a. Methods of performing quality control inspections including those for each subcontractor's work.
    b. Detailed lists of inspection activities for each specification section. See "Detailed Quality Control Procedures" below.
3. Testing:
    a. Description of how testing will be performed including identification and qualifications of the industry recognized testing laboratory or laboratories proposed for the work.
    b. Identify the testing methods, frequency, and number to be taken of each type of material requiring Quality Control testing. To facilitate the development of a testing plan, the AUTHORITY will provide a tabular schedule of minimum testing requirements, to be derived from the requirements contained in the contract documents. The CONTRACTOR shall be responsible for taking the tests summarized in the schedule, in conjunction with any other tests that may be required in the contract documents.
4. Documentation: Method of documenting Quality Control operation, inspection and testing.
5. Administration: Methods of administering Quality Control operations document control, non-conformance procedure, inspection and testing.

6. Letter of Authority: A copy of a letter of direction to the CONTRACTOR's Quality Control Manager responsible for quality control outlining that person's duties and responsibilities and signed by responsible corporate officer of the firm. This letter shall include the authority to halt construction and direct removal and replacement of work not in compliance with the Contract.
7. Forms: Sample copies of all forms and reports to be used, a flow chart describing their distribution, and identification of those documents to be retained by the CONTRACTOR.
8. Subcontractor's Quality Control: The CONTRACTOR shall include, as part of its Quality Control Plan, specific methods of performing quality control inspections of onsite and offsite subcontractors.
9. Detailed Quality Control Procedures: Detailed descriptions of quality control activities for work under each section of the specifications. Include list of all tests, inspection and frequencies, personnel, and instruction prior to starting such work. The procedures shall be updated each month incorporating any changes. Changes shall be submitted at least one month prior to the Work effected by the change.

C. Quality Control Plan Approval:
1. Before the CONTRACTOR's Quality Control Plan is officially submitted, the CONTRACTOR shall meet with the AUTHORITY and discuss the CONTRACTOR's Quality Control Plan. The CONTRACTOR and the AUTHORITY shall jointly develop a mutual understanding of the details of the plan, including the forms to be used for recording the quality control operations, inspections, administration of the plan for both onsite and offsite work, and the interrelationship of CONTRACTOR and AUTHORITY inspection. The CONTRACTOR shall prepare minutes of the meeting, which shall be incorporated in the CONTRACTOR's Quality Control Plan, which shall then be officially submitted for approval.
2. If the AUTHORITY determines that the Quality Control Plan, personnel, inspections, tests, or records are not adequate, corrective actions shall be taken as directed prior to payment of the next monthly CONTRACTOR's Progress Report.
3. Notify the AUTHORITY in writing of any proposed change to the CONTRACTOR's Quality Control Plan; no such change shall be implemented prior to approval in writing by the AUTHORITY.

D. Quality Control Plan Implementation: Implementation of the Quality Control Plan is the responsibility of the CONTRACTOR. This implementation will be monitored by the AUTHORITY and deficiencies therein will be corrected at the sole expense of the CONTRACTOR.

3.06 QUALITY SURVEILLANCE BY THE AUTHORITY

A. All items of materials and equipment shall be subject to surveillance testing and inspection by the AUTHORITY at the point of production, manufacture or shipment to determine if the producer, manufacturer or shipper maintains an adequate inspection system which insures conformance to the applicable specifications and drawings with respect to materials, workmanship, construction, finish, functional performance and identification. In addition, all items or materials, equipment and work in place shall be subject to surveillance testing and inspection by the AUTHORITY at the site for the same purposes. Surveillance by the AUTHORITY does not relieve the CONTRACTOR of performing Quality Control inspections and testing of either onsite or offsite CONTRACTOR's or subcontractor's workplace or manufacturing assembly plant.

END OF SECTION

SECTION 01 51 00

CONSTRUCTION FACILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for furnishing and maintaining construction facilities during the project.

1.02 RELATED REQUIREMENTS

A. Section 01 11 13 – Summary of Work.

B. Section 01 29 76 – Application for Payment.

C. Section 01 71 13 – Mobilization and Demobilization.

D. Section 01 73 00 – Execution Requirements.

1.03 TEMPORARY ELECTRICITY

A. Unless specified elsewhere, the CONTRACTOR shall make their own provisions for temporary electrical service.

B. Provide lighting for construction operations.

1.04 TEMPORARY HEAT

A. Provide and pay for heat devices, insulated enclosure, tenting, and heat as required to maintain specified conditions for construction operations, to protect materials and finishes from damage due to temperature or humidity.

1.05 TEMPORARY VENTILATION

A. Provide and pay for ventilation of enclosed areas to cure materials, to disperse humidity, to prevent accumulations of dust, fumes, vapors, or gases, and to maintain a safe work environment.

1.06 TEMPORARY WATER SERVICE

A. Unless specified elsewhere, the CONTRACTOR shall make its own provisions for temporary water service.

1.07 TEMPORARY SANITARY FACILITIES

A. Unless specified elsewhere, provide and maintain required facilities and enclosures. Use of existing toilet facilities by CONTRACTOR is prohibited.

1.08 TEMPORARY TELEPHONE SERVICE

A. Unless specified elsewhere, provide, maintain and pay for telephone service to the CONTRACTOR field offices.

1.09 BARRIERS

A. Provide as required to prevent entry to construction areas and to protect adjacent properties from damage from construction operations

B. Maintain lights of such size and location each night between the hours of sunset and sunrise upon all obstructions resulting from work which may endanger or obstruct vehicle traffic, and be responsible for all damages to persons and property resulting from failure to maintain lights. Designate personnel to replace or relight markers or barricades and provide the AUTHORITY with their names and telephone numbers for use in summoning them as necessary.

1.10 FREEZE PROTECTION

A. Provide freeze protection for the Power Plant Module during on site storage and construction, as per Section 01 11 13 – Summary of Work, 1.04, A.7.

B. Provide freeze protection for temporary water and sanitary service piping, valves, and other components.

1.11 CONSTRUCTION FENCES

A. Include all supplementary parts necessary or required for a complete and satisfactory installation of temporary fences. All runs of the fence shall present the same general appearance.

B. Material requirements, unless shown otherwise on the Drawings:

1. Fabric: No. 9 ASW gage zinc coated or approved equal.
2. Barbed Wire (Zinc-coated): 3-strand twisted No. 12 ½ ASW gage galvanized steel wire with 4-point barbs of No. 14 ASW gage galvanized steel wire, or approved equal. The barbs shall be spaced approximately 4 inches apart.
3. Wire ties and tension wire: No. 7 ASW gage marcelled steel wire with same coating as fabric and conforming to ASTM A824.
4. Plywood, if used shall be painted.

C. Other requirements:

1. Used materials may be installed provided the used materials are good, sound, and are suitable for the purpose intended.
2. Posts and braces shall be galvanized steel pipe conforming to the requirements of ASTM F1038 and sized in accordance with Tables 1 through VI of Federal Specifications RR-F-191/3. Posts shall be spaced more than 10 feet apart.
3. Galvanizing of steel items will be required.
4. Temporary fences that are damaged from any cause during the progress of the work shall be repaired or replaced by the CONTRACTOR at the CONTRACTOR's expense.
5. If no longer required for the Work as determined by the AUTHORITY, temporary fences shall be removed. Removed facilities shall become the property of the CONTRACTOR and shall be removed from the site of the work.
6. In secure areas away from traffic, fence shall be 8 feet high. Fence construction shall include top and bottom tension wires. All fabric tension wire and barbed wire shall be installed taught with no more than 2 inch open gaps between bottom of fence and underlying surface.
7. Not Used.

1.12 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where required and where Work is installed in unsecure areas.

B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

1.13 SECURITY

A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.

1.14 REMOVAL OF UTILITIES AND FACILITIES

A. Remove CONSTRUCTION FACILITIES, Services, Utilities and other related materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore permanent facilities used during construction to a 'like new' condition if it was provided by Contract, or the condition the facility was found prior to construction of this project for existing facilities.

1.15 SHORING AND BRACING

A. The CONTRACTOR is responsible for providing shoring and bracing required to accomplish the work. This includes shoring of adjacent facilities, shoring for installed work, and shoring and bracing for installation of structural steel.

B. The CONTRACTOR's shoring and bracing shall be designed by an Alaska registered structural engineer.

C. Provide a sealed and signed copy of shoring and bracing calculations to the AUTHORITY for informational purposes only. The submission of calculations to the AUTHORITY shall not transfer responsibility for the design of shoring and bracing to the AUTHORITY. Rather, the AUTHORITY will receive the calculations to verify they have been done by a registered engineer.

1.16 COST RESPONSIBILITY

A. Except as otherwise noted, the cost of construction facilities and utilities shall be the responsibility of CONTRACTOR.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for transportation and handling, storage and protection, substitutions, and product options.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions.

B. Section 01 11 13 – Summary of Work.

C. Section 01 33 00 – Submittal Procedures.

D. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

E. Section 01 42 19 – Reference Standards.

F. Section 01 45 00 – Quality Control.

G. Section 01 51 00 – Construction Facilities.

H. Section 01 60 00 – Material and Equipment.

I. Section 01 73 00 – Execution Requirements.

1.03 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. Immediately on delivery, inspect shipment to assure:
   1. Product complies with requirements of Contract Documents and reviewed submittals.

2. Quantities are correct.
3. Accessories and installation hardware are correct.
4. Containers and packages are intact and labels legible.
5. Products are protected and undamaged.

1.04 STORAGE AND PROTECTION

A. Handle and store materials for construction, products of demolition, and other items to avoid damage to existing buildings, and infrastructure.

B. 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.

C. 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.

D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter. Cover such material to prevent material from being blown or transported away from the stockpile.

E. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

1.05 SUBSTITUTIONS

A. 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.

B. After the bid opening, the CONTRACTOR shall submit sufficient data in accordance with this Section to establish equality. The AUTHORITY shall be the sole judge of equality and acceptability.

C. 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.

D. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

E. AUTHORITY will consider requests for Substitutions only within 90 days after date established by the Notice to Proceed.

F. Substitutions may be considered when a Product becomes unavailable through no fault of the CONTRACTOR.

G. Document each request with complete data substantiating compatibility of proposed Substitution with Contract Documents.

H. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

1.06 SUBSTITUTION SUBMITTAL PROCEDURE:

A. Submit four copies of Request for Substitution for consideration on Substitution Request Form provided by AUTHORITY (Section 01 60 00-A). Limit each request to one proposed Substitution.

B. Submit certification signed by the CONTRACTOR, that the CONTRACTOR:
   1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product. List similar projects using proposed product, dates of installation and user telephone number.
   2. Will provide an equivalent warranty for the Substitution as for the specified Product.
   3. Will coordinate installation and make changes to other Work, which may be required for the Work to be complete with no additional cost to AUTHORITY.
   4. Waives claims for additional costs or time extension, which may subsequently become apparent from indirect costs.
   5. Will reimburse AUTHORITY for review or redesign services associated with re-approval by Authorities.

C. Submit shop drawings, manufacturers' product data, and certified test results attesting to the proposed Product equivalence and variations between substitute and specified product. The burden of proof is on proposer.

D. The AUTHORITY will notify CONTRACTOR in writing of decision to accept or reject request.

PART 2 PRODUCTS

2.01 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.

D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers followed by the term "No Substitutions": use only specified manufacturers, no substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named that meets the description specifications of the named manufacturers, equal in substance, function, dimension, appearance, and quality.

PART 3 EXECUTION (NOT USED)

END OF SECTION

ALASKA ENERGY AUTHORITY	SUBSTITUTION REQUEST FORM (AFTER AWARD)	

Project: Kipnuk Bulk Fuel and Power System Upgrade, ITB #17068 Project No.: TBD

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

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SECTION 01 71 13

MOBILIZATION AND DEMOBILIZATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for mobilization and demobilization.

1.02 RELATED REQUIREMENTS

A. Section 01 11 13 – Summary of Work.

B. Section 01 29 73 – Schedule of Values.

C. Section 01 29 76 – Application for Payment.

D. Section 01 51 00 – Construction Facilities.

E. Section 01 77 00 – Contract Closeout Procedures.

1.03 DEFINITIONS

A. Mobilization and Demobilization includes:

1. CONTRACTOR’s work to prepare Site for Work under Contract and to marshal workers, materials and equipment, and those of subcontractors, to accomplish the Work.
2. Mobilization of all construction equipment, materials, suppliers, appurtenances, and the like, staffed and ready for commencing and prosecuting the Work, and the subsequent demobilization and removal from the site of said equipment, appurtenances, and the like upon completion of the Work.
3. Assembly and delivery to the site equipment, materials, and supplies necessary for the prosecution of Work which are not intended to be incorporated in the work; the clearing of and preparation of the CONTRACTOR’s work area; the complete assembly, in working order, of equipment necessary to perform the required work; personnel services preparatory to commencing actual work; all other preparatory work required to permit commencement of the actual work on construction items for which payment is provided under the Contract.

1.04 REQUIREMENTS

A. Haul routes, staging areas, and equipment positioning at the project site will be subject to approval by AUTHORITY, who will coordinate with CONTRACTOR to determine requirements and locations.

B. Cooperate with AUTHORITY in allocation and use of MOBILIZATION AND DEMOBILIZATION areas of Site, field offices and sheds, materials storage, traffic, and parking facilities.

C. During construction, coordinate use of Site and facilities through the AUTHORITY.

D. Comply with AUTHORITY'S procedures of contract communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of AUTHORITY for use of utilities and construction facilities.

F. Coordinate field engineering and layout Work under instructions of AUTHORITY.

G. Walk through Site with AUTHORITY prior to start of Work.

1.05 SUBMITTALS

A. Refer to Section 01 33 00 - Submittal Procedures, for submittal requirements.

B. If requested by AUTHORITY, submit a plan of the proposed layout of the construction site, including equipment, accessways, temporary facilities, staging, and storage areas, within thirty (30) days after Notice to Proceed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 Delivery to the jobsite of construction tools, equipment, materials, and supplies shall be accomplished in conformance with local governing body, ordinances, regulations, and the requirements of the Contract Documents.

3.02 Upon completion of the Work, remove construction tools, apparatus, equipment, unused materials and supplies, and personnel from the jobsite.

END OF SECTION

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SECTION 01 71 23.16

CONSTRUCTION SURVEYING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction surveying requirements.

1.02 RELATED REQUIREMENTS

A. Existing survey data and survey control are presented in the Drawings.

B. Section 01 33 00 – Submittals Procedures.

C. Section 31 62 16 – Driven Steel Piles.

1.03 SUBMITTALS

A. Submit, upon request of the Engineer, copies of all field notes and survey data.

B. Provide marked-up as-built drawings.

PART 2 PRODUCTS

2.01 SURVEY MATERIALS

A. Provide all construction surveying and staking materials to stake construction work.

PART 3 EXECUTION

3.01 SURVEYING BY ENGINEER

A. No surveying will be provided by the Engineer.

3.02 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall set all lines and grades by instrument survey in order to correctly layout the following:
   1. Bulk Tank Farm Pile Foundation.
   2. Power Plant Pile Foundation.
   3. Pipelines.
   4. Dispensing Station.
   5. Boardwalks.

B. Contractor shall locate and protect all survey reference points. Contractor shall have a Professional Land Surveyor, licensed in the State of Alaska, reset any survey points that have been disturbed at Contractor's expense.

C. Survey shall be tied to the basis of horizontal and vertical control indicated on the Drawings.

D. Provide and pay for all surveying as required for project completion and acceptance.

E. All survey work shall be by, or under the direct supervision of, a licensed Professional Land Surveyor registered in the State of Alaska.

F. Field-adjust grades to meet the minimum fill depth required by the Drawings.

3.03 ACCURACY AND TOLERANCES

A. Contractor's surveys shall be subject to the following tolerances, unless another tolerance is specified elsewhere in the Contract Documents:
   1. Driven Steel Piles: As specified on the Drawings.
   2. All other Construction:
      a. $\pm$0.10 feet horizontally.
      b. $\pm$0.10 feet vertically.

3.04 RECORDS

A. Maintain a complete, accurate, and reduced set of field notes of all survey work.

END OF SECTION

SECTION 01 73 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for addressing defects, cleaning, operating and maintenance manuals, spare parts, training, warranties and bonds, and maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions: Fiscal provisions, legal submittals, and other administrative requirements.

B. Section 01 26 63 – Change Procedures.

C. Section 01 31 19 – Project Meetings.

D. Section 01 33 00 –Submittal Procedures.

E. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

F. Section 01 60 00 – Material and Equipment.

G. Section 01 74 00 – Cleaning and Waste Management.

1.03 CLOSEOUT PROCEDURES

A. Comply with Section 01 77 00 - Contract Closeout Procedures.

1.04 DEFECTS

A. Product defects shall be all items that affect the visual appearance or function of the Products. Defects shall be as identified below unless more stringent requirements are specified within specific sections.

B. Products shall typically be viewed from a distance of 30.0 inches (760 mm).

C. Defects shall be solely determined by the Project Manager.

D. Defects, Product:
   1. Cuts, Scrapes, Gouges Abrasions 0.250 inch (6 mm) long or longer, and 0.03125 inches (0.79375 mm) wide or wider that are visible at a distance of 30.0 inches (762 mm) shall be considered defects.
   2. Abrasions less than the above shall be accepted.
   3. Burns of any size that permanently discolor the surface material shall be considered defects.
   4. Product color variation.

E. Defects, Joint:
   1. Non-alignment of Products. Visual defects and non-alignment of joints shall be considered defective.

F. Defects, Structural:
   1. Bent members or other structural damage shall be considered defective.
   2. Incorrectly manufactured members shall be considered defective.

G. Defects, Corrosion:
   1. Surface corrosion not exceeding one percent (1%) of the surface area shall be considered a visual defect.
   2. Surface corrosion exceeding one percent (1%) and not exceeding five percent (5%) of the surface area shall be evaluated by the Project Manager.
   3. Surface corrosion exceeding five percent (5%) of the surface area shall be shall be considered a defect.

H. Defects shall be repaired or replaced as solely determined by the Project Manager at no additional cost to the AUTHORITY.
   1. Structural defects shall be replaced, no exceptions.
   2. Visual defects shall be repaired or replaced as solely determined by the Project Manager.

1.05 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain work and storage areas free of waste materials, debris, and rubbish. Maintain site in a neat and orderly condition to maintain safe passage and exits and to avoid fire hazard. Provide covered containers for deposit of waste materials.

B. Collect and remove waste materials, debris, and rubbish from site periodically and at least weekly, and dispose off-site. Have equipment and personnel available on-site daily to sweep and clean work sites and interior work areas.

C. Comply with Section 01 74 00 – Cleaning and Waste Management.

1.06 FINAL CLEANING

A. Execute final cleaning prior to Substantial Completion inspection.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances.

C. Use materials which will not create hazards to health or property, and which will not damage surfaces. Follow manufacturer's recommendations.

D. Maintain cleaning until AUTHORITY issues certificate of Substantial Completion.

E. Remove waste, debris and surplus materials from site. Clean work site and interior work areas; remove stains, spills, and foreign substances from all areas and sweep clean. Rake clean work site. Comply with Section 01 74 00 – Cleaning and Waste Management.

1.07 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.08 OPERATION AND MAINTENANCE (O&M) DATA

A. Submit data bound in 3-ring slant “D” presentation ring binders, maximum 11-5/8” high and 11-1/4” deep. Spine, front, and back shall be heavy virgin vinyl sealed over heavy board. Binders shall have clear, full size pockets on spine and front cover. Thickness of content shall not exceed 75% of binder manufacturer’s stated capacity. All pages shall be 8 ½” x 11”, or 11” x 17” folded to 8 ½” x 11” in a manner to permit unfolding without removal from binder.

B. O&M Manual binders shall be black, clearly and permanently labeled as follows:

1. Spine

   Project Name

   Project Number

   Operations & Maintenance Manual, Volume _____of ____

   Facility Name:

2. Front Cover:

   Project Name:

   Project No.:

   Facility Name:

   CONTRACTOR:

      Address

      City, State, ZIP

      Phone:

      Fax:

      E-mail Address:

   Major Sub-Contractors:

      Address

      City, State, ZIP

      Phone:

      Fax:

      E-mail Address:

   Operations & Maintenance Manual, Volume _____of____

   Discipline:

   Date:

C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified. Include the complete Table of Contents in each volume, typed on 24 pound white paper, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, CONTRACTOR, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system process flow and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    a. List of equipment.
    b. Parts list for each component.
    c. Operating instructions.
    d. Maintenance instructions for equipment and systems.
    e. Maintenance instructions for finishes, including recommended cleaning methods and materials, special precautions identifying detrimental agents, and touchup procedures/materials.
3. Part 3: Project documents and certificates, including the following:
    a. Shop drawings and product data.
    b. Start-up and Commissioning reports.
    c. Certificates.
    d. Originals of warranties and bonds.

E. Submit one (1) draft copy of completed volumes 30 calendar days prior to Training or Substantial Completion inspection, whichever is earliest. This copy will be reviewed and returned, with AUTHORITY comments. Revise content of all document sets as required prior to final submission.

F. Submit four (4) sets of revised final volumes 7 days prior to Training or Substantial Completion inspection, whichever is earliest.

G. In addition to required hard copies, provide electronic copy on *.PDF format with Table of Contents hyperlinked to all referenced sections.

1.09 TRAINING

A. Before Substantial Completion, instruct AUTHORITY designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times. For equipment requiring seasonal operation, or placed into operation subsequent to Final Completion, perform instructions within six (6) months.

B. Use operation and maintenance manuals as basis of instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

C. Unless specified elsewhere, the duration of on-site instruction shall be eight (8) hours, minimum.

D. Provide digital video recordings of all provided instruction in format approved by AUTHORITY. Training videos shall be submitted prior to Final Completion.

E. Prepare and insert additional data in Operation and Maintenance Manual when need for such data that its need becomes apparent during instruction.

1.10 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections. These shall be labeled and stored per manufacturer's recommendations and as specified.

B. Deliver to Project site and place in location as directed; obtain receipt prior to Substantial Completion payment.

1.11 WARRANTIES AND BONDS

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover, similar to O&M Manual.

D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.12 MAINTENANCE SERVICE

A. Furnish service and maintenance of all equipment, products, components, specialties and appurtenances provided for this project for one year from date of Substantial Completion.

B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the AUTHORITY.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.01 GENERAL

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 disposed of daily. The Contractor shall take particular care to eliminate any hazards created by these operations.

1.02 RELATED REQUIREMENTS

A. Section 01 73 00 - Execution Requirements.

B. Section 02 41 00 – Demolition.

PART 2 PRODUCTS (NOT USED)

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 completely 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, 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 inspection. 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.

D. Disposal of hazardous and construction materials shall be accomplished as specified in Section 00 70 00 – General Conditions, Section 02 41 00 – Demolition, and this section.

3.02 WASTE DISPOSAL

A. Demolition Material.

1. Unusable demolition material shall be removed from the limits of the project site and disposed of at the community landfill or backhauled out of the community. All demolition material shall be disposed of as required by local, state and federal laws, rules, Regulations and requirements.

B. General Construction Waste.

1. General construction waste generated during the process of completing the project scope of work shall be removed from the limits of the project site and disposed of at the community landfill or backhauled out of the community. All general construction waste shall be disposed of as required by local, state and federal laws, rules, Regulations and requirements.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for Substantial Completion.

B. Requirements for Final Completion.

C. Requirements for Final Acceptance and Payment.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions: Substantial Completion, Final Completion, Final Payment, Final Acceptance.

B. Section 01 11 13 – Summary of Work.

C. Section 01 29 73 – Schedule of Values.

D. Section 01 29 76 – Application for Payment.

E. Section 01 33 00 – Submittal Procedures.

F. Section 01 71 13 – Mobilization and Demobilization.

G. Section 01 73 00 – Execution Requirements

H. Section 01 78 39 – Project Record Documents.

1.03 SUBSTANTIAL COMPLETION SUBMITTALS

Submit the following prior to requesting the Substantial Completion Inspection:

A. Evidence of Compliance with Requirements of Authority Having Jurisdiction:
   1. Certificate of Occupancy.
   2. Required Certificates of Inspection.
   3. Other approvals as may be required.

B. Project Record Documents

C. Operation and Maintenance Data.

D. Spare Parts and Maintenance Materials.

E. Warranties and Bonds.

F. Keys and Keying Schedule.

G. No progress payments will be made for Substantial Completion until all required submittals have been submitted and accepted by the AUTHORITY.

1.04 SUBSTANTIAL COMPLETION

A. In accordance with Section 00 70 00 – General Conditions, Article 13.10 Substantial Completion, the CONTRACTOR shall notify the AUTHORITY in writing that the Work or a portion of the Work which has been specifically identified in the Contract Documents (except for items specifically listed by the CONTRACTOR as incomplete) is substantially complete and request that the AUTHORITY issue a Certificate of Substantial Completion. The AUTHORITY will consider the CONTRACTOR's request for Substantial Completion only when:

1. Written request for Substantial Completion is provided at least fourteen (14) calendar days in advance of the AUTHORITY's scheduled Substantial Completion inspection date.
2. List of items to be completed or corrected is submitted.
3. All Operation and Maintenance Manuals are submitted and approved by the AUTHORITY.
4. All commissioning requirements have been met.
5. All equipment and systems have been tested, adjusted, are properly operating and fully operational.
6. All demonstration and training requirements have been completed, or the date(s) for required demonstration and training have been scheduled with the AUTHORITY.
7. All automated and manual controls are fully operational.
8. Operation of all equipment and systems has been demonstrated to the AUTHORITY or their designated representative.
9. Certificate of Occupancy is submitted.
10. Certificates of Inspection for required inspections have been submitted for all required inspections.

11. Project Record Documents for the Work or the portion of the Work being accepted are submitted and approved.
12. Spare parts and maintenance materials are turned over to AUTHORITY.
13. All keys are turned over to the AUTHORITY.
14. All warranties and bonds are submitted and approved.
15. Final cleaning has been completed to the satisfaction of the AUTHORITY.

B. When all of the preceding requirements for the consideration of Substantial Completion have been met, the AUTHORITY will conduct a scheduled Substantial Completion inspection with its Architect/Engineers and other required representatives. If upon the completion of the inspection, the AUTHORITY should find that the Work is not substantially complete, AUTHORITY will promptly notify CONTRACTOR in writing, listing observed deficiencies.

C. The CONTRACTOR shall remedy deficiencies and send a second written notice of Substantial Completion.

D. When the AUTHORITY finds the Work is substantially complete, it will have fourteen (14) days to issue a certificate of Substantial Completion with an attached punch list of deficiencies, all in accordance with the provisions of the General Conditions.

E. The CONTRACTOR shall be responsible for scheduling the activities required for Substantial Completion to enable completion within the Contract Time.

1.05 FINAL COMPLETION

A. In accordance with Section 00 70 00 – General Conditions, Article 13.13 Final Completion, when the CONTRACTOR considers that it has completed all the deficiencies listed on the Substantial Completion punch list, and that the Work is otherwise complete, it shall submit written certification that:
1. Contract Documents have been reviewed.
2. Work has been completed in accordance with Contract Documents, and deficiencies listed with certificate of Substantial Completion have been corrected.
3. Work is complete and ready for final inspection.

B. Upon the receipt of the preceding written notice, the AUTHORITY will conduct a Final Completion inspection. If the AUTHORITY should then find the Work to be incomplete, it will promptly notify the CONTRACTOR in writing with a list of observed deficiencies.

C. The CONTRACTOR shall remedy deficiencies and transmit to the AUTHORITY a second certification of Final Completion.

D. When the AUTHORITY determines the Work is complete, all in accordance with the General Conditions article, "Final Completion and Application for Payment", the CONTRACTOR may make application for Final Payment.

1.06 REINSPECTION FEES

A. In accordance with Section 00 70 00 – General Conditions, Articles 13.10 Substantial Completion and 13.12 Final Inspection, the CONTRACTOR shall pay for all costs incurred by the AUTHORITY for re-inspection.

B. The AUTHORITY may deduct the re-inspection costs from the application for final payment.

1.07 FINAL ACCEPTANCE

A. Following the issuance of Final Completion, and subject to the completion of requirements specified in Section 00 70 00 – General Conditions, Articles 13.14 Final Payment and 13.15 Final Acceptance, the AUTHORITY will review the project files for completeness. The AUTHORITY may require the CONTRACTOR to submit or re-submit any of the following documents, upon request:

1. Contractor's transmittal letter: O&M Manuals.
2. Contractor's transmittal letter: Warranty/Bonds.
3. Contractor's transmittal letter: Record Documents.
4. Spare parts, maintenance materials receipts.
5. Contractor's transmittal letter: Keys & keying schedule.
6. Contractor's certification of insurance.
7. EEO compliance certification (Federally funded projects only).
8. Submittals and miscellaneous registers.
9. Original final pay estimate.
10. Contractor's release.

11. AUTHORITY of Labor Notice of Completion (NOC).
12. Other documentation as required by the AUTHORITY.

B. Statement of Adjustment of Accounts – The AUTHORITY may require the CONTRACTOR to submit a final statement reflecting adjustments to the Contract Price showing:
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 Re-inspection Fees
9. Other adjustments to Contract Price.
10. Total Contract Price as adjusted.
11. Previous payments.
12. Sum remaining due.

C. AUTHORITY will issue a final Change Order reflecting all remaining adjustments to Contract Price not previously made by Change Orders.

D. See Section 01 29 73 - Schedule of Values for minimum value that shall be assigned for Final Acceptance.

E. The CONTRACTOR shall cooperate with the AUTHORITY and shall provide the requested documentation.

F. When the AUTHORITY determines its files are complete, it may make final payment and issue a letter of Final Acceptance.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 78 39

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 REQUIREMENTS

A. Section 00 70 00 - General Conditions: Record Documents.

B. Section 01 11 13 – Summary of Work.

C. Section 01 29 76 – Application for Payment.

D. Section 01 33 23 – Shop Drawings, Product Data, and Samples.

E. Section 01 77 00 – Contract Closeout Procedures.

F. Individual Specifications Sections: Manufacturer's certificates and certificates of inspection.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. In addition to requirements in General Conditions, maintain at the site for the AUTHORITY one accurate and up to date 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. Survey and field records
   7. Field test records
   8. Inspection certificates
   9. Manufacturer's certificates

B. Prior to Substantial Completion, provide original or legible copies of each item maintained by CONTRACTOR in other Sections, as listed by spec section in Paragraph 1.02.B, C, and D above.

C. Delegate responsibility for management of maintenance of Record Documents to one person on CONTRACTOR's staff as approved in advance by Project Manager.

D. Promptly following award of Contract, secure from AUTHORITY, at no cost to the CONTRACTOR, one 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, enable inspection of Record Documents by the AUTHORITY for review as to completeness.

L. AUTHORITY 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 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 a RFI's, 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 depths of elements of foundation in relation to finish first floor datum. Accurate to the nearest inch.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Accurate to the nearest inch.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
4. Field changes of dimension and detail.
5. Changes made by modifications.
6. Details not on original Contract Drawings.
7. References to related Shop Drawings and modifications.
8. Clearly label all changes and show dimensions to establish size and location. All identifications shall be sufficiently descriptive to relate reliably to Specifications.

F. 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 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.

C. Final Record Documents shall include both hard copies and digitally scanned copies in *.PDF format (high quality grayscale scans, minimum 200 pixels/inch). Scans shall include front and back of drawings/documents where information occurs on both sides.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section covers the Work necessary for the demolition of the fuel pipeline, appurtenances and associated items as indicated on the Drawings. Also included are requirements for draining existing tanks, blinding piping connections, and abandoning portions of existing fuel systems in place.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 01 73 00 – Execution Requirements.

C. Section 01 74 00 – Cleaning and Waste Management.

1.03 REFERENCE STANDARDS

A. The most current editions of the following references, by their citation, are considered to be a part of these project Specifications as if they were included in full:
   1. Occupational Safety and Health Administration (OSHA): 29 CFR 1910.
   2. Alaska Department of Environmental Conservation (ADEC): 18 ACC 75.

1.04 GENERAL REQUIREMENTS

A. The AUTHORITY shall have First Right of Refusal for all materials resulting from the demolition work. All materials that the AUTHORITY does not exercise the First Right of Refusal for shall become the property of the CONTRACTOR.

B. Usable demolition materials accepted by the AUTHORITY shall be separated by type of material and neatly stockpiled in areas specified by the AUTHORITY.

C. No on-site disposal is known to be available. CONTRACTOR shall be responsible for making arrangements for disposal of all demolition materials.

D. Unusable demolition materials shall be removed from the limits of the project site and disposed of at the community landfill or backhauled out of the community to an appropriate disposal site, in accordance with Section 01 74 00 – Cleaning and Waste Management.

E. Rubbish and debris shall be removed from property daily, unless otherwise directed, so as to not allow accumulation on the site. Materials that cannot be removed daily shall be stored in areas specified by the AUTHORITY.

1.05 SUBMITTALS

A. Demolition and removal work shall be included in the submitted Construction Progress Schedule.

B. Demolition Procedures: The procedures proposed for the accomplishment of demolition and removal work shall be submitted for approval. The procedures shall provide for safe conduct of the Work, careful removal and disposition of materials specified to be reused, protection of property which is to remain undisturbed, coordination with other work in progress, and timely reconnection of systems required to stay in service. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

1.06 PROTECTION

A. Before beginning any demolition or removal work, the CONTRACTOR shall survey the existing facilities and examine the Drawings and Specifications to determine the extent of the Work. The CONTRACTOR shall take all necessary precautions to ensure against damage to existing facilities to remain in place, to be reused, or to remain the property of the AUTHORITY, and any damage to such Work shall be repaired or replaced as approved by the AUTHORITY at no additional cost to the AUTHORITY. The CONTRACTOR shall coordinate the Work of this section with all other Work.

B. Environmental Protection: All Work and CONTRACTOR operations shall comply with the requirements of the Environmental Protection Agency and Alaska Department of Environmental Conservation, and Title 18 of the Alaska Administrative Code (AAC) including but not limited to 18 ACC 60, 18 ACC 62, 18 ACC 75, 18 ACC 80 and 18 ACC 95.

C. Discharges of fuel oil into the environment during the demolition or constructions operations shall be promptly reported to the AUTHORITY, Project Engineer, and the Alaska Department of Environmental Conservation (as required by law). The CONTRACTOR will be responsible for all cleanup costs resulting from his actions.

1.07 BURNING

A. The use of burning at the project site for the disposal of refuse and debris will not be permitted. For disposal of refuse at the local landfill, contact the landfill owner. The CONTRACTOR shall pay all disposal costs.

1.08 COORDINATION

A. CONTRACTOR shall schedule and coordinate demolition/removal activities, and all other construction/renovation activities on the project site, such that a complete and operable fuel storage and distribution system is maintained at all times.

1.09 SAFETY

A. Demolition and removal procedures must comply with all State and Federal Occupational Safety And Health Administrations (OSHA) safety requirements, be performed in a safe manner, and be in accordance with Title 29 Code of Federal Regulations (CFR) Part 1910 – Occupational Safety And Health Standards.

B. All personnel employed for demolition and removal shall be adequately trained and thoroughly familiar with the safety precautions for controlling the hazards associated with this Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 FUEL PIPING DEMOLITION AND TANK DECOMMISSION

A. Drain and purge existing fuel piping as indicated, completely remove all fuel. Where specified, cold cut piping at low points, remove any remaining liquid, cut into appropriate lengths, air dry, and dispose of piping at the local community land fill or backhaul out of the community.

B. Isolate existing tanks, double filter fuel, and transfer all usable fuel into the new bulk fuel storage tanks provided by this project. Completely remove and dispose of all remaining liquid from each tank, blind flange fill/issue pipe connection and all other openings except for tank vent, and abandon tanks in place. Assume the average of one (1) 55-gallon drum of unusable fuel will need to be removed from each tank and disposed of by the CONTRACTOR.

END OF SECTION

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DIVISIONS 03 – 04

(NOT USED)

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural steel framing members and support members.

B. Plates and fabricated connections.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 50 00 – Metal Fabrications.

C. Section 09 97 13.23 – Exterior Steel Coatings.

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.

B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

E. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

G. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

H. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric).

I. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.

J. ASTM A563M - Standard Specification for Carbon and Alloy Steel Nuts [Metric].

K. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

L. ASTM A992/A992M - Standard Specification for Structural Steel Shapes.

M. ASTM F436 - Standard Specification for Hardened Steel Washers.

N. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

O. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society.

P. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Shop Drawings:
1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
2. Connections.
3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

D. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.

E. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

F. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."

B. Fabricator: Company specializing in performing the work of this section with minimum 10 years of experience.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles and Channels: ASTM A36/A36M.

B. Steel Shapes: ASTM A992/A992M.

C. Steel Plate: ASTM A572/A572M, Grade 50 (345) high-strength.

D. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.

E. Pipe: ASTM A53/A53M, Grade B, Finish black.

F. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 or A325M, Type 1, medium carbon, galvanized, with matching compatible ASTM A563 or A563M nuts and ASTM F436 washers.

G. Unheaded Anchor Rods: ASTM F1554, Grade 36, plain, with matching ASTM A563 or A563M nuts and ASTM F436 Type 1 washers.

H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

I. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

J. Touch-Up Primer for Galvanized Surfaces: Fabricator’s standard, complying with VOC limitations of authorities have jurisdiction.

2.02 FABRICATION

A. Shop fabricate to greatest extent possible.

B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

C. Fabricate connections for bolt, nut, and washer connectors.

2.03 FINISH

A. Shop prime structural steel members not noted to be galvanized. Do not prime surfaces that will be field welded.

B. Galvanize structural steel members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating where noted on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".

B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Field weld components indicated on shop drawings.

D. Do not field cut or alter structural members without approval of Architect / Engineer.

E. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00.

B. Welded Connections: Visually inspect all field-welded connections.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items including miscellaneous metal fabrications not part of the structural building framing system.

B. Shop fabricated steel stairs, guardrails, handrails, and grating.

C. Miscellaneous metal fabrications and fasteners.

D. Hot dipped galvanized metal fabrication such as containment dike access stairs, guardrails, handrails, platform supports, tank access ladders, platforms and guardrails.

E. Other hot dipped galvanized metal fabrications where specified or indicated.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 12 00 – Structural Steel Framing.

C. Section 31 62 16 – Driven Steel Piles.

1.03 REFERENCE STANDARDS

A. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

G. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric).

H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society.

J. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society.

K. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc.

L. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings.

M. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings.

N. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Fabricator must be a firm experienced in producing metal fabrications similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Welding: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   2. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Wide Flange Shapes: ASTM A992.

B. Miscellaneous Steel Sections and Plate: ASTM A36/A36M.

C. Steel Tubing: ASTM A500, Grade B cold-formed structural tubing.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black and hot-dip galvanized finish, as indicated.

E. Bolts, Nuts, and Washers: ASTM A325 (ASTM A325M), Type 1, galvanized to ASTM A153/A153M where connecting galvanized components.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. Touch-Up of Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

I. GS Metals Corp. Product Grip Strut Safety Grating with fasteners and saddle clips by manufacturer: Galvanized finish.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by continuous welds.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Stairs and Landings: Steel members, connections, and fasteners as detailed in Drawings; hot-dipped galvanized finish.

B. Guardrails and Handrails: Fabricate guardrails and handrails of pipe of dimensions indicated. All transitions shall be made using smooth radius fittings. Handrails shall be fabricated continuous, without interruptions, and shall return to terminate at endposts or walls.

C. Grip Strut Grating Panels: Manufactured die stamped type, serrations facing upward, galvanized steel:
1. Profile 11-3/4" x 2", 5 diamond pattern.
2. Thickness: 14 gauge.
3. Stair Treads: Provide manufacturer's standard end plate connection.
4. Attachments: Provide manufacturer's standard saddle clips and fasteners.

2.04 FINISHES - STEEL

A. All metal fabrications not part of the main platform, dike walls and containment structural steel shall be hot dipped galvanized as noted on the Drawings.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements where noted on the drawings.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Perform field welding in accordance with AWS D1.1/D1.1M.

D. Grip Strut Grating Attachment: Anchor by bolting through saddle clips.
   1. Bolt Size: 5/16" carriage bolts and nuts with diamond connection clip.
   2. Quantity: Minimum 2 clips at each end support location.

E. Obtain approval from Architect / Engineer prior to site cutting or making adjustments not scheduled.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

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SECTION 06 05 00

FASTENERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Timber connection fasteners.

B. Tie down fasteners.

C. Miscellaneous fasteners for connections.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 50 00 – Metal Fabrications.

C. Section 06 10 00 – Rough Carpentry.

1.03 QUALITY ASSURANCE

A. All materials furnished under this section shall meet or exceed the referenced standards.

1.04 SUBMITTALS

A. Submit material list of connectors and required fastening and coatings referenced to each location utilized.

PART 2 PRODUCTS

2.01 FASTENERS

A. Coatings: Bolts, lags, screws and other fasteners for use in treated wood shall be hot dipped galvanized in accordance with ASTM A123.
   1. Z-Max or hot dipped galvanized connectors: Provide hot dipped galvanized fasteners.

B. Wood Screws: ANSI/ASME Standard B18.6.1. Fyb in accordance with NDS Table I1 for diameter of fastener utilized. Provide ceramic coated self drilling wood screws for pressure treated lumber.

C. Lag Screws: ANSI/ASME Standard B18.2.1., Fyb = 45,000 psi.

D. Bolts: ASTM A325, hot dip galvanized.

2.02 SOIL ANCHORS

A. Provide Duckbill Model No. 88 or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Wood Screws:
   1. Install wood screws using manufacturer's recommended bits and proper equipment.
   2. Do not over rotate screw fasteners. Replace screw fasteners with broken heads or over-rotated installation to ensure full load capability is maintained.
      a. Pre-drilling of screw fasteners may be required in dense or frozen wood. Pre-drill lead holes to a diameter equal to approximately 70 percent of the wood screw root diameter.
      b. Use of soap or lubricant on the fastener is permitted.
      c. Do not drive screw fasteners with a hammer.

B. Lag Bolts: Provide as indicated on the Drawings.
   1. Verify member alignment prior to lag bolt installation.
   2. Install lag bolts in pre-drilled lead holes as follows:
      a. The lead hole for the shank shall have the same diameter as the shank, and the same depth as the length of the unthreaded shank.
      b. The lead hole for the threaded portion of the lag bolts shall have a diameter equal to 60% to 70% of the shank diameter and a length equal to the length of the threaded portion of the lag screw.
   3. Use of soap or approve lubricant is permitted.
   4. Tighten lag bolt using a wrench. Driving by hammer is not permitted.
   5. Provide 2-inch minimum diameter washers at lag bolt heads in direct contact with wood members.

C. Bolts: Provide as indicated on the Drawings.
   1. Verify member alignment prior to bolt installation.
   2. Drill holes a minimum of 1/32 inch to a maximum of 1/16 inch larger than the diameter of the specified bolt.
   3. Install bolt in pre-drilled hole. Bolts shall not be forcibly driven.
   4. Provide standard washer with a 2-inch minimum diameter at bolt and nut locations in direct contact with wood members.
   5. Tighten bolts snug tight. Do not over tighten washers recessed into wood members.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preservative treated wood materials.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 01 60 00 – Material and Equipment.

C. Section 01 74 00 – Cleaning and Waste Management.

D. Section 06 05 00 – Fasteners and Supports.

1.03 REFERENCE STANDARDS

A. AWPA U1 – Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.

B. PS 20 – American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

C. WWPA G-5 – Western Lumber Grading Rules; Western Wood Products Association; 2011.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Hem Fir, unless otherwise indicated.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark, unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.02 EXPOSED TIMBERS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (20 percent maximum).

C. Surfacing: S4S.

D. Species: Hem Fir.

E. Grade: No. 2 or better.

2.03 ACCESSORIES

A. Fasteners and Anchors: Refer to Section 06 05 00 – Fasteners and Supports.

2.04 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 – Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
   1. Manufacturers:
      a. Arch Wood Protection, Inc.: www.wolmanizedwood.com.
      b. Chemical Specialties, Inc.: www.treatedwood.com.

c. Osmose, Inc.: www.osmose.com.

d. Substitutions: See Section 01 60 00 – Material and Equipment.

2. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative to 0.4 lb/cu ft retention.

a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION – GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 INSTALLATION

A. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install members full length without splices, unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

3.04 BLOCKING AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support specialty items.

3.05 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

3.07 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 74 00 – Cleaning and Waste Management.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

END OF SECTION

SECTION 07 92 00

JOINT SEALANT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnishing and installing all sealant where indicated on the Drawing.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 01 45 00 – Quality Control.

C. Section 05 50 00 – Metal Fabrications.

D. Section 09 97 13.23 – Exterior Steel Coatings.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00.
   1. Product Literature for each material used.
   2. Manufacturer's surface preparation and installation instructions.

1.04 QUALITY ASSURANCE

A. Installers: Use only skilled workmen specially trained in the techniques of sealing and familiar with the published recommendations of the manufacturers of the sealants being used.

B. Verify that sealants are compatible with the substrates and accessory materials provided under other Sections. Notify Engineer of evidence of incompatibility.

1.05 ENVIRONMENTAL CONDITIONS

A. Install and protect sealants under conditions recommended by the manufacturer and as follows:
   1. Do not apply sealant when ambient temperatures are below 40 degrees F, or expected to fall below 40 degrees F before sealant cure is complete.
   2. Do not apply sealant to substrates or accessories that are moist.

PART 2 PRODUCTS

2.01 MATERIALS

A. Polyurethane-based sealant, Sika Sikaflex 1A, or equal, meeting Fed. Spec. TT-S-00230C, Type II, Class A.

2.02 ACCESSORY MATERIALS

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the AUTHORITY in writing of conditions detrimental to the proper and timely completion of the Work.

B. Verify joint dimensions and conditions are acceptable to receive the work of this Section.

C. Beginning of installation means acceptance.

3.02 PREPARATION

A. Clean and prepare joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.

B. Apply masking tightly around joints to protect adjacent surfaces from excess sealant.

C. Prime as required by manufacturer for proper bond to substrate materials.

D. Prepare joint to achieve proper sealant width/depth ratios as indicated. Install backer rod where required to achieve correct joint profile.

3.03 INSTALLATION

A. Install sealant in strict accordance with manufacturer's instructions.

B. Sealant beads shall have a section as detailed in the Drawings.

C. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.

D. Tool joints concave, unless indicated otherwise. Finish free of air pockets, foreign embedded matter, ridges and sags.

E. Coat finished and cured sealant joints with coating system specified for tanks, see Section 09 97 13.23 – Exterior Steel Coatings.

3.04 CLEANUP

A. Clean adjacent surfaces free of excess sealant as the work progresses. Use cleaning agents recommended by the sealant manufacturer.

B. Upon completion, remove and dispose of masking.

END OF SECTION

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DIVISION 08

(NOT USED)

SECTION 09 97 13.23

EXTERIOR STEEL COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section includes surface preparation and external coating requirements for new fuel storage tanks to be completed in the Shop after fabrication and before shipping, or to be completed in the field after shop fabrication and field erection.

B. This section also covers:
1. Coating of metal fabrications associated with tank exterior, and where indicated.
2. Coating floors and interior/exterior of the dike walls on the field erected steel containment system. This includes light and electrical service poles, associated fabrication, supports for grated walkways, piping, conduits, welded connections to hot dip galvanized stairs/platforms, and associated welded fabrications. Galvanized pipe/conduit clamps and similar items do not need to be coated.
3. Exterior perimeter of the steel containment system including the structural framing below dike floor approximately 4 foot back from the perimeter of the exterior dike wall.
4. Coating pipe, valves and fittings inside the field erected steel containment system, and 5 foot beyond the exterior dike wall.
5. Shop fabricated dispenser enclosure, pump enclosures, marine header bollard cage, and piping 1.5 foot (minimum) beyond exterior of enclosures.
6. Priming the remaining of the containment system structural framing below the dike floor, including the bottom of floor plate and other exposed steel surfaces. Foundation piles do not need to be primed provided the shop coating applied to the steel piles is masked off when applying primer.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 12 00 – Structural Steel Framing.

C. Section 05 50 00 – Metal Fabrications.

D. Section 07 92 00 – Joint Sealant.

E. Section 33 56 13.13 – Vertical Storage Tanks.

F. Section 33 56 13.23 – Horizontal Storage Tanks.

1.03 REFERENCES

A. Steel Structures Painting Council (SSPC) Specifications:

SSPC-PA 1	Shop, Field, and Maintenance Painting
SSPC-SP 1	Solvent Cleaning
SSPC-SP 3	Power Tool Cleaning
SSPC-SP 6	Commercial Blast Cleaning
SSPC-SP 7	Brush-off Blast Cleaning
SSPC-SP 10	Near White Blast Cleaning

B. SPCC Paint Application Specification No. 2 – Measurement of Dry Paint Thickness with Magnetic Gauges.

C. National Association of Corrosion Engineers (NACE) Standards: Recommended Practice 0188-99, "Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates".

1.04 SUBMITTALS

A. CONTRACTOR shall submit for approval the following items one (1) month prior to the start of coatings application:
   1. The proposed coating system. If different manufacturers are proposed within each coating system, provide certification from manufacturers for capability.
   2. The proposed applicator, his qualifications, and experience.
   3. Provide manufacturer's data, instructions, and Safety Data Sheets (SDS) for all coatings.
   4. Inspection and application procedures.
   5. NACE Inspector qualifications and certifications.
   6. Ambient temperature, humidity, recoat window, and other application parameters relevant for proposed coating system.

B. The CONTRACTOR shall submit the following items weekly during coating application:
   1. Temperature, humidity and dew point readings during coating applications.
   2. Magnetic dry film thickness readings for each coating applied.

1.05 GENERAL REQUIREMENTS

A. Coating: Coating applicator shall be a factory authorized coating company with at least five (5) years continuous experience in applying industrial coatings to tanks and utility piping. The coating applicator's main business line must be surface preparation and application of industrial coatings.

B. CONTRACTOR shall provide and maintain an effective quality control plan necessary to assure conformance to applicable Specifications and plans with respect to materials, workmanship, finish, and functional performance. Inspection shall include an independent National Association of Corrosion Engineers (NACE) Certified Coating Inspector for all work associated with surface preparation and coating application. NACE Certified Inspector is not required for shop fabricated and coated tanks, enclosures, and other shop fabricated items provided the fabrication shop has a dedicated Quality Control Inspector whose sole responsibility is Quality Control. Submit fabrication shop's Quality Control Inspector's qualifications for approval.

C. Coatings shall be resistant to unleaded gasoline and diesel.

D. Top coat shall be compatible with an above grade exposure to direct continuous sunlight, and be UV resistant.

E. Unless specified herein, the coating manufacturer's printed recommendations and instructions for shelf life, storing, surface preparation, mixing, thinning, handling, applying, curing, ambient conditions during application and curing, and for all other procedures relative to coating shall be strictly observed.

F. It is the applicator's responsibility to perform work to the requirements of this Specification, and to conduct inspections and tests necessary to ensure compliance.

1.06 COATING SYSTEMS

A. Coating systems shall be as specified in the Table below, unless otherwise indicated in the Contract Documents.

COATING SCHEDULE
(All mil requirements are dry film)

ITEM	EXTERIOR ABOVE GRADE	
Tanks, ladders, hand rails, appurtenances, steel dikes, misc. metals, shop fabrications, etc.	1 coat Inorganic Zinc based Primer 1 coat Epoxy Intermediate Coat 1 coat Urethane Top Coat	(3-4 mils DFT) (4-6 mils DFT) (2-3 mils DFT)
Surfaces inside dike subject to immersion, except shop coated tanks.	1 coat Inorganic Zinc base Primer 1 coat Epoxy Intermediate Coat 1 coat Light Gray Epoxy Int. Coat	(3-4 mils DFT) (4-6 mils DFT) (4-6 mils DFT)
Structural framing below dike floor.	1 coat Inorganic Zinc based Primer - or – 2 coats Red Oxide Primer	(3-4 mils DFT) (4-5 mils DFT)

PART 2 PRODUCTS

2.01 PRIMER

A. Provide a two component, chemically cured, reinforced inorganic zinc primer. Provide Devoe Catha-Coat 302H or approved equal. Apply coating 3-4 mils DFT. Coating shall be equal to or provide better performance characteristics than the following.

Specification	Test Method	Minimum Value
Solids by Volume	ASTM D2697-7 day	78%
Volatile Organic Content	EPA 24	3.6 lbs/gal
Cure Time (3 mils DFT)	ASTM D1640	Recoat 4.5hr @ 40°F Dry 13 hr @ 40°F

2.02 INTERMEDIATE COAT

A. Provide a two component, chemically cured, multi-purpose epoxy coating. Coating to be suitable for corrosive environments. Provide Devoe Bar-Rust 236 or approved equal. Apply coating 4-6 mils DFT. Coating shall be equal to or provide better performance characteristics than the following.

Specification	Test Method	Minimum Value
Solids by Volume	ASTM D2697-7 day	80%
Volatile Organic Content	EPA 24	1.41 lbs/gal
Cure Time (6 mils DFT)	ASTM D1640	Recoat 9 hr @ 40°F Dry 17 hr @ 40°F

2.03 URETHANE TOP COAT

A. Provide a two component, chemically cured, aliphatic acrylic urethane coating. Tank top coating color to be white. Provide Devoe Devthane 389 or approved equal. Apply coating 2-3 mils DFT. Coating shall be equal to or provide better performance characteristics than the following:

Specification	Test Method	Minimum Value
Solids by Volume	ASTM D2697-7 day	56%
Volatile Organic Content	EPA 24	3.23 lbs/gal
Cure Time (2 mils DFT)	ASTM D1640	Recoat 10 hr @ 40°F Dry 32 hr @ 40°F

2.04 IMMERSION SERVICE

A. The coating system for surfaces inside of containment dike subject to standing water shall be rated for full immersion service and consist of the following system:
   1. One coat Inorganic Zinc based Primer (3-4 mils DFT) as specified above.
   2. One coat Epoxy Intermediate coat (4-6 mils DFT) as specified above.
   3. A second Epoxy Intermediate coat (4-6 mils DFT), color to be light gray (Devoe Color #DC2531 I.M. Gray). The color coat may be ready-mixed from the manufacturer of the above specified coating, or it may be a custom mixed color using Devoe Bar-Rust 235 Tint Base or approved equal.

B. Coat 100% of the surfaces on shop fabricated and coated items (i.e. tanks) with the specified zinc/epoxy/urethane coating system.

C. Neatly break the zinc/epoxy/urethane coating system and transition to the above immersion rated system at the top inside corner of the dike wall, except the top of intermediate dike may be coated with the immersion rated system.

2.05 PRIMER, BELOW DIKE FLOOR

A. Primer for the structural framing below the dike floor may be as specified for other surfaces, or may be universal red oxide shop primer, Devoe Devguard 4160 or approved equal. Apply two (2) coats, 2-2.5 mils DFT each.

2.06 CLEANSING ADDITIVES

A. Use the following additives for power washing surfaces in preparation for coating application:
   1. Cleaner: Devoe Devprep 88 Heavy Duty Cleaner.
   2. Chlor-Rid International Hold-Blast Surface Passivator to prevent flash rust.

2.07 STORAGE AND DELIVERY

A. Protect raw coating components from freezing.

B. Deliver in manufacturer's unopened containers with all labels intact.

C. Manufacturer shall provide a MSDS and product data sheet for each material to be used.

D. Each container shall be labeled with the following information: Manufacturer's name, type of paint, catalog or stock number, production number, color description and color number.

2.08 PIPE LABELING

A. Label all above-grade piping to identifying contents and flow direction. Stencil contents and flow direction every 50 feet minimum, 100 feet maximum, at all branches, entrances to tank farm, buildings, structures, and at major valves. Lettering height shall be 0.75 times the outside diameter of the pipe. Labeling shall consist of permanent reflective painted lettering which contrasts with pipe color. Labeling shall be compatible with pipe coating system.

2.09 TANK LABELING

A. Signage and placards for all tanks shall be permanently painted with stencils or shop fabricated vinyl letters on a non-reflective white vinyl adhesive background.

B. On all tanks included in the project scope, provide signage indicating product stored and shell capacity, NFPA 704 placarding, and additional signage required by the International Fire Code. For horizontal tanks, provide signage on each head wall. For vertical tanks, provide signage above fill/issue nozzle.

1. Labeling shall be a minimum 2” lettering with 3/8” stroke on horizontal tanks and 3” lettering with 1/2” stroke on vertical tanks.
    a. Lettering shall be black for the following:
        1) Product Stored
        2) Tank Capacity
        3) Tank Number (example; “KLTD-201”)
    b. Lettering shall be red for the following:
        1) Gasoline, “Danger – Flammable – No Smoking”.
        2) Diesel, “Danger – Combustible – No Smoking”.
2. Placarding to conform to the NFPA 704 requirements for color and size for 100 foot visibility. Diesel is 2-2-0. Gasoline 2-3-0.

2.10 TOUCH-UP COATING

A. Provide four (4) one-gallon top coat kits, and four (4) one-gallon tinted epoxy intermediate coat kits for future coating maintenance by the Council.

PART 3 EXECUTION

3.01 GENERAL

A. Out-dated or coatings exceeding the “pot life” of coatings as specified by the coating manufacturer shall not be used.

3.02 SAFETY

A. It is the responsibility of the CONTRACTOR and any subcontractors to perform all Work in a safe manner. Also, it is the responsibility of the CONTRACTOR to assure that all applicable health and safety standards and all local, state, and federal safety regulations are met. The omission in this Specification of any applicable safety regulation does not relieve the CONTRACTOR of responsibility to comply.

B. The CONTRACTOR shall keep on hand at the worksite copies of all local, state, and federal safety regulations governing the work procedures and copies of the Safety Data Sheets (SDS) for all chemicals at the work site. The CONTRACTOR shall brief all workers at the job site of the location of the regulations and SDS.

C. Provide safe access to the work areas. The work area shall be kept free of debris.

D. Any ignition source, such as internal combustion engines, welding operations, smoking areas, shall be kept at a safe distance from surfaces during coating application and curing.

E. Blast nozzles shall be equipped with a “deadman” type shut-off device. Blasting hoses, spray equipment, air movers, and other type equipment shall be grounded.

F. Inspect protective clothing and personal protective equipment before use to ensure they are in proper, functioning condition.

G. It is the CONTRACTOR’s responsibility to dispose of all materials, both hazardous and non-hazardous. All unused mixed materials shall be disposed of immediately. All cans containing coating materials or thinners, or that were used for mixing materials, and all rags or other items contaminated with coating materials or thinners shall be disposed of according to applicable safety and waste disposal regulations.

H. Any proposed deviations from this Specification must be brought to the attention of the Engineer prior to implementation of change.

3.03 PRE-JOB CONFERENCE

A. A meeting shall be held, prior to any work being performed, to review this Specification. The Engineer, CONTRACTOR, inspector, and manufacturer's representative are required to attend.

B. Any proposed deviations from this Specification must be brought to the attention of the Engineer at or before the pre-job conference.

3.04 INSPECTION

A. Inspection shall be performed by a National Association of Corrosion Engineers Certified Coating Inspector who may perform additional tests deemed necessary to ensure compliance with this Specification.

B. After surface preparation work, inspect surfaces to receive coatings and repair all defects prior to applying coatings.

C. Before blasting and applying any coating, the coatings applicator and the coatings inspector shall agree on mutually acceptable “hold points”. The CONTRACTOR shall not continue work past each hold point until the Inspector has approved the previous work.

D. Use type 1 pull off magnetic dry film thickness gauges.

E. Compressed air for blasting and coating shall be free of oil and water. Conduct blotter tests at a minimum of every 12 hours of operation.

F. If any non-coatable defects are discovered in welds, after abrasive blasting, delay their repair until after application of the first coat of coating material, at no additional cost to the AUTHORITY.

G. After the second coat has cured completely, perform a holiday inspection using a low-voltage DC holiday detector over 100% of the coated area. Use a suitable surfactant in accordance with manufacturer's instructions. Mark all holidays during the inspection with a chloride-free marker. Holiday inspection does not apply to structural framing below the dike floor.

H. The responsibility of the inspector is to approve or disapprove Work according to these Specifications. The inspector does not have authority to direct work.

3.05 MIXING AND THINNING

A. Mixing of products shall be done mechanically with volumes of five gallons or more. Smaller volumes may be mixed manually.

B. All coatings shall be thoroughly mixed to reach a smooth, uniform consistency with no ribbons. Care must be taken to avoid excessive mixing. Any coating, which exhibits foaming or frothing shall be deemed unusable and must be discarded.

C. Only open or mix coatings that can be used that workday should be prepared. Opened coatings, mixed or not, will not be allowed to be stored overnight.

D. Because of possible low ambient temperatures, continuous agitation of the coatings may be required during application. Longer induction times may also be required. Consult the product data sheets or the manufacturer's representative.

E. Use thinners as specified on the manufacturer's data sheet. No substitution of thinners is allowed.

3.06 SURFACE PREPARATION

A. Abrasive blast clean external surfaces as follows:

SSPC-SP-10 Near White Blast

Provide a 1-1/2 to 2-1/2 mil sharp angular surface profile. Remove all abrasive residues either by blowdown or vacuum surfaces.

For structural framing below dike floor, use sweep blasting, power tool cleaning, commercial blast cleaning, and solvent cleaning as appropriate for the conditions encountered. Power wash shop primed surfaces as appropriate.

B. Weld spatter shall be scraped or ground before blasting.

C. All steel shall be free from surface contaminants. Spot samples will be made before blasting and coating. Surface contaminants include rust, oil, grease, salts, mill scale, water, dirt, abrasive residue, and dust.

D. Prepared steel must receive primer within four (4) hours.

E. All sharp edges shall be removed by grinding or sanding. Weld seams shall be rounded by power tool grinding.

3.07 APPLICATION

A. Apply appropriate coatings to all tanks, structures and related items as indicated. Coating shall be applied according to manufacturer's recommendations in a safe, professional manner.

B. Use contrasting colors for each coat for verification of complete coverage.

C. Weld seams, corners, crevices, bolts, exposed threads, and any other surface, which cannot effectively be coated by air or airless spray must be brushed striped.

D. Ambient air conditions must be carefully monitored. No coating application may begin unless the surface temperature is at least 5 degrees F above the dew point. Any environmental controls, such as tenting and heaters shall be incidental to the work.

E. Surfaces to be coated must be free of any moisture, including ice and frost.

F. Where joint sealant has been indicated, perform surface preparation and primer application before applying sealant. After sealant has cured, apply intermediate and top coats.

G. When beginning each section of work, the applicator will allow the inspector to take a wet film thickness measurement. The inspector will determine if the application rate and techniques are sufficient to provide an adequate coverage at the desired dry film thickness. CONTRACTOR to provide wet film thickness gauges. The AUTHORITY and/or Engineer shall have the option to verify the applicators rate of application with a wet film thickness measurement. CONTRACTOR to provide wet film thickness gauge.

H. The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish.

I. Measure the DFT after each coat and the total DFT for the entire coating system according to SSPC PA-2.
   1. Areas found to have insufficient DFT shall receive application of additional coating in accordance to these Specifications.
   2. Areas of excessive DFT shall be reported to the Engineer. The Engineer shall then determine if the thickness is acceptable or if corrective action is warranted. Only the Engineer has authority to direct corrective action, if any.
   3. The CONTRACTOR shall bear the burden of any additional costs required to repair any coating defects.

J. Standpipes, manways and covers, nozzles, and flanges on tanks shall be painted. Caution and masking shall be used to prevent coating of male and female pipe threads and flange faces that must be assembled after coating application. Mask data plates, level gauge glass and similar items; do not paint these surfaces.

K. Repair any holidays or defects by grinding down to bare metal, feathering, and roughening the surrounding coating. Apply touchup coatings as detailed in Part 3.08 REPAIR OF DAMAGED COATINGS. Allow coating to cure. Measure the DFT and correct as necessary.

3.08 REPAIR OF DAMAGED COATINGS

A. Visually inspect surfaces for any damage to coatings. Perform a wet sponge low-voltage electrical holiday inspection test over the entire surface receiving coatings. Holiday inspection does not apply to structural framing below the dike floor.

B. Areas that fail the holiday test should be cleaned, roughed by power tool, or other approved means.

C. Apply coatings as specified for the surface, to specified DFT for each coat, to complete the repair.

D. The primer coating should be applied to the holiday with a minimum 6-inch radial overlap to the existing coating.

E. After the coating has cured and before reaching the recoat window, based on climatic conditions and manufacturer’s product literature, apply intermediate coat and top coat as specified 6-inches and 12-inches beyond the repair area respectively.

END OF SECTION

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SECTION 10 44 16.13

PORTABLE FIRE EXTINGUISHERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers at bulk tank farm inside each containment cell.

B. Fire extinguishers at other locations indicated.

1.02 REFERENCES

A. UL “A” Building Materials Directory.

B. NFPA No. 10 Fire Extinguishers, Portable.

C. NFPA No. 30 Flammable and Combustible Liquid Code.

PART 2 PRODUCTS

2.01 EXTINGUISHERS

A. Manufacturer: Larsen’s Manufacturing Co., 7421 Commerce Lane, N.E., Minneapolis, MN 55432, (612) 571-1181, or approved equal.

B. Extinguisher shall have a minimum rating of 3-A, 40-B:C and a 20 lb capacity. Fire rating in accordance with NFPA No. 10 and No. 30.

1. Gasoline Fires: Class III Hazard; BC.
2. Fuel Oil Fires: Class II Hazard; BC.
3. Wood, Paper and All Above: Class I, II, or III; ABC.

C. Extinguisher Brackets: Larsen’s Manufacturing Co., bottom support, quick release strap-buckle type.

PART 3 EXECUTION

3.01 INSTALLATION

A. Mount top of extinguishers 3 to 4 feet above ground, pavement, or floor.

B. Fasten extinguisher brackets securely to structure. Provide additional brackets, uni-strut, fasteners, and components as required. All miscellaneous hardware shall be hot dip galvanized.

END OF SECTION

DIVISIONS 11 – 25

(NOT USED)

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. General Requirements specifically applicable to Division 26, in addition to Division 01 provisions.

B. The electrical system equipment and installation shall comply with all provisions and requirements of this Specification, as well as any and all applicable national, state and local codes and standards.

1.02 WORK SEQUENCE

A. Construct Work in sequence under provisions of Division 01.

1.03 COORDINATION

A. Coordinate the Work specified in this Division under provisions of Division 01.

B. Prepare drawings showing proposed rearrangement of Work to meet job conditions, including changes to Work specified under other Sections. Obtain permission of Engineer prior to proceeding.

1.04 REFERENCES

A. ANSI/NFPA 70 – National Electrical Code, latest adopted edition including all state and local amendments.

B. NECA – Standard of Installation.

C. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. Electrical Reference Symbols: The Electrical "Legend" on drawings is standardized version for this project. All symbols shown may not be used on drawings. Use legend as reference for symbols used on plans.

E. Electrical Drawings: Drawings are diagrammatic; complimentary to the Mechanical drawings; not intended to show all features of work. Install material not dimensioned on drawings in a manner to provide a symmetrical appearance.

Do not scale drawings for exact equipment locations. Field verification of dimensions, locations and elevations is required.

1.05 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 70.

B. Conform to the latest adopted edition of the International Building Code and the International Fire Code including all state and local amendments thereto.

C. Obtain electrical permits, plan review, and inspections from authority having jurisdiction.

1.06 SUBMITTALS

A. Submit inspection and permit certificates under provisions of Division 01.

B. Include certificate of final inspection and acceptance from authority having jurisdiction.

C. Submittal review is for general design and arrangement only and does not relieve the CONTRACTOR from any requirements of Contract Documents. Submittal not checked for quantity, dimension, fit or proper operation. Where deviations of substitute product or system performance have not been specifically noted in the submittal by the CONTRACTOR, provisions of a complete and satisfactory working installation is the sole responsibility of the CONTRACTOR.

D. In addition to requirements referenced in Division 01, the following is required for work provided under this division of the Specification:
   1. Provide material and equipment submittals containing complete listings of material and equipment shown on Electrical Drawings and specified herein, bound in hard cover, loose-leaf binders separate from work furnished under other divisions. Index and clearly identify all material and equipment by item, name or designation used on drawings and in specifications.
   2. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring diagrams and controls; component parts; finishes; dimensions; and required clearances.
   3. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
   4. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.

5. Coordinate submittals with requirements of Work and of Contract Documents.
6. Sign or initial each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify Engineer in writing at time of submittal, of any deviations from requirements of Contract Documents.
7. Do not fabricate products or begin work which requires submittals until return of submittal with Engineer acceptance.
8. Equipment scheduled by manufacturer's name and catalog designations, manufacturer's published data and/or specification for that item, in effect on bid date, are considered part of this Specification. Approval of other manufacturer's item proposed is contingent upon compliance therewith.
9. Submittals for Division 26 shall be complete and submitted at one time. Unless given prior approval, partial submittals will be returned unreviewed.

1.07 SUBSTITUTIONS

A. In accordance with the General Conditions and the General Requirements, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment.

1.08 PROJECT RECORD DRAWINGS

A. Maintain project record drawings in accordance with Division 01.

B. In addition to the other requirements, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all electrical work which will become permanently concealed. Show routing of work in permanently concealed blind spaces within the building. Show complete routing and sizing of any significant revisions to the systems shown.

C. Record drawing field mark-ups shall be maintained on-site and shall be available for examination by AUTHORITY's Representative at all times.

1.09 OPERATION AND MAINTENANCE MANUALS

A. Provide operation and maintenance manuals for training of AUTHORITY's Representative in operation and maintenance of systems and related equipment. In addition to requirements referenced in Division 01, the following paragraphs apply to work provided under Divisions 26 and 33 of these Specifications.

B. Manuals shall be hard cover, loose-leaf binders with pages reinforced to prevent pullout and shall be separate from work furnished under other Divisions. Prepare a separate chapter for instruction of each class of equipment or system. Index and clearly identify each chapter and provide a table of contents.

C. Unless otherwise noted in Division 01, provide one (1) copy of all material for approval. After approval, provide five (5) corrected approved copies.

D. The following is the suggested outline for operation and maintenance manuals and is presented to indicate the extent of items required in manuals:

1. List chapters of information comprising the text. The following is a typical Table of Contents:
    a. Distribution Equipment.
    b. Level Alarm Panels.
    c. Other chapters as necessary.
2. Provide the following items in sequence for each chapter shown in Table of Contents:
    a. Describe the procedures necessary for personnel to operate the system including start-up, operation, emergency operation and shutdown.
        1) Give complete instructions for energizing equipment and making initial settings and adjustments whenever applicable.
        2) Give step-by-step instructions for shutdown procedure if a particular sequence is required.
        3) Include test results of all tests required by this and other sections of the Specifications.
    b. Maintenance Instructions:
        1) Provide instructions and a schedule of preventive maintenance, in tabular form, for all routine cleaning and inspection with recommended lubricants if required for the following:
            a) Fuel System Control Panel.
        2) Provide instructions for minor repair or adjustments required for preventive maintenance routines, limited to repairs and adjustments which may be performed without special tools or test equipment and which requires no special training or skills.
        3) Provide manufacturers' descriptive literature including approved shop drawings covering devices used in system, together with illustrations, exploded views, etc. Also include special devices provided by the CONTRACTOR.
        4) Provide any information of a maintenance nature covering warranty items, etc., which have not been discussed elsewhere.

5) Include list of all equipment furnished for project, where purchased, technical representative if applicable and a local parts source with a tabulation of descriptive data of all electrical-electronic spare parts and all mechanical spare parts proposed for each type of equipment or system. Properly identify each part by part number and manufacturer.

1.10 DEMONSTRATION OF ELECTRICAL SYSTEMS

A. During substantial completion inspection:
   1. Conduct operating test for approval under provisions of Division 01.
   2. Demonstrate installation to operate satisfactorily in accordance with requirements of Contract Documents.
   3. Should any portion of installation fail to meet requirements of Contract Documents, repair or replace items failing to meet requirements until items can be demonstrated to comply.
   4. Have instruments available for measuring voltage and current values, and for demonstration of continuity, grounds, or open circuit conditions.
   5. Provide personnel to assist in taking measurements and making tests.

1.11 WARRANTY

A. In addition to the requirements of Division 1, warrant all materials, installation and workmanship for one (1) year from date specified in Division 01.

B. Copies of manufacturer product warranties for all equipment shall be included in the operation and installation manuals.

1.12 INSTRUCTION OF OPERATING PERSONNEL

A. In accordance with the requirements of Division 01 and this section, provide services of qualified representative of supplier of each item or system listed below to instruct designated personnel of AUTHORITY in operation and maintenance of item or system.

B. Make instruction when system is complete, of number of hours indicated, and performed at time mutually agreeable.

System or Equipment	Hours of Instruction Per Village
Level Alarm Panels	2

C. Certify that an Anchorage or Fairbanks based authorized service organization regularly carries complete stock of repair parts for listed equipment or systems, that organization is available and will furnish service within 48 hours after request. Include name, address and telephone number of service organization.

D. Have approved operation and maintenance manuals and parts lists for all equipment on hand at time of instruction.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. All Materials and Equipment shall be new and shall be listed by Underwriter's Laboratories or equivalent third party listing agency for the use intended.

B. Materials and Equipment shall be acceptable to the authority having jurisdiction as suitable for the use intended when installed per listing and labeling instructions.

C. No materials or equipment containing asbestos in any form shall be used. Where materials or equipment provided by this contract are found to contain asbestos, such items shall be removed and replaced with non-asbestos containing materials and equipment at no cost to the AUTHORITY.

D. In describing the various items of equipment, in general, each item will be described singularly, even though there may be numerous similar items.

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Install Work using procedures defined in NECA Standard of Installation and/or the manufacturer's installation instructions.

3.02 TESTS

A. Notify AUTHORITY's Representative at least 72 hours prior to conducting any tests.

B. Perform additional tests required under other sections of these Specifications.

C. Perform all tests in the presence of the AUTHORITY's authorized representative.

D. The CONTRACTOR shall provide written notification to the AUTHORITY's authorized representative thirty (30) days in advance for rough-in and substantial completion inspections.

END OF SECTION

SECTION 26 05 03

EQUIPMENT WIRING CONNECTIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Electrical connections to equipment specified under other Sections or furnished by AUTHORITY.

1.02 RELATED WORK

A. Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables.

B. Section 26 05 33 – Raceway and Boxes.

C. Section 28 34 00 – Level Alarm Panel.

1.03 REFERENCES

A. FS W-C-596 – Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. National Electrical Manufacturers Association:
   1. NEMA WD 1 – General Purpose Wiring Devices.
   2. NEMA WD 5 – Specific-Purpose Wiring Devices.

1.04 SUBMITTALS

A. Division 01 – Submittal Procedures.

B. Product Data: Submit wiring device manufacturer’s catalog information showing dimensions, configurations, and construction.

C. Manufacturer’s installation instructions.

1.05 COORDINATION

A. Division 01 – General Requirements: Coordination and project conditions.

B. Obtain and review shop drawings, product data, manufacturer’s wiring diagrams, and manufacturer’s instructions for equipment furnished under other sections.

C. Determine connection locations and requirements.

D. Sequence rough-in of electrical connections to coordinate with installation of equipment.

E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 - PRODUCTS

2.01 CORDS AND CAPS

A. Straight-blade Attachment Plug: NEMA WD 1.

B. Locking-blade Attachment Plug: NEMA WD 5.

C. Attachment Plug Configuration: Match receptacle configuration at outlet provided for equipment.

D. Cord Construction: Oil-resistant thermoset insulated Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for extra hard usage in damp locations.

E. Cord Size: Suitable for connected load of equipment and rating of branch circuit overcurrent protection.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 PREPARATION

A. Review equipment submittals prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

3.03 EXISTING WORK

A. Remove exposed abandoned equipment wiring connections.

B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.

C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

3.04 INSTALLATION

A. Make conduit connections to equipment using flexible conduit. Use Liquidtight flexible conduit in damp or wet locations.

B. Install pre-finished cord set where connection with attachment plug is indicated or specified by the equipment manufacturer's installation instructions, or use attachment plug with suitable strain-relief clamps.

C. Make wiring connections in control panel or in wiring compartment of pre-wired equipment in accordance with manufacturer's instructions. Provide interconnecting wiring where required.

D. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches and connect with conduit and wiring as indicated in the equipment manufacturer's installation instructions.

3.05 ADJUSTING

A. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION

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SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building wire.

B. Cable.

C. Wiring connections and terminations.

1.02 RELATED SECTION

A. Section 26 05 53 – Identification for Electrical Systems.

1.03 REFERENCES

A. Federal Specification FS-A-A59544 – Cable and Wire, Electrical (Power, Fixed Installation).

B. Federal Specification FS-J-C-30B – Cable Assembly, Power, Electrical.

C. NEMA WC 5 – Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

D. NETA ATS – Acceptance testing specifications for Electrical Power Distribution and Systems.

E. NFPA 72 – National Electrical Code.

F. NFPA 262 – Standard Method of test for flame travel and smoke of wires and cables for use in air-handling spaces.

G. UL 62 – Flexible Cords and Cables.

H. UL 83 – Thermoplastic Insulated Wire and Cable.

I. UL 1479 – Standard for Fire Tests of Through Wall Penetration Fire Stops.

J. UL 1581 – Reference Standard for Electrical Wires, Cables and Flexible Cords.

1.04 QUALITY ASSURANCE

A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5m) when tested in accordance with NFPA 262.

PART 2 - PRODUCTS

2.01 BUILDING WIRE

A. Thermoplastic-insulated Building Wire: NEMA WC 5.

B. Feeders and Branch Circuits Larger Than 6 AWG: Copper stranded conductor, 600 volt insulation, XHHW-2 as indicated.

C. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, XHHW-2. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid conductor.

D. Branch Circuit Wire Color Code:
   1. Color code wires by line or phase as follows:
      a. Black, red and white for 120/240V systems.
   2. For conductors 8 AWG and smaller, insulation shall be colored. For conductors 6 AWG and larger, identify with colored phase tape at all terminals, splices, and boxes.
   3. When two or more neutrals are installed in one conduit, identify each with the proper circuit number in accordance with Section 26 05 53.
   4. Grounding conductors 8 AWG and smaller shall have green colored insulation. For 6 AWG and larger, use green tape at both ends and at all other visible points in between, including pull and junction boxes.

E. Control Circuits: See section 28 34 00.

2.02 REMOTE CONTROL AND SIGNAL CABLE

A. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600 volt insulation, rated 90º C, individual conductors twisted together, shielded, and covered with an overall PVC jacket; UL listed.

B. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90º C, individual conductors twisted together, shielded or unshielded (as required), and covered with a PVC jacket; UL listed.

2.03 WIRING CONNECTIONS AND TERMINATIONS

A. For conductors 8 AWG and smaller:
   1. Dry interior areas: Spring wire connectors, pre-insulated "twist-on" rated 105 degrees C per UL 468C. Where stranded conductors are terminated on screw type terminals, install crimp insulated fork or ring terminals. Thomas & Betts Sta-Kon or equal.
   2. Motor connections: Spring wire connectors, pre-insulated "twist-on" rated 105 degrees C per UL 468C. Provide a minimum of 8 wraps of Scotch 33+ electrical tape around conductors and connector to eliminate connector back off.
   3. Wet or exterior: Spring wire connectors, pre-insulated "twist-on", resin filled rated for direct burial per UL 486D.

B. For conductors 6 AWG and larger:
   1. Bus lugs and bolted connections: 600 V, 90 degrees C, two hole long barrel irreversible compression copper tin plated. Thomas & Betts or approved equal.
   2. Motor connection: 600 V, 90 degrees C, copper tin plated compression motor pigtail connector, quick connect/disconnect, slip on insulator. Thomas & Betts or approved equal.
   3. Two way connector for splices or taps: 600 V, 90 degrees C, compression long barrel, copper tin plated. Thomas & Betts or approved equal. Insulate with Scotch 23 rubber insulating base covering and Scotch 33+ outer wrap.

PART 3 - EXECUTION

3.01 GENERAL WIRING METHODS

A. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 18 AWG for control wiring.

B. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet.

C. Splice only in junction or outlet boxes.

D. Neatly train and lace wiring inside boxes, equipment, and panelboards.

E. Make Conductor lengths for parallel circuits equal.

F. Do not share neutral conductors. Provide a dedicated neutral conductor for each branch circuit that requires a neutral.

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Verify that raceway is complete and properly supported prior to pulling conductors. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

C. Do not install XHHW-2 conductors when ambient temperatures are below –5 degrees C.

D. Conductors shall be carefully inspected for insulation defects and protected from damage as they are installed in the raceway. Where the insulation is defective or damaged, the cable section shall be repaired or replaced at the discretion of the AUTHORITY and at no additional cost to the AUTHORITY.

E. Place an equal number of conductors for each phase of a circuit in same raceway or cable.

F. Route conductors from each system in independent raceway system and not intermix in the same raceway, enclosure, junction box, wireway, or gutter as another system unless otherwise shown on the plans.

G. No more than three current carrying conductors shall be installed in any homerun unless otherwise indicated on the Drawings.

H. Completely and thoroughly swab raceway system before installing conductors.

3.03 CABLE INSTALLATION

A. Provide protection for exposed cables where subject to damage.

B. Support cables above accessible ceilings; do not rest on ceiling tiles. Use spring metal clips or cable ties to support cables from structure. Do not support cables from ceiling suspension system. Include bridle rings or drive rings.

C. Use suitable cable fittings and connectors.

D. Trench and backfill for direct buried cables per 26 05 33 – Raceway and Boxes. Install warning tape along entire length of direct burial cables.

3.04 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Thoroughly clean wires before installing lugs and connectors.

C. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

D. Terminate spare conductors with twist on connectors or heat shrink insulation to proper voltage rating.

E. Control systems wiring in conjunction with mechanical or miscellaneous equipment, including level alarm control panels, fuel monitoring equipment, etc., to be identified in accordance with wiring diagrams furnished with equipment.

F. Code sound and signal systems wiring and any special equipment in accordance with manufacturer's diagrams or recommendations.

G. Do not exceed manufacturer's recommended pull tensions.

3.05 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Division 01.

B. Inspect wire and cable for physical damage and proper connection.

C. Torque conductor connections and terminations to manufacturer's recommended values.

D. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

3.06 WIRE AND CABLE INSTALLATION SCHEDULE

A. All Locations: Building wire and/or remote control and signal cable in raceways.

END OF SECTION

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SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Power System Grounding.

B. Communication System Grounding.

C. Electronic Safety and Security System Grounding.

D. Electrical Equipment and Raceway Grounding and Bonding.

1.02 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements, Section 26 05 00 – Common Work Results for Electrical, Division 28 and Division 33.

B. Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables.

1.03 REFERENCE STANDARDS

A. ANSI/NEMA GR-1, Ground Rod Electrodes and Ground Rod Electrode Couplings.

B. ANSI/NFPA 70 – National Electrical Code.

C. ASTM B 3 – Standard Specification for Soft or Annealed Copper Wire.

D. AWS A5.8/A5.8M – Specification for Filler Metals for Brazing and Braze Welding.

E. IEEE Std 81 – Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

F. IEEE Std 142 – Recommended Practice for Grounding of Industrial and Commercial Power System.

G. UL 467 – Standard for Grounding and Bonding Equipment.

1.04 SYSTEM DESCRIPTION

A. Provide a complete grounding system for services and equipment as required by State and Local Codes, NEC, applicable portions of other NFPA codes, and as indicated herein.

1.05 SUBMITTALS

A. Product Data: Submit product data for all components provided, showing material type and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

B. Shop Drawings: Submit shop drawings indicating layout of ground ring, system grounding electrode connections (ground rods, etc.), routing of grounding electrode conductor, and size/type of bonding conductors and termination locations of all major bonding connections (piping, steel, fuel tanks, etc.).

1.06 CLOSEOUT SUBMITTALS

A. Project Record Drawings
   1. Accurately indicate actual locations of main grounding bus, all grounding rods, concrete encased electrodes, etc.
   2. Show the actual installed layout of ground ring, routing of grounding electrode conductor, and size/type of bonding conductors and termination locations of all major bonding connections (piping, steel, fuel tanks, etc.).

B. Test Reports
   1. Each test report shall include:
      a. Date of test, soil moisture content, and soil temperature.
      b. Test operator.
      c. Instrument or other test equipment used.
      d. Electrode designation or location matching that shown on shop drawings.
      e. Ground impedance in ohms.
      f. Assumptions made - if required.

1.07 COORDINATIONS

A. Division 01 – General Requirements: Requirements for Coordination of work with other disciplines and other activities in the work area.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Solid Ground Rods: ANSI/NEMA GR-1, copper-encased steel, ¾ inch diameter, minimum length 10 feet. Ground rods shall be clean and smooth.

B. Bonding Conductors: Solid bare copper wire for sizes No. 8 AWG and smaller diameter. Stranded bare copper wire for sizes No. 6 AWG and larger diameter. Conductors may be insulated conductors; if used, provide green insulation.

C. Grounding Conductors: Copper conductor bare or green insulated.

D. Mechanical Grounding and Bonding Connectors: Non-reversible crimp type lugs only. Use factory made compression lug for all terminations.

E. Exothermic Grounding and Bonding Connectors: AWS A5.8/A5.8M Exothermic welded type. Welding procedure shall include the proper mold and powder charge and shall conform to the manufacturer's recommendations.

F. In external locations, clamping shall be used only where a disconnect type of connection is required. Connection device may utilize threaded fasteners. Device shall be constructed such that positive contact pressure shall be maintained at all times. Machine bolts with tooth-type lock washers shall be used.

G. Ground Ring: Stranded bare copper, size as shown on the Drawings. Ground ring shall be continuous around the building, as shown on the Drawings. All splices in the ground ring and all connections to the ground ring shall be exothermically welded.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide a separate, insulated equipment-grounding conductor in all feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Multiple conductors on single lug not permitted. Each grounding conductor shall terminate on its own terminal lug.

B. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter and back flow preventers.

C. Supplementary Grounding Electrode: Use driven ground rod in main service equipment area.

D. Provide grounding and bonding at Utility Company's metering equipment.

E. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing and fuel systems.

F. Grounding conductors for branch circuits shall be sized in accordance with NEC, except minimum size grounding conductor shall be No. 12 AWG.

G. Grounding conductor is in addition to neutral conductor and in no case shall neutral conductor serve as grounding means.

H. Ground rods shall be installed so that the top of the rod is not less than 12 inches below finished grade. Conceal after inspection.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Continuity Test: Continuity test shall be performed on all power receptacles to ensure that the ground terminals are properly grounded to the facility ground system.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDED

A. Conduit supports.

B. Formed steel channel.

C. Spring steel clips.

D. Sleeves.

E. Mechanical sleeve seals.

F. Equipment bases and supports.

G. Antenna Masts

1.02 RELATED WORK

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 – General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

1.03 REFERENCES

A. 2009 International Building Code (IBC), Chapter 16 – Structural Design.

1.04 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.01 CONDUIT SUPPORTS

A. Manufacturers:
   1. Allied Tube & Conduit Corp.

2. Minerallac Fastening Systems.
3. O-Z Gedney Co.
4. Substitutions: Per Division 01.

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps – general purpose: One-hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F (85 degrees C). Self locking.

G. Timer sleepers: All weather wood 4”x4” or 6”x6” timbers with galvanized lag bolts.

2.02 FORMED STEEL CHANNEL

A. Manufacturers:
1. B-Line Systems.
2. Allied Tube & Conduit Corp.
3. Unistrut Corp.
4. Substitutions: Per Division 01.

B. Product Description: Galvanized 12 gage (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Division 01: Verification of existing conditions before starting Work.

B. Verify openings are ready to receive sleeves.

C. Verify openings are ready to receive firestopping.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.

B. Remove incompatible materials affecting bond.

C. Install damming materials to arrest liquid material leakage.

D. Obtain permission from Engineer or AUTHORITY before using powder-actuated anchors.

E. Obtain permission from Engineer or AUTHORITY before drilling or cutting structural members.

3.03 INSTALLATION – GENERAL

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts, beam clamps, or spring steel clips. Conduit support plates shall not be used to support conduits entering junction or outlet boxes.

B. Use toggle bolts or hollow wall fasteners in hollow masonry partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

C. Do not support raceways, low voltage pathways, cables, telecommunication pathways or boxes from ceiling suspension wires or suspended ceiling systems. Provide support from building structure independently to allow ceiling removal and replacement without removal of electrical system. If dedicated support wires are used, wires and wire clips must be painted or color-coded.

D. Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling suspension system.

E. Do not penetrate by drilling or screwing into metal roof decking. All penetrations into metal roof decking must be approved by the Engineer or AUTHORITY in writing.

F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. Securely fasten fixtures and equipment to building structure in accordance with manufacturer's recommendations and to provide necessary earthquake anchorage.

I. Provide wall attached fixtures and equipment weighing less than 50 pounds with backing plates of at least 1/8" x 10" sheet steel or 2" x 10" fire retardant treated wood securely built into the structural walls. Submit attachment details of heavier equipment for approval.

J. Earthquake Anchorages:
   1. Equipment weighing more than 50 pounds shall be adequately anchored to the building structure to resist lateral earthquake forces.
   2. Total lateral (earthquake) forces shall be 1.5 times the equipment weight acting laterally in any direction through the equipment center of gravity. Provide adequate backing at structural attachment points to accept the forces involved.

K. Replace or repair any fireproofing damaged by the installation of supporting equipment or devices.

L. Power-driven fasteners are prohibited for tension load applications (such as supporting luminaries or conduit racks from ceiling above). Use drilled-in expansion anchors, or drilled and screw-in anchors such as Kwik-Con II or Tapcon.

3.04 FIELD QUALITY CONTROL

A. Division 01: Field inspecting, testing, adjusting, and balancing.

3.05 PROTECTION OF FINISHED WORK

A. Division 01: Requirements for protecting finished Work.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 26 05 33

RACEWAY AND BOXES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Metal conduit.

B. Flexible metal conduit.

C. Liquidtight metal conduit.

D. Electrical metallic tubing.

E. Fittings and conduit bodies.

F. Pull and junction boxes.

1.02 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions,

B. Division 01 – General Requirements.

C. Section 26 05 00 – Common Work Results for Electrical.

D. Section 26 05 19 – Low Voltage Electrical Power Conductors and Cables.

E. Section 26 05 29 – Hangers and Supports for Electrical Systems.

F. Section 26 05 53 – Identification for Electrical Systems.

G. Section 26 27 16 – Cabinets and Enclosures.

H. Section 26 27 26 – Wiring Devices.

1.03 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.

B. American Society for Testing and Materials (ASTM):
   1. ASTM A 123 – Specification for Zinc Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strip.

C. National Electrical Manufacturers Association (NEMA):
   1. NEMA FB 1 – Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
   2. NEMA OS 1 – Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
   3. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

D. International Building Code (IBC):
   1. IBC chapters 16 and 17 seismic requirements.

1.04 RACEWAY AND BOX INSTALLATION SCHEDULE

A. Raceway Minimum Size: All branch circuit conduits are sized on the drawings for copper conductors with 600-Volt type XHHW insulation, unless otherwise noted. Size all raceways not shown on the drawings to not exceed the percentage fill specified in the NEC Table 1, Chapter 9 using the conduit dimensions of the NEC Table 4, Chapter 9 and conductor properties of the NEC Table 5, Chapter 9. Where specific cable is not listed, use cable diameter provided by the manufacturer.
   1. Below Grade: Provide 1 inch minimum, unless otherwise noted.
   2. Above Grade or Slab on Grade: Provide 1/2 inch minimum, unless otherwise noted. Raceway may be reduced to 1/2 inch for final connection of raceway up to 6 feet for connection to fixture or device where maximum conduit entry size is 1/2 inch.

B. Box Minimum Size: Provide all boxes sized and configured per NEC Article 370 and as specified in this section.

C. Underground more than 5 feet from foundation wall:
   1. Raceway: Provide rigid steel conduit or intermediate metal conduit.
      a. Provide detectable warning tape over all underground raceways per Section 26 05 53 – Identification for Electrical Systems.
      b. Provide 3-inch minimum spacing between raceways.
      c. Provide 3/4 inch minus material 6 inches above and below conduit. Backfill remaining trench free of debris or rocks greater than 1 inch in diameter.
   2. Boxes and Enclosures: Provide concrete type 1A handhole.

D. Under or in concrete slab, or underground within 5 feet of foundation wall:
   1. Raceway: Provide rigid steel conduit or intermediate metal conduit. All conduit in contact with concrete or block shall be rigid steel conduit half lapped wrapped with pipe wrap or be plastic-coated conduit. Provide transition to rigid steel conduit 12 inches prior to exit penetration through foundations, concrete walls, or block walls. Provide transition to rigid steel conduit elbow and riser for penetration through slab. Arrange raceway so the curved portion of bend is not visible above finished slab.
   2. Boxes and Enclosures: Provide concrete tight cast and sheet metal steel metal boxes.

E. Outdoor Above Grade Locations:
   1. Raceway: Provide rigid steel conduit or intermediate metal conduit.
   2. Boxes and Enclosures: Provide weatherproof malleable iron for branch circuit junction and outlet boxes. Provide explosionproof boxes in hazardous areas. Provide weatherproof NEMA 3R or 4X metal enclosures with gaskets for control panels as called for on the Plans.
   3. Fittings: Provide galvanized malleable iron with gaskets. Provide Myers threaded hubs for all conduit entries into top and side of sheet metal enclosures.

F. Hazardous Locations (Classified Wiring):
   1. Raceway: Provide rigid steel conduit. Liquidtight flexible conduit may be used to allow for ground movement in Class 1, Div 2 areas. Provide explosionproof flexible conduit in Class 1, Division 1 areas.
   2. Boxes and Enclosures: Provide galvanized malleable iron rated Class 1 Division 1, NEMA FB1.

G. Equipment Connections: Provide short extensions (three feet maximum) of flexible metal conduit for connections to light fixtures, motors, transformers, vibrating equipment or equipment that requires removal for maintenance or replacement. Use Liquidtight flexible conduit and fittings for motors and equipment in damp or wet locations or subject to spilling of liquids as at pumps, kitchen equipment, in mechanical rooms, boiler rooms, pump rooms, etc.

H. Liquidtight flexible nonmetallic conduit and electrical nonmetallic tubing are <u>not</u> approved raceway systems for this project.

1.05 DESIGN REQUIREMENTS

A. Conduit Minimum Raceway Size: Conduit is sized on the drawings for copper conductors with 600-Volt type XHHW insulation, unless otherwise noted. Size all raceways not shown on the drawings to not exceed the percentage fill specified in the NEC Table 1, Chapter 9 using the conduit dimensions of the NEC Table 4,

Chapter 9 and conductor properties of the NEC Table 5, Chapter 9. Where specific cable is not listed, use cable diameter provided by the manufacturer.

B. Box Minimum Size: Provide all boxes sized and configured per NEC Article 370 and as specified in this section.

C. Seismic Support: Provide support in accordance with Section 26 05 29 – Hangers and Supports for Electrical Systems.

1.06 SUBMITTALS

A. Section 01 33 00 – Submittal Procedures and Section 26 05 00 – Common Work Results for Electrical.

B. Product Data: Submit data for products to be provided.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 - PRODUCTS

2.01 RIGID METAL CONDUIT (RMC)

A. Rigid Steel Conduit: ANSI C80.1, UL 6.

B. Rigid Aluminum Conduit: ANSI C80.5.

C. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; Galvanized malleable iron with threaded hubs for all conduit entries. Provide threaded connections and couplings only. Set Screw and running thread fittings are not permitted. Provide copper free aluminum fittings and conduit bodies with Aluminum Conduit.

D. Provide insulated throat bushings at all conduit terminations.

2.02 INTERMEDIATE METAL CONDUIT (IMC)

A. Product Description: ANSI C80.6, UL 1242; Galvanized Steel Conduit.

B. Fittings and Conduit Bodies: NEMA FB 1, UL 514B; use fittings and conduit bodies specified above for rigid steel conduit.

2.03 FLEXIBLE METAL CONDUIT (FMC)

A. Product Description: UL 1, FS WW-C-566; galvanized or zinc-coated flexible steel, full-wall thickness. Reduced-wall flexible metal conduit is not acceptable.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel or malleable iron with insulated throat bushings. Die cast zinc or threaded inside throat fittings are not acceptable.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Product Description: UL 360, flexible metal conduit with interlocked steel construction and PVC jacket. Provide AFC "liquid-tuff" UL hi-low temperature LMFC or approved equal where installed outdoors.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; liquid tight steel or malleable iron with insulated throat bushings. Die cast fittings are not acceptable.

2.05 OUTLET BOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, UL514A galvanized steel, with plaster ring where applicable.
   1. Minimum Size: 4 inches square or octagonal, 1-1/2 inches deep, unless otherwise noted.
   2. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required. Minimum Size: 4 inches square or octagonal, 2-1/8 inches deep.
   3. Cut-In Boxes: Minimum size 2" x 3" x 2-1/2" deep. Provide cut-in outlet boxes where required for installation in existing walls.

B. Cast Boxes: NEMA FB 1, Type FD, galvanized malleable iron. Furnish gasketed cover by box manufacturer. Furnish threaded hubs. "Bell" boxes are not acceptable.

C. Wall Plates: As specified in Section 26 27 26 – Wiring Devices.

2.06 PULL AND JUNCTION BOXES

A. Sheet Metal Pull and Junction Boxes: ANSI/NEMA OS 1, UL514A galvanized steel.
   1. Minimum Size: 4 inches square or octagonal, 1-1/2 inches deep, unless otherwise noted.

B. Sheet Metal Boxes Larger Than 12 Inches in Any Dimension: Hinged enclosure in accordance with Section 26 27 16 – Cabinets and Enclosures. Hoffman or approved equal.

C. Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250, Type 4X; flat-flanged, surface mounted junction box, UL listed as raintight:
   1. Material: Galvanized cast iron or copper-free cast aluminum.
   2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover and screws.

D. Cast Metal Boxes for Underground Installations: NEMA 250, Type 4; flat-flanged, flush-mounted junction box, UL listed as raintight:
   1. Material: Galvanized cast iron or copper-free cast aluminum.
   2. Cover: Furnish with outside flange, neoprene gasket, and recessed stainless steel cover and screws.

2.07 EXPANSION FITTINGS

A. Galvanized malleable iron, galvanized with grounding bond jumper.

2.08 RACEWAY SEALING FITTINGS

A. Galvanized malleable iron, galvanized filled with sealing compound.
   1. Class 1 Division 1 boundary lines and isolation of arcing devices use Class 1 Division 1 sealing compound.

2.09 BUSHINGS

A. Non-grounding: Threaded impact resistant plastic.

B. Grounding: Insulated galvanized malleable iron/steel with hardened screw bond to raceway and conductor lug.

2.10 LOCKNUTS

A. Threaded Electro Zinc Plated Steel designed to cut through protective coatings for ground continuity.

2.11 WIREWAY

A. Product Description: General purpose type wireway. Size per NEC minimum fill capacity required.

B. Knockouts: Field-installed, no factory knockouts acceptable.

C. Cover: Screw cover.

D. Fittings and Accessories: Include factory couplings, offsets, elbows, adapters and support straps required for a complete system. Provide internal ground bonding jumper bonded to each section.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Ground and bond raceway and boxes per NEC Article 250.

B. Provide seismic support and fasten raceway and box supports to structure and finishes in accordance with Section 26 05 29 – Hangers and Supports for Electrical Systems.

C. Identify raceway and boxes with origin and destination in accordance with Section 26 05 53 – Identification for Electrical Systems.

D. Unless otherwise noted, do not inter-mix conductors from separate panelboards or any other system in the same raceway system or junction boxes.

3.02 INSTALLATION – GENERAL RACEWAY

A. Install raceway for all systems, unless otherwise noted.

B. Install an equipment grounding conductor inside of all raceways containing line voltage conductors.

C. Provide raceways concealed in construction unless specifically noted otherwise, or where installed at surface cabinets, motor and equipment connections and in Mechanical and Electrical Equipment rooms. Do not route conduits on roofs, outside of exterior walls, or along the surface of interior finished walls unless specifically noted on the plans.

D. Raceway routing and boxes are shown in approximate locations unless dimensioned. Where raceway routing is not denoted, field-coordinate to provide complete wiring system.

E. Do not route raceways on floor. Arrange raceway and boxes to maintain a minimum of 6 feet 6 inches of headroom and present a neat appearance. Install raceways level and square to a tolerance of 1/8” per 10 feet. Route exposed raceways and raceways above accessible ceilings parallel and perpendicular to walls, ceiling, and adjacent piping.

F. Maintain minimum 6-inch clearance between raceway and mechanical and piping and ductwork. Maintain 12-inch clearance between raceway and heat sources such as flues, steam pipes, heating pipes, heating appliances, and other surfaces with temperatures exceeding 104 degrees F.

G. Do not install raceway imbedded in spray applied fire proofing. Seal raceway penetrations of fire-rated walls, ceilings, floors in accordance with the requirements of Section 26 05 00 – Common Work Results for Electrical.

H. Where raceway penetrates fire-rated walls and floors, provide mechanical fire-stop fittings with UL listed fire rating equal to wall or floor rating, seal opening around conduit with UL listed firestop sealant or intumescent firestop, preserving the fire time rating of the construction. Install in accordance with the manufacturer's installation instructions.

I. Raceways and boxes penetrating vapor barriers or penetrating areas from cold to warm shall be taped and sealed with a non-hardening duct sealing compound to prevent the accumulation of moisture, and shall include a vapor barrier on the outside.

J. Arrange raceway supports to prevent misalignment during wiring installation. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

K. Do not attach raceway to ceiling support wires or other piping systems and do not fasten raceway with wire or perforated pipe straps. Remove all wire used for temporary raceway support during construction, before conductors are pulled. Raceway shall be installed to permit ready removal of equipment, piping, ductwork, or ceiling tiles.

L. Group raceway in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps, as specified in Section 26 05 29 – Hangers and Supports for Electrical Systems. Provide space on each rack for 25 percent additional raceway.

M. Cut conduit square; de-burr cut ends. Bring conduit to the shoulder of fittings and couplings and fasten securely. Where locknuts are used, install with one inside box and one outside with dished part against box.

N. Use threaded raintight conduit hubs for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations. Sealing locknuts are not acceptable.

O. Install no more than the equivalent of three 90-degree bends between boxes.

P. Install conduit bodies to make sharp changes in direction, such as around beams. “Goosenecks” in conduits are not acceptable.

Q. Provide protective plastic bushings or insulated throat bushings at each raceway termination not installed to an enclosure. Bushings shall be threaded to the raceway end or connector.

R. Avoid moisture traps; install junction box with drain fitting at low points in raceway system.

S. Install fittings and flexible metal conduit to accommodate 3-axis movements where raceway crosses seismic joints.

T. Install fittings designed and listed to accommodate expansion and contraction where raceway crosses control and expansion joints.

U. Provide weatherhead on all raceway stub ups which are outdoors and do not terminate into equipment.

V. Use cable sealing fittings forming a watertight non-slip connection to pass cords and cables into conduit. Size cable sealing fitting for the conductor outside diameter. Use Appleton CG series or equal cable sealing fittings.

W. Use suitable caps to protect installed raceway against entrance of dirt and moisture.

X. Provide nylon “jet-line” or approved equal pull string in empty raceway, except sleeves and nipples.

Y. Paint all exposed conduit to match surface to which it is attached or crosses. Clean greasy or dirty conduit prior to painting in accordance with paint manufacturer’s instructions. Where raceway penetrates non-rated ceilings, floors or walls, provide patching, paint and trim to retain architectural aesthetics similar to surroundings.

Z. Coat non-ferrous conduit threads prior to joining with conductive metallic grease antioxidant.

3.03 INSTALLATION – GENERAL BOXES

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance. All electrical box locations shown on Drawings are approximate unless dimensioned.

B. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only. Where installation is inaccessible, install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaries. Coordinate locations and sizes of required access doors with building construction and other trades.

C. Coordinate layout and installation of boxes to provide adequate headroom and working clearance. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

D. Align wall-mounted outlet boxes for new receptacles with existing receptacles.

E. Use multiple-gang boxes where more than one device are mounted together; do not use sectional boxes.

F. Adjust box location up to 6 feet prior to rough-in to accommodate intended purpose.

G. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26 – Wiring Devices.

H. Locate and install boxes to maintain headroom and to present a neat appearance.

I. Provide knockout closures for unused openings.

J. Install boxes in walls without damaging wall insulation or reducing its effectiveness.

K. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. For outlet boxes in walls with combustible finished surfaces such as wood paneling or fabric wall coverings, position box to be flush with finished surface per NEC requirements.

L. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes. Accurately position bridges to allow for surface finish thickness.

M. Do not install flush mounted boxes back-to-back in walls; install with minimum 6 inches separation.

N. Install with minimum 24 inches separation in fire rated walls. Limit penetrations in fire rated walls to 16 square inches each and a maximum total combined penetration area of 100 square inches in any given 100 square feet of wall. Where

penetrations are in excess of these requirements provided UL listed fire stop wrap acceptable to Authority having Jurisdiction.

O. Do not fasten boxes to ceiling support wires or other piping systems.

P. Support boxes independently of conduit.

Q. Clean interior of boxes to remove dust, debris, and other material and clean exposed surfaces and restore finish.

R. Provide blank covers or plates for all boxes that do not contain devices.

END OF SECTION

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SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Nameplates and tape labels.

B. Wire and cable markers.

C. Wire markers.

D. Conduit markers.

E. Underground warning tape.

1.02 RELATED WORK

A. The Work under this Section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 19 – Low Voltage Electrical Power Conductors and Cables.

C. Section 26 05 33 – Raceway and Boxes.

D. Section 26 24 16 – Panelboards.

1.03 SUBMITTALS

A. Division 01 and Section 26 05 00 – Common Work Results for Electrical.

B. Product Data:
   1. Submit manufacturer's catalog literature for each product required.
   2. Submit electrical identification schedule including list of wording, symbols, letter size, color-coding, tag number, location, and function.

C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.

D. Prior to installation, submit power one-line diagram and panel map for review.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 - PRODUCTS

2.01 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved white letters on black background. Nameplate for service disconnect shall be engraved white letters on red background.

B. Letter Size:
   1. 1/4-inch high letters for identifying individual panel or equipment.
   2. 1/8-inch high letters for remaining lines with 1/8 inch spacing between lines.

C. Minimum nameplate size: 1/8 inch thick with a consistent length and height for each type of nameplate wherever installed on the project.

2.02 TAPE LABELS

A. Product Description: Adhesive tape labels, with 3/16 inch Bold Black letters on clear background made using Dymo RhinoPro 5000 label printer or approved equal.

B. Embossed adhesive tape will not be permitted for any application.

2.03 WIRE MARKERS

A. Power and Lighting Description: Cloth tape type wire markers for all neutrals and Phase conductors.

B. Low Voltage System Description: Self-adhesive machine printed label with unique wire number that is shown on shop drawing for system.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. Degrease and clean surfaces to receive nameplates and tape labels.

B. Install nameplates and tape labels parallel to equipment lines.

C. Underground Warning Tape Installation: Install underground warning tape along length of each underground conduit, raceway, or cable 6 to 8 inches below finished grade, directly above buried conduit, raceway, or cable.

3.02 NAMEPLATE INSTALLATION

A. Secure nameplates to equipment fronts using machine screws tapped and threaded into panelboard, or using rivets. Use silicon sealant or another suitable to secure nameplate to NEMA 4X enclosures. Machine screws to not protrude more than 1/16 inch on back side.

3.03 LABEL INSTALLATION

A. Spare Raceways: Provide raceway label on each individual raceway denoting the source and termination point at each end.

B. Low-Voltage System Device Labels: Provide label on each device, denoting device ID or address where applicable. Affix label to device faceplate for ceiling-mounted devices or wall-mounted devices above 8’-0” AFF. Affix label inside backbox for exterior devices.

3.04 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identification shall be as follows:
   1. Markers shall be located within one inch of each cable end, except at panelboards, where markers for branch circuit conductors shall be visible without removing panel deadfront.
   2. Each wire and cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations.
   3. Color code phases, neutral, and ground per NEC requirements and Section 26 05 19 – Low Voltage Electrical Power Conductors and Cables.
   4. Color-code all low-voltage system wires and cables in accordance with the individual sections in which they are specified.
   5. For power and lighting circuits, identify with branch circuit or feeder number.
   6. Control Circuits: Control wire number as indicated on schematic and shop drawings.

B. Provide pull string markers at each end of all pull strings. Marker shall identify the location of the opposite end of the pull string.

3.05 JUNCTION BOX IDENTIFICATION

A. Label each lighting and power junction box with the panelboard name and circuit number.

B. For junction boxes above ceilings, mark the box cover with the circuit or system designation using permanent black marker. For junction boxes in finished areas, mark the inside of the cover with the circuit or system designation using permanent black marker.

3.06 PANELBOARD IDENTIFICATION

A. Provide panelboard circuit directories in accordance with Section 26 24 16 – Panelboards.

3.07 LOW-VOLTAGE SYSTEM IDENTIFICATION

A. Install all labeling in accordance with the requirements of this section and of each section where the individual systems are specified.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Lighting and appliance branch circuit panelboards.

B. Load Centers.

1.02 RELATED REQUIREMENTS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 – General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 53 – Identification for Electrical Systems.

1.03 REFERENCES

A. NEMA AB 1 – Molded Case Circuit Breakers.

B. NEMA PB 1 – Panelboards.

C. NEMA PB 1.1 – Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

D. UL 50 – Enclosures for Electrical Equipment.

E. UL 67 – Panelboards.

F. UL 98 – Enclosed and Dead-front Switches.

G. UL 489 – Molded Case Circuit Breakers and Circuit Breaker Enclosures.

1.04 SUBMITTALS

A. Submit data under provisions of Division 01 and Section 26 05 00 – Common Work Results for Electrical.

B. Product Data: Submit product data for all components provided which fall under this Section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

C. Shop drawings: Submit shop drawings for each load center indicating features and device arrangement and size. Include outline and support point dimensions, voltage, main bus ampacity, and integrated short circuit ampere rating.

D. Submit final panel schedules in Microsoft Excel format with the O&M manuals.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site under provisions of Division 01.

B. Upon arrival at the site inspect equipment and report on any damage.

C. Handle carefully on site to avoid any damage to internal components, enclosures and finishes.

D. Store in a clean, dry environment. Maintain factory packaging and provide an additional heavy canvas or plastic cover to protect enclosures from dirt, water, construction debris and traffic.

1.06 OPERATION AND MAINTENANCE MATERIALS

A. Submit data under provisions of Division 01 and Section 26 05 00 – Common Work Results for Electrical.

B. Provide product data and shop drawing information including replacement parts list.

C. Provide installation, operation and maintenance information per manufacturer.

D. Project record data: Submit final record panel schedules as hardcopy and in Microsoft Excel format.

1.07 WARRANTY

A. Manufacturer shall warrant specified equipment to be free of defects for a period of one year from the date specified in Division 01.

1.08 SPARE PARTS

A. Keys: Furnish two (2) each to Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS – LOAD CENTERS

A. Square D.

B. Cutler Hammer.

C. General Electric.

D. Siemens.

E. Substitutions: Under provisions of Division 01.

2.02 MANUFACTURERS – LOAD CENTERS

A. Load Centers: Circuit breaker load center.

B. Enclosure: Enclosure shall be fabricated of cold rolled steel for NEMA 1 and galvannealed steel or equivalent rust-resistant steel for NEMA 3R.

C. Provide flush or surface box as indicated on the drawings, with door, with pull ring and latch on door. Finish in manufacturer's standard gray enamel.

D. Provide load centers with copper bus, ratings as shown on Drawings.

E. Provide copper ground bus in all load centers.

F. Integrated Short Circuit Rating: Provide load centers with short circuit ratings as shown on the plans. Minimum ratings shall be 10,000 amperes RMS symmetrical for 250 volt.

G. Molded Case Circuit Breakers: NEMA AB 1; Provide load centers with plug-on type thermal magnetic trip circuit breakers.
   1. Circuit breakers shall have an overcenter, trip free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication with common trip handle for all poles. Handles shall have ON, OFF, and "Tripped" positions.
   2. Circuit breakers shall be UL Listed in accordance with UL standard 489 with current ratings as noted on the plans.
   3. Provide circuit breakers UL listed as Type SWD for lighting circuits.
   4. Provide circuit breakers UL listed as type HACR for use with heating, air conditioning and refrigeration equipment.
   5. Provide UL Class A ground fault interrupter circuit breakers where scheduled on Drawings.

H. Do not use tandem circuit breakers.

2.03 LOAD CENTER IDENTIFICATION

A. For each new panelboard, provide typed schedule denoting each circuit load by the load type.

B. Provide panel schedule in O&M manual for every new panelboard and every existing panelboard where circuits are added or modified.

C. Where more than one nominal voltage system is present on the premises, the conductor color-coding legend shall be permanently posted at each branch circuit and distribution panelboard per NEC requirements.

D. All load centers shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

E. Provide electronic copies of all panel schedules in Microsoft Excel format, submitted with the O&M manuals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1.

B. Height: 6 feet, 6 inches to top of panelboard.

C. Provide filler plates for unused spaces in panelboards.

D. Panel Schedules: Revise schedules to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.

B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

END OF SECTION

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SECTION 26 27 16

CABINETS AND ENCLOSURES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Hinged cover enclosures.

1.02 RELATED REQUIREMENTS

A. The Work under this Section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 33 – Raceway and Boxes.

C. Section 26 05 53 – Identification for Electrical Systems.

D. Section 28 34 00 – Level Alarm Panel.

1.03 REFERENCES

A. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA ICS 1 – Industrial Control and Systems.

C. ANSI/NEMA ICS 4 – Terminal Blocks for Industrial Control Equipment and Systems.

D. ANSI/NEMA ICS 6 – Enclosures for Industrial Control Equipment and Systems.

E. NEMA Standard IC-1 Industrial Control, Underwriters Laboratories Standard UL 508, Industrial Control Equipment, and the National Electrical Code.

F. Panel shall be UL or ETL listed as an assembly and shall bear the UL or ETL label.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Shop Drawings for Equipment Panels: Include wiring schematic diagram, wiring diagram, outline drawing and construction diagram as described in ANSI/NEMA ICS 1.

PART 2 - PRODUCTS

2.01 HINGED COVER ENCLOSURES

A. Construction: NEMA 250; Type 4X type 316 stainless steel or as noted on Drawings.

B. Covers: Continuous hinge, held closed by hasp and staple for padlock.

C. Panel for Mounting Terminal Blocks or Electrical Components: 14 gauge steel, white enamel finish.

D. Panel Heater: UL listed, thermostatically controlled, fan-driven electric heater with anodized aluminum finish, 0° F – 100° F adjustable thermostat, and ball bearing fan. Size heater to maintain the manufacturer's minimum operating temperature of all electronic devices in the cabinet when the exterior temperature is -40° F. Hoffman #DAH series or approved equal.

E. Deep Hinged Window Kit: NEMA 4X, Type 316 stainless steel, extra-deep window kit with 0.25 inch thick, clear polycarbonate window, adequately sized to allow all face-mounted components to fit inside the window and be visible without opening the door. Hoffman #AWDH series or approved equal.

F. Handles: Black plastic handle to maintain type 4X rating. Provide non-locking handle(s) for window kit, Hoffman #CWHNL or equal. Provide padlock handle for panel swing door. Hoffman #CWHPTO or approved equal.

G. Mounting Brackets: Stainless steel mounting bracket kit, four brackets per kit. NEMA 4X. Hoffman #CMFKSS or approved equal.

H. Drip Shield: NEMA 4X, 14 gauge Type 316 stainless steel drip shield, sized to fit the control panel. Hoffman #ADKSS6 series or approved equal.

2.02 FABRICATION

A. Shop assemble enclosures and cabinets housing terminal blocks or electrical components in accordance with ANSI/NEMA ICS 6.

B. Provide conduit hubs on enclosures.

C. Provide protective pocket inside front cover with schematic diagram, connection diagram, and layout drawing of control wiring and components within enclosure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install cabinets and enclosures plumb; anchor securely to wall with structural supports at each corner, minimum.

B. Install trim plumb.

END OF SECTION

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SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Receptacles.

B. Device plates and box covers.

1.02 RELATED REQUIREMENTS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 – General Requirements and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 33 – Raceway and Boxes.

1.03 REFERENCE STANDARDS

A. FS W-C-596 – Federal Specification for Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. NEMA WD 1 – General Color Requirements for Wiring Devices.

C. ANSI/NEMA WD 6 – Wiring Devices – Dimensional Requirement.

D. UL 498 – Attachment Plugs and Receptacles.

E. UL 943 – Ground-Fault-Circuit-Interrupters.

1.04 SUBMITTALS

A. Product Data: Submit product data for all components provided that are specified in this Section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations and mounting heights of all wiring devices on the project record drawings.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – RECEPTACLES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Arrow Hart.

E. Bryant.

F. Substitutions: Under provisions of Division 01.

2.02 RECEPTACLES

A. Convenience and Straight-blade Receptacles: UL 498, NEMA WD 1 and Federal Specification FS W-C-596 industrial grade receptacle.

B. Convenience Receptacle Configuration: NEMA WD 1; Type 5-20R, white nylon face.

C. Specific-use Receptacle Configuration: NEMA WD 1 or WD 5; type as indicated on Drawings, black phenolic face.

D. GFCI Receptacles: 20A, duplex convenience receptacle with integral class 'A' ground fault current interrupter, LED indicator lamp, and integral lockout function.

E. Weather-Resistant Receptacles: Listed to the weather-resistant supplement of UL498 and complying with the requirements of NEC 406.8.

2.03 ACCEPTABLE MANUFACTURERS – DEVICE PLATES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Mullberry.

E. Red Dot.

F. Raco.

G. Substitutions: Under provisions of Division 01.

2.04 DEVICE PLATES

A. Weatherproof Cover Plate: UL listed, cast aluminum, hinged outlet cover/enclosure, with gasket between the enclosure and the mounting surface, suitable for wet locations while in use.

B. Exposed Work Cover Plate: 1/2 inch raised, square, pressed, galvanized or cadmium plated steel cover plate supporting devices independent of the outlet box.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install convenience receptacles 18 inches above floor, 4 inches above counters or backsplash, grounding pole on bottom.

B. Install specific-use receptacles at heights shown on Contract Drawings.

C. Unless otherwise noted, mounting heights are for finished floor to center line of outlet.

D. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

E. Install devices and wall plates flush and level.

F. Ground receptacles to boxes with a grounding wire. Grounding through the yoke or screw contact is not an acceptable alternate to the ground wire.

END OF SECTION

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DIVISION 27

(NOT USED)

SECTION 28 34 00

LEVEL ALARM PANEL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Specification covers the construction, arrangement, and wiring of fuel level alarm panels.

B. Panels shall be supplied with 120V, 60Hz control power.

C. Panels shall be completely engineered, fabricated, wired, factory tested, listed and labeled, and ready for installation.

D. All substitutions proposed by panel vendor shall be approved prior to panel fabrication.

1.02 RELATED REQUIREMENTS

A. The Work under this Section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 27 16 – Cabinets and Enclosures.

1.03 REFERENCES

A. NEMA standard IC-1 industrial control, underwriter's laboratories standard UL 508, industrial control equipment, and the National Electrical Code.

B. Panel shall be UL or ETL listed as an assembly and shall bear the UL or ETL label.

1.04 SUBMITTALS

A. Control panel manufacturer shall submit for approval the following data:
   1. Product data sheets for all equipment.
   2. Shop Drawings: Complete shop drawings shall be submitted for each alarm panel consisting of the following:
      a. Detailed schematic wiring diagrams showing panel mounted and remote mounted devices, wire number, etc.
      b. Detailed control one-line diagrams.

c. Scaled and dimensioned panel layouts including front view, side view and interior layout. All relays, push buttons, indicating lights, selector switches, and terminal strips with numbers shall be identified on the layouts.

B. Submit operations and maintenance data under provisions of Section 26 05 00 – Common Work Results for Electrical, and Division 1. Include detailed operating instructions, recommended maintenance procedures and intervals.

1.05 SPARE PARTS

A. Provide the following spare parts in each control panel:
1. One (1) 2-pole, 10A relay.
2. One (1) of each type of pilot lamp and one (1) lens of each color used in the panel.
3. Place spare parts in the bottom of each control panel.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – PANEL ENCLOSURES

A. Hoffman “Concept” Series.

B. Hammond Manufacturing “Eclipse” Series.

C. Substitutions: Under provisions of Division 1.

2.02 PANEL ENCLOSURES

A. Enclosures shall conform to the requirements under section 26 27 16 – Cabinet and Enclosures.

B. The depth of control panel shall be a minimum based on the maximum depth of control devices plus the required electrical clearances. Minimum dimensions shall be 16”H x 16”W x 8”D. Maximum panel dimensions shall be 42”H x 30”W x 10”D inches. If the required equipment will not fit in the maximum dimensions allowable, notify the Engineer and indicate which sites require larger enclosure. A separate control panel may be required to house equipment at some locations.

C. The mounting plate for the control devices shall be a minimum #12 USS gauge sheet steel and shall be removable from the enclosure.

D. The sub panel shall be held in place by a sufficient number of bolts or screws. Ample room between mounting plate and interior of enclosure shall be provided for proper maintenance and electrical clearance.

E. Nameplates shall be provided where indicated on the Drawings. Nameplates shall be attached to panels with silicon sealant or another suitable adhesive in accordance with Section 26 05 53 – Identification for Electrical Systems, and shall be engraved laminated phenolic plastic, 1/16" thick, black letters on white surface. Edges of nameplates shall be chamfered 1/32" x 45 degrees approximately.

F. Control Panel manufacturer shall ship panel to site with time delay relays initially set at time noted on Plans. Field electrician shall adjust time delay relays to fill each tank from the time the low level relay is activated to just before the high level relay will activate.

2.03 PANEL DEVICES

A. Relays: UL listed, IP 20, 3PDT general purpose tube base plug-in relay with 10 amp contact rating, 120VAC coil voltage, single contact 11-pin terminals, three (3) Form "C" single AgNi contacts, and mechanical ON/OFF flag indicator. Allen Bradley #700-HA33A1 or approved equal. Provide 20A rated relays where noted on Drawings.

B. Relay Bases: UL listed, screw terminal, 11-pin, tube base socket suitable for panel or DIN rail mounting with guarded terminal construction. Socket shall be listed for use with the associated relay and shall accommodate either general purpose relays or timer relays. Allen Bradley #700-HN101 or approved equal.

C. Timer Relays: UL listed, IP 20, multi-function, multi-range timing relay with plug-in socket, 10A, 120VAC rating, LED indicator light, selectable timing ranges from 0.05 seconds to 100 hr with adjustable screw to achieve timing within each range, eight (8) selectable timing modes: Power On-Delay, Single Shot-Power on, Repeat Cycle - Starting with Relay Energized, Signal On-Delay and Signal Off-Delay, Signal Off Delay, Single Shot - Signal Start, Single Shot - Signal Off, and Signal On and Signal Off Watchdog Monitor. Allen Bradley #700-HT3 or approved equal.

D. Timer Relay Bases: UL listed, screw terminal, 11-pin, tube base socket suitable for panel or DIN rail mounting with guarded terminal construction. Socket shall be listed for use with the associated relay and shall accommodate both general purpose relays and timer relays. Allen Bradley #700-HN205 or approved equal.

E. Pushbuttons: UL listed, NEMA 4X, Corrosion-resistant/watertight/oiltight, 30.5mm diameter, 120VAC, non-illuminated pushbutton with bootless flush head, one normally open or normally closed set of contacts as indicated on the Drawings. Allen Bradley #800H-AR series or approved equal. Unless otherwise noted on Drawings, provide color as indicated:

1. Green = Pump Start
2. Red = Pump Stop
3. Black = Reset, Silence

F. Switches: UL listed, NEMA 4X, Corrosion-resistant/watertight/oiltight, 30.5mm diameter, 120VAC, non-illuminated 2 or 3-position selector switch with one normally open and one normally closed set of contacts as indicated on the Drawings. Allen Bradley #800H-HR series (2-position), #800-JR series (3-position) or approved equal.

G. Pilot Lights: UL listed, NEMA 4X, Corrosion-resistant/watertight/oiltight, 30.5mm diameter, 120VAC pilot light with LED lamp and push-to-test operator. Red, green or amber color as indicated on Drawings. Allen Bradley #800H-QRTH10 series or approved equal.

H. Contactors: UL listed, compact size contactor with 120VAC coil voltage, number of poles as shown on Drawings, and suitable for panel or dinrail mounting. Allen Bradley Bulletin 100 series or approved equal.

I. Terminal Blocks: UL, 600V AC/DC terminal blocks with tubular screw with pressure plate, multi-rail mountable and #22 AWG-#8 AWG wire range. Allen Bradley Bulletin 1492 series or approved equal.

J. Motor Starters:
1. IEC style, UL listed (3/4HP & under). Provide NEMA rated starters for motors 1HP and greater. Provide wye-delta soft start for motors 5HP and greater.
2. Rating shall match the minimum horsepower rating of the motor served.
3. All starters shall have ambient compensated, bi-metallic or solid state motor overload heaters of proper size in each line.
4. All starters shall have at least two (2) additional field convertible contacts in addition to the seal-in contact.
5. All starters shall be protected in the line side by means of a circuit breaker of the proper size.

K. Provide a listed distribution panel or load center with molded case circuit breakers (Square D QO Load Center or equal) see Section 26 24 16 Panelboards.

L. Molded Case Circuit Breakers: Circuit breakers for main lug distribution panels shall be molded case, bolt-on thermal magnetic trip type with common trip handle for all poles.

M. The panel manufacturer shall verify the control schematics shown will produce the indicated sequence of operation. Any such control ladder logic modifications shall be shown on control panel shop drawings submitted by the control panel manufacturer.

N. Control panels shall be coordinated with the actual field devices provided for the project, regardless if these devices are provided by other trades.

2.04 HORN/STROBE DEVICES

A. Horn/Strobe: UL, 120V AC terminal blocks, low-current, high decibel, vibrating horn for heavy-duty use. Hight light output, 265 lumens, red color, rated to -31° F. Enclosure shall be NEMA 4X, die-cast weatherproof box with durable corrosion resistant polycarbonate/ABS base, shatter resistant polycarbonate lens. Edwards #51XBRFR120A or approved equal.

PART 3 - EXECUTION

3.01 EXECUTION

A. All control wiring shall be minimum of #14 AWG unless otherwise specified. All power wiring shall be a minimum of #12 AWG. Use 600V machine tool 19 strand – type XHHW.

B. Solderless terminals shall be used and each wire shall be identified at all terminations with Brady labels, or equal, in accordance with supplier's approved schematic diagram.

C. Terminal blocks shall be screw type, 20 ampere, unless higher amperage is required, with wire designations marked thereon. The terminal blocks shall be arranged to provide ample space for purchaser's connections and be supplied with required jumpers. The supplier termination shall not exceed two wires per terminal. The supplier shall determine the total number of terminals required and in addition, provide 10% spare terminals.

D. Wiring shall be neat. Loose wiring shall be bundled together, laced and supported.

E. Provide grounding lugs for #2 stranded wire.

F. All wiring shall be checked by the fabricator for grounds, shorts, and continuity. Electrical devices and control panels shall be bench tested at fabricator's shop, with control voltage applied. Notify the Engineer at least fourteen (14) days prior to the date of bench test which shall take place at the control panel manufacturer's shop.

G. Notify the Engineer at least three (3) days prior to the date material is to be ready for shipment so that pre-shipment inspection can be scheduled. Do not ship without inspector's release or inspection waiver. Include an approved copy of the control panel as-builts as well as a terminal schedule in the control panel prior to shipping.

H. The equipment shall be enclosed in a plastic envelope, crated, and protected against damage during shipment.

I. Control Panel manufacturer shall ship panel to site with time delay relays initially set at time noted on Plans. Field electrician shall adjust time delay relays to fill each tank from the time the low level relay is activated to just before the high level relay will activate.

J. Control Panel manufacturer shall clearly label all terminal blocks for connection by the field electrician. (i.e. "Unleaded Gasoline Tank #201 High Level Float Switch 'H3').

K. Field adjust the trip settings of all motor starter magnetic trip only circuit breakers to approximately 11 times motor full load current. Determine full load current from motor nameplate following installation.

L. The control panel manufacturer shall include time and expenses to travel to the project site as necessary to resolve discrepancies in the specified sequence of operation as related to control panels.

M. The panel manufacturer shall verify the control schematics shown will produce the indicated sequence of operation. Any such control ladder logic modifications shall be shown on control panel shop drawings submitted by the control panel manufacturer.

N. Control panels shall be coordinated with the actual field devices provided for the project, regardless if these devices are provided by other trades.

END OF SECTION

DIVISIONS 29 – 30

(NOT USED)

SECTION 31 62 16

DRIVEN STEEL PILES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Rolled steel HSS pipe piles.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 12 00 - Structural Steel Framing.

1.03 REFERENCES

A. ASTM A252 - Standard Specification for Welded and Seamless Steel Pipe Piles.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Pile Driving Plan: CONTRACTOR shall submit a plan for pile driving, which includes proposed hammer type and energy, technical specifications, and method for driving the piles. Plan shall include a copy of the proposed pile installation log to be utilized to record the pile installation.

C. Shop Drawings: Indicate details and schedule of pile installation sequence. Identify pile length and shapes to suit design.

D. Product Data: Provide details of collars, tips, and cushion blocks.

E. Manufacturer's Mill Certificate: Certify that steel piling meets or exceeds specified requirements.

F. Project Pile Installation Record Documents: Submit pile driving record to the engineer each day during pile driving activities. Accurately record the following:
   1. Sizes, lengths, and locations of piles.
   2. Type and size of hammer utilized.
   3. Type of pile driving cap used.
   4. Rate of operation of pile driving equipment.
   5. Sequence of driving.

6. Number of blows per foot (meter) for entire length of piles and measured set for last 10 blows.
7. Final base and top elevations before and after cut-off.
8. Ground elevation at each pile.
9. Pile deviations from vertical and horizontal.
10. Any unusual occurrences during the pile driving installation.

1.05 QUALITY ASSURANCE

A. Protection and Restrictions:
1. Protection of Roads: CONTRACTOR shall be responsible for maintaining the roads he uses during construction as required to keep them in the same condition as they were prior to use by the CONTRACTOR. Repair or replace boardwalks damaged by construction activities.
2. Restriction Relating to Tundra: Vehicles or equipment may not be operated on unfrozen tundra without an approved method of protection. All traffic will be restricted to the established roads during this period. During months when the active zone is thawed, extreme care must be used to avoid disturbance of the relatively thin tundra mantle.
3. If thawed ground over four (4) feet deep or subsurface ice is encountered at the surface, stop work on that hole and notify the Architect/Engineer immediately. Continue working on remaining holes.
4. Provide casing as required to seal off surface water and seepage through the active zone.
5. Any depressions or ponds in the immediate area of the proposed structures shall be filled to prevent from ponding beneath the building and around the piling. Any new or existing tundra damage or fill areas shall be leveled, fertilized, and revegetated.

B. Driven pile installation is subject to special inspection.
1. CONTRACTOR shall notify the Engineer two (2) weeks prior to the start of the pile installation.
2. Coordinate installation with the CONTRACTOR's Special Inspector.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in such quantities and at such times to ensure continuity of pile driving operations to the project schedule.

B. Store piles in orderly groups above ground and blocked during storage to minimize distortion of members. Piles exhibiting variations beyond tolerance limits will be considered distorted and may not be used in the work.

1.07 JOB CONDITIONS

A. Geotechnical Information: Pile design has been based on the geotechnical recommendations of Golder and Associates. A copy of the report is available if needed.

B. Protection: Protect structures, adjacent utilities, and other construction from damage caused by pile driving operations.

C. Provide surveyed elevation benchmarks on structures adjacent to the pile driving operations before commencing work. Record and report elevation of each benchmark before and after driving each pile and at least twice while driving the pile. Should benchmark readings indicate displacement, halt driving operations until corrective action has been provided and is acceptable to the Engineer of Record.

PART 2 PRODUCTS

2.01 PILE MATERIALS

A. Piles: ASTM A252, Grade 2 or Grade 3 as indicated; structural steel, rolled HSS pipe, minimum 35 ksi yield strength for Grade 2 and 45 ksi for Grade 3, sizes and lengths indicated.
   1. Pile shall be provided full length with a maximum of one factory pile splice. Factory splices must occur in the bottom third of the pile. Field splices are not permitted.

B. Accessories: Points, driving cap; to suit pile shape.

C. Protective Coating: Coat the top ends of piles, to the extent as detailed on drawings. Sandblast per SSPC SP-10 “Near White Blast Cleaning” and coat with 3M Skotchkote 6233 or Valspar Pipeclad Fusion Bonded Epoxy (FBE), 16 mils minimum DFT.

2.02 FABRICATION

A. Fabricate piles to length indicated on the Drawings plus a 2 feet minimum cut-off section at the top.

B. Coat pile with specified protective cover, apply in accordance with manufacturer's instructions.

2.03 DRIVING EQUIPMENT

A. General: Provide pile-driving equipment of type generally used in standard pile driving practice, operated at manufacturer's specified rate, to develop required rated energy per blow.

B. Hammer: Provide pile-driving hammer of sufficient capacity, size, and type to deliver consistently effective dynamic energy, suitable for pile to be driven into subgrade material.

C. Driving Caps: Equip hammer with cast steel or structural steel driving cap, with grooved base conforming to the pile shape. Keep bearing surfaces of grooves true and smooth.

D. Leads: Use fixed-type pile driver leads that will hold pile firmly in position and alignment and in axial alignment with hammer. Extend leads to within two feet of elevation at which the pile enters the ground.

E. Other means for pile driving may be considered for approval. Alternate means shall not be approved unless pile driving tolerances and the load capacity of the in-place pile is not diminished. Alternate methods that introduce heat into the underlying soils are not permitted.

PART 3 EXECUTION

3.01 PREPARATION

A. Obtain prior approval of pile driving plan prior to beginning work.

B. Use driving method which will not cause damage to nearby structures.

C. Notify adjacent and affected land owners and building occupants with 30 days' notice before proceeding with the work.

D. Protect structures near the work from damage.

E. Prepare to place piles from existing site elevations.

F. Pile length markings: Mark each pile's length with a horizontal line, at 1'-0" increments, and the number of feet from pile point at 5'-0" intervals.

3.02 PILE INSTALLATION

A. Protect pile head during driving, using cushion cap with full bearing on pile butt for even distribution of hammer blow.

B. Carefully plumb leads and pile before driving. Take care during driving to prevent and to correct any tendency of piles to twist or rotate.

C. When handling and driving long piles, take special precautions to ensure against overstress or leading away from a true position when driving.

D. Deliver hammer blows to central axis of pile.

E. Continuously drive piles at locations and orientations indicated on the Drawings, to the required point elevation. The point elevation is to result in the full length of the pile being below grade except for the required stickup plus a short cutoff piece.

F. Field pile splices are not permitted. Do not stop during pile driving installation. Stopping during the driving operation may allow the pile adfreeze bond to develop prohibiting restarting of the pile driving operation without damage to the pile.

G. Do not damage piles during driving operations.

H. Cut off tops of piles to elevations indicated and prepare pile top to receive pile caps.

3.03 TOLERANCES

A. Maximum Variation from Vertical for Plumb Piles: 1 inch in 10 feet, maximum total of 2 inches.

B. Maximum Variation from Pile Cut-off Elevation: 1/4 inches.

C. Maximum Out-of-Position: 2 inches parallel with beam line, 1/2 inch perpendicular to beam line.

3.04 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Paragraph 1.05B.

3.05 UNACCEPTABLE PILES

A. Damaged piles, and piles driven outside required driving tolerances, will not be accepted.

B. Replace piles rejected after driving with new piles at no additional cost to the AUTHORITY.

C. Drive additional piles or piles where centerline deviation exceeds 2 inches and redesign indicates load on any pile exceeds the design load.

D. Piles rejected after driving shall be abandoned and cut-off at a depth at least two feet below grade, and additional piles driven to replace the rejected units at locations designated by the Engineer.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnishing and installing chain link fence for new installations.

1.02 RELATED REQUIREMENT

A. Section 05 50 00 – Metal Fabrications.

1.03 REFERENCES

A. Chain Link Fence Manufacturers Institute Product Manual CLF-PM0610.

B. Specification of Metallic-Coated and Polyvinyl Chloride (PVC) Coated Steel Chain Link Fence Fabric, published by Chain Link Fence Manufacturers Institute, Washington, DC 20036.

C. Federal Specification RR-F-191, Fencing, Wire and Post Metal.

D. State of Alaska, Department of Transportation, and Public Facilities, “Standard Specifications for Highway Construction”.

E. State of Alaska, Department of Transportation, and Public Facilities, “Standard Drawings Manual”.

1.04 SUBMITTALS

A. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.

C. Manufacturer's Installation Instructions.

D. Method of post installation. Submit alternate post installation method for consideration if different method from those shown in these Construction Documents is proposed.

PART 2 PRODUCTS

2.01 GENERAL

A. Materials shall be new and products of recognized, reputable manufacturers. Used, re-rolled, or re-galvanized materials are not acceptable.

B. All materials shall be hot-dip galvanized after fabrication. Unless otherwise specified, all materials shall have a minimum zinc coating of 1.2 ounces per square foot of surface.

2.02 WIRE FABRIC

A. Type I chain link fence fabric woven of 9-gauge steel wire in 2 inch diamond-mesh pattern. Selvages twisted and barbed, galvanized after weaving. Fabric Height as shown on the Drawings. Provide 1.2 ounce zinc coating meeting the requirements of ASTM A 392, Class 1.

2.03 PIPE

A. Federal Specification RR-F-191/3, Fencing, Wire and Post, Metal (Fence Posts, Top Rails and Braces). Provide Class 1, Grade A pipe with a minimum zinc coating of 1.8 ounces per square foot of surface. Lengths for setting in ground as required for conditions shown on Drawings.

B. Posts: Use 2.375 inch outside diameter, galvanized, standard weight steel pipe, weight 3.65 pounds per linear foot.

C. Top Rail and Braces:
1. Use 1.66 inch outside diameter galvanized standard weight steel pipe, weight 2.27 pounds per linear foot.

2.04 CAPS

A. Dome Caps and Rail caps shall be pressed steel, or malleable iron per ASTM F 626, and designed as a weather-tight closure cap for tubular posts.

B. Barb Arms shall be pressed steel galvanized after fabrication and capable of supporting a minimum 250 lb vertical load. Barb arms shall be Type I three strand 45-degree arms.

C. Provide one cap for each new or replaced post.

2.05 TENSION WIRE

A. Tension wire shall be zinc- or aluminum-coated coil spring steel wire not less than No. 7-gauge (0.177 inch in diameter).

2.06 TENSION BARS

A. Stretcher bars shall be one-piece lengths equal to full height of fabric with a minimum cross-section of 3/16 inch by 3/4 inch. Provide one stretcher bar for each gate post and two bars for each corner and pull post.

2.07 BANDS

A. Bands shall be heavy-pressed steel, spaced not over 15 inches on center to secure tension bars, top rail and brace ends to end, corner, pull, and gate posts.

2.08 HARDWARE

A. Steel bolts nuts and washers.

B. Top rail and brace ends shall be pressed steel, malleable iron per ASTM F 626.

C. Top rail couplings shall be 6” long pressed steel, hot dip galvanized.

2.09 WIRE TIES

A. 9 gauge galvanized steel wire for attachment of fabric to line post. Double wrap 13 gauge for top rails and braces. Hog ring ties of 12-1/2 gauge for attachment of fabric to tension wire.

2.10 TRUSS ROD AND TIGHTENER

A. Steel rods with minimum diameter of 5/16”. Capable of withstanding minimum tension of 2,000 pounds.

2.11 GATES

A. Federal Specification RR-F-191/2, Fencing, Wire and Post, Metal (Chain Link Fence Gates). Provide Single Swing 3.0 ft wide man gates as indicated.

B. Hinges shall swing 180 degrees.

C. Provide malleable iron gate latches for all gates.

2.12 LOCKS

A. Provide 1.5-inch industrial grade, corrosion resistant padlock for each gate. Provide locks for valves where indicated. Master or approved equal. Key all padlocks alike for the same ownership.

B. Submit for approval.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect fencing in straight lines between angle points by skilled labor experienced in this type of construction. Erect in accordance with the manufacturer's recommendations as approved and with these Specifications.

B. Tension chain-link fabric as specified by manufacturer. Fasten chain link fabric to end, corner, pull or gate posts with tension bars and bands. Fasten chain link fabric to line posts and top rail at approximately 12 inch centers. Fasten chain link fabric to tension wires at approximately 24 inch centers.

C. Braces shall be installed between end/corner/ pull/gate posts and post(s) adjacent to end/corner/ pull/gate post. Securely truss bracing from line post to base of end/corner/ pull/gate post with a truss rod and tightener.

D. Install top rail in caps on line posts. Terminate top rail at end/corner/ pull/gate posts with rail ends. Install rail sleeves and expansion springs to tension top rail. Swedged top rail not allowed.

E. Provide minimum three (3) full twists for each wire tie.

3.02 CLEANUP

A. Upon completion of the fence installation, clean up all waste material resulting from the operation.

END OF SECTION

SECTION 33 05 26.13

SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section covers the furnishing and installation of signs at the bulk tank farm, intermediate and dispensing tanks, dispensing area, and marine header.

B. The CONTRACTOR shall furnish all signs and fasteners.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 32 31 13 – Chain Link Fence.

1.03 REFERENCES

A. International Fire Code (IFC), Section 3404.

B. National Fire Protection Association, No. 704.

C. State of Alaska, Department of Transportation, “Standard Specification for Highway Construction” and “Standard Drawings Manual”.

1.04 SUBMITTALS

A. Submit shop drawings of all signs, including height and width as well as sign thickness. Indicate background color and text color, text information (i.e. height and stroke) proposed for each sign.

B. Submit manufacturer’s data and standard colors for vinyl backgrounds and letters.

PART 2 MATERIALS

2.01 GENERAL

A. Signs will be constructed of 0.08” minimum aluminum plate with either red reflective or black letters on a white non-reflective background, unless otherwise indicated.

B. Size signs and lay out letters such that no letters touch or overlap, and all words are clearly readable.

C. Size letters as indicated and adjust size of sign accordingly, or make sign the dimensions indicated and size text appropriately to fit within the available space.

D. Provide 3M Series 255 High Performance vinyl letters on 3M 3650-10 white vinyl background, or Gerber thermal transfer film printed letters on Gerber High Performance vinyl background as indicated on the Drawings, or as appropriate for the application.

E. All street signs shall be in conformance with State of Alaska D.O.T. standards.

2.02 SIGNS ON PERIMETER FENCE

A. Provide aluminum backed reflective laminated signs reading "DANGER - FLAMMABLE LIQUIDS – NO SMOKING – OR OPEN FLAMES" hogringed to the chain link fence secured area. Signs shall be placed as located on the Construction Drawings, 3" high x ½" stroke red letters on a white background.

B. Provide 6" x 12" aluminum backed reflective laminated signs reading "FUEL SYSTEM EMERGENCY SHUTOFF" conspicuously bolted to each emergency shut-off switch as located on the Drawings, red letters on a white background.

2.03 ADDITIONAL SIGNAGE REQUIREMENTS

A. Provide additional signage as indicated on the Drawings.

B. Coordinate all signs with requirements specified on the Drawings.

PART 3 EXECUTION

3.01 GENERAL

A. Install in accordance with IFC flammable and combustible liquid signage standards, and NFPA.

B. Signs shall be conspicuously mounted and easily read.

END OF SECTION

SECTION 33 52 13.03

FUEL SYSTEM EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fuel system equipment.

B. Fuel systems components and piping specialties.

C. Commissioning and system start-up.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 09 97 13.23 – Exterior Steel Coatings.

C. Section 32 31 13 – Chain Link Fence.

D. Section 33 52 13.13 – Pipe, Valves and Fittings.

E. Section 33 52 13.33 – Welded Pressure Piping.

1.03 QUALITY ASSURANCE

A. Ensure products and installation of specified products are in conformance with recommendations and requirements of the following organizations:
   1. National Electrical Manufacturer's Association (NEMA).
   2. Underwriters Laboratories (UL).

B. Provide data plates for all equipment with manufacturer's name, model number, serial number, motor horsepower, power requirements, rotational speed, design flow and design pressure or head as applicable.

1.04 SUBMITTALS

A. Submit product data per Section 01 33 00 – Submittal Procedures.

B. Include manufacturer's standard catalog data and technical literature for all equipment and specialty items.

C. Provide manufacturer's installation, operation and maintenance requirements.

D. Include dimensioned drawings of all equipment, inter-related components, and connections to other equipment and piping.

E. Submit copy of Manufacturer's Certification of Proper Installation for equipment.

F. Commissioning and Start-up Plan, submit a minimum of fourteen (14) days prior to commissioning the system with fuel.

G. Substantial Completion system demonstration and instruction procedures.

H. Provide operation and maintenance data for all items. Submit operation and maintenance data in comprehensive bound manual.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store items subject to damage by the elements, vandalism, or theft in secure buildings. Protect items from weather and water damage.

B. Provide environmentally controlled storage facilities for items requiring environmental control for protection.

C. Store products to provide access for inspection and inventory control. CONTRACTOR shall document products in storage to facilitate inspection and to estimate progress payments for products delivered but not installed in the Work.

D. Provide temporary caps on all inlets and outlets. Maintain caps in place until connection to piping system.

1.06 OPERATION AND MAINTENANCE DATA

A. Include operation, maintenance and inspection data, replacement part numbers, recommended spare parts, and available service depot location with telephone number.

1.07 WARRANTY

A. Provide manufacturer's warranty for each item. If item fails during the first year of operation, warranty repair work, or replace the item. Once the repair or replacement is complete, the manufacturer's warranty period will restart on the new date the item was placed into service.

1.08 OPERATING CONDITIONS

A. Provide fuel system equipment, pipe specialties and components suitable for the following operating conditions unless otherwise specified.
   1. Temp. Range: -30°F to +100°F

2. Pressure: 100 psi
3. Products:
    a. Unleaded Gasoline.
    b. Ultra-Low Sulfur Diesel.

PART 2 PRODUCTS

2.01 DISTRIBUTION PUMP

A. Self-priming centrifugal pump for petroleum service.

B. 2-inch NPT inlet and outlet, ductile iron case, bronze impeller, and self-lubricated Buna-N mechanical seal.

C. Close coupled to 3,450 rpm, 2 hp explosion proof 230v/1ph/60hz motor. Pump shall produce 80 gpm @ 70' tdh.

D. Gorman-Rupp 02K31-X2, or approved equal.

2.02 TRANSFER PUMPS

A. Self-priming centrifugal pump for petroleum service.

B. 1.5-inch NPT inlet and outlet, gray iron case, bronze impeller, and self-lubricated Buna-N mechanical seal.

C. Close coupled to 3,450 rpm, 1 hp explosion proof 230v/1ph/60hz motor. Pump shall produce 40 gpm @ 36' tdh.

D. Gorman-Rupp 81-1/2D3-X1, or approved equal.

2.03 ACTUATED BALL VALVES

A. 2-inch Actuated Ball Valve (explosion proof): ANSI Class 150 flanged ball valve with ASTM A350 grade LF2 body, Teflon seats and seals with a 360 in-lbs operation torque at -50 degrees F. Actuator shall have a NEMA 7 enclosure without manual override shaft extension, PTC self-regulating heater, Exxon Beacon 325 severe cold grease, 115 VAC powered with a 600 in-lbs output torque and 10 second stroke time. Stainless steel mounting hardware to allow manual operation using adjustable wrench. Actuator shall be rated to -50 degrees F. Nutron model T3-R20R01LZ-05 ball valve with RCS Model SXR-0994-7 actuator, or approved equal.

B. All actuated ball valves shall be factory tested. Submit factory test report for each valve.

2.04 DISPENSER AND ACCESSORIES

A. Mechanical Dispenser: UL listed motor vehicle dispenser for use with remote submersible pump. Four figure mechanical register with tenths of a gallon as the smallest unit, non-resetable totalizer, lighted display, 10:1 pulser, 110vac powered. Provide internal 30 micron spin-on filter and 10 spare elements. Dispenser shall be certifiable for retail sales. Prior to delivery, replace factory applied standard grease in mechanical register with a severe cold arctic-grade lubricant. Two-hose dual-product dispenser, Gasboy Atlas 9153KXTW2, or approved equal.

B. Dispenser Shear Valve: UL listed 1-1/2 inch x 1-1/2 inch dispenser shear valve with fusible link. Morrison Bros., Co. Model 636F, or approved equal.

C. Dispenser Hose: 18 feet (maximum) of ¾" low temperature fuel rated dispensing hose. Goodyear Arctic Ortac, or approved equal.

D. Dispenser Hose Breakaway Coupling: UL listed ¾" breakaway fitting, OPW Model No. 66V-0250 or approved equal. Provide breakaway coupling complete with OPW 66H-0075 hose section madeup with the same low temperature hose specified above.

E. Dispenser Hose Swivel: UL listed dispenser hose swivel. OPW Model No. 45M-0492, or approved equal.

F. Dispenser Nozzle: UL listed automatic shut-off, automotive fueling nozzle with hold open latch and color coded handle, red for gasoline and green for diesel. OPW Model No.11BP-0300 and 11B-0100, or approved equal

2.05 PIPING ACCESSORIES

A. Flex Pipe Connection: Stainless steel corrugated inner core with stainless steel braided outer cover, ANSI Class 150 fixed flange by floating flange ends with 18-inch live length, unless a different length is indicated. 200 psi minimum working, factory tested to 300 psi minimum. Provide factory test certification for each flexible connection. Metraflex Metra-Mini, or approved equal.

B. Y-Type Strainer: Class 150 flanged ends, carbon steel body, bottom clean-out Y-type strainer with blow off tapping plug. Supply each strainer complete with lockable cast steel ball valve with brass hose coupling and brass dust cap with Buna-N seal. Provide #10 or #100 mesh stainless steel screen with each strainer as indicated. Mueller Steam Specialties Fig. 781, or approved equal.

C. Cam Lock Couplings: Aluminum body cam and groove male fitting with female NPT end connection, 150 psi minimum working pressure. Provide dust cap with buna-n seal for each fitting provided. PT Coupling or equal.

D. Pressure and Pressure/Vacuum Gauges: ASME B40.1 with 4-inch diameter face, white dial, and no backing flange. Gauges shall be labeled with calibration date. Provide adjustable pulsation dampers (snubbers) and isolation ball valve for each gauge. Gauges with internal components immersed in silicon oil will not be allowed. Pressure gauges shall have a 0 to 300 psig range, and pressure/vacuum gauges shall have a -30" hg to 100 psig range.

E. Padlocks: Provide padlocks for all pump enclosures as specified for fence gates in Section 32 31 13 – Chain Link Fence.

2.06 STATIC GROUND REEL

A. Provide Automatic spring rewind ground cable reel with 50 feet of 1/8-inch diameter cable, grounding clip, and ball stop. Hannay GR75 or equal.

2.07 FIRE EXTINGUISHER

A. Provide for each hose reel enclosure and at other locations as specified. Fire extinguisher to have a minimum rating of 3-A, 40-B:C.

PART 3 EXECUTION

3.01 EQUIPMENT INSTALLATION

A. Install in accordance with manufacturer's instructions and as indicated. Work should be of quality using recognized standard practices for workmanship.

B. Provide seismic anchorage for all fuel equipment, enclosures, tanks, piping and specialty items.

3.02 COMMISSIONING AND SYSTEM START-UP

A. All testing specified in Section 33 52 13.13 – Pipe, Valves and Fittings shall be completed prior to beginning the commissioning and start-up requirements specified in this Section.

B. Perform final commissioning, start-up, and system demonstration in accordance with the following procedures. Leave all work sites in an orderly condition consistent with that found upon arrival.

C. Introduce fuel into all systems and bleed air from all portions of the piping. Perform operational leak test at 75 psi with fuel on all systems after filling with fuel and repair any leaks. Anything wet with fuel shall be assumed to be leaking and shall be corrected before continuing.

D. Verify all signs, placards, and valve tags are properly located and secured. Verify proper color code and labeling for all products.

E. In accordance with Division 1 and this Section, instruct local operators and other designated personnel in the operation and maintenance of all systems. Provide a minimum of twelve (12) hours of instruction during Substantial Completion Inspections. Provide qualified personnel and equipment manufacturer's representatives as necessary, to give instruction on all fuel systems, equipment, and related components provided by this project.

END OF SECTION

SECTION 33 52 13.13

PIPE, VALVES AND FITTINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Furnishing pipe, elbows, tees, reducers, valves, weld-o-lets, etc., as required to complete the work shown on the Drawings.

B. Pipe pressure testing requirements.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 09 97 13.23 – Exterior Steel Coatings.

C. Section 32 31 13 – Chain Link Fence.

D. Section 33 52 13.03 – Fuel System Equipment.

E. Section 33 52 13.33 – Welded Pressure Piping.

1.03 REFERENCES

A. CONTRACTOR shall use the most current edition of the referenced standards.

B. American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME):
   1. B16.5 Pipe Flanges and Flanged Fittings.
   2. B16.9 Factory Made Wrought Steel Buttwelding Fittings.
   3. B31.4 Liquid Transportation Systems for Hydrocarbons and other Liquids.

C. American Petroleum Institute (API):
   1. API 1104 Welding of Pipelines and Related Facilities
   2. API 5L Line Pipe

D. American Society for Testing and Materials (ASTM):
   1. A 105 Carbon Steel Forgings for Piping Applications
   2. A 106 Seamless Carbon Steel Pipe for High-Temperature Service
   3. A 216 Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service

4. A 234 Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
5. A 333 Seamless and Welded Steel Pipe for Low-Temperature Service.
6. A 350 Forgings, Carbon and Low-Alloy Steel, requiring Notch Toughness Testing for Piping Components.
7. A 352 Cast Carbon Steel for Low Temperature Service
8. A 420 Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service.

1.04 SUBMITTALS

A. Submit catalog cuts, Material Test Reports (MTRs) and shipping invoices for all pipe and fittings to be used.

B. Submit catalog cuts of all valves and other manufacturers' items to be used.

C. Submit pressure testing procedures.

D. Submit pressure test reports.

E. Provide operation and maintenance data for all valves, pipe coatings and arctic pipe. Submit operation and maintenance data in comprehensive bound manual.

1.05 GENERAL REQUIREMENTS

A. Bends and mitered fittings are not permitted unless specifically shown on the Drawings.

B. Threaded fittings are not permitted, except where indicated on the Drawings and required for connection to equipment.

C. All construction, welding, assembly and testing shall comply with the requirements of ANSI B31.4 Liquid Transportation Systems for Hydrocarbons and other Liquids.

1.06 OPERATING CONDITIONS

A. Provide pipe, valves, fittings, equipment and associated components suitable for continuous operation under the following maximum operating conditions.
1. Temp. Range: -30° F to +100° F
2. Pressure: 100 psi
3. Product:
   a. Ultra-Low Sulfur Diesel
   b. No. 2 Diesel

1.07 MAXIMUM ALLOWABLE OPERATING CONDITIONS

A. Pipe, valves and fittings materials shall be suitable for the following maximum allowable operating conditions.
   1. Temp. Range: -20° F to +100° F
   2. Pressure: 285 psi

PART 2 PRODUCTS

2.01 PIPE

A. Provide ASTM A106, Grade B, seamless, carbon steel pipe.

B. Pipe schedule shall be as follows, unless otherwise indicated on the Drawings:
   1. 3 inch and larger within dikes and protected areas shall be Schedule 40.
   2. 3 inch and larger exposed to traffic in cross-country runs shall be Schedule 80.
   3. 2 inch and smaller shall be Schedule 80, except for piping 1 inch and smaller outside of buildings shall be Schedule 160.

C. Pipe shall have end caps and bevel protectors installed at the Mill prior to shipping or handling.

2.02 ELBOWS, TEES, AND REDUCERS

A. Provide ASTM A234, Grade WPB seamless, carbon steel butt weld fittings. Provide all fittings with plain beveled ends. Dimensions in accordance with ANSI B16.9.

B. Fitting Schedule shall match the pipe in which the fitting is installed.

C. Elbows and bends shall be long radius, unless otherwise indicated on the Drawings.

D. Fittings smaller than 2 inch may be ASTM A105 forged steel socket welded, or threaded where indicated, 3,000 pound minimum.

2.03 FLANGES, HARDWARE AND ACCESSORIES

A. Provide ASTM A105, ANSI Class 150 forged steel raised face flanges, weld neck type unless otherwise indicated, complete with bolts, nuts, and fuel resistant spiral wound gaskets. Dimensions in accordance with ANSI B16.5.

B. Flange bore shall match the pipe Schedule in which the flange is installed.

C. Flange nuts and studs shall be ASTM A320 Grade L7, plated, case hardened, high strength, corrosion resistant.

D. Gaskets shall be 1/8" thick spiral wound stainless steel, filled, fuel resistant gaskets rated for -50º F service with a carbon steel centering ring. Provide 1/8" thick full faced non-asbestos fiber composite gaskets and flat faced flanges where required for connection to equipment.

2.04 BRANCH CONNECTIONS 2-INCH AND SMALLER

A. Branch connections 2 inch and smaller may be ASTM A105 forged carbon steel "saddle type" weld-o-let couplings, or threaded-o-let couplings where indicated, 3000 pound minimum, provided the nominal pipe size of the branch connection is less than 50 percent of the nominal pipe size of the header or main pipe run.

2.05 PIPE SUPPORTS, UNISTRUT AND HARDWARE

A. Unistrut channel shall be 12 Ga. Steel, hot-dipped galvanized with the slotted hole pattern. Provide P1000 and P5000 Unistrut, or approved equal.

B. Unistrut channel that is welded in place shall be solid backed and continuously seal welded in place. Unistrut channel that is welded in place shall be coated the same as substrate it is welded to, and does not require galvanized coating.

C. Pipe clamps for use on Unistrut shall be hot-dipped galvanized pipe clamps with hex head screw and nut. Provide Unistrut P11xx pipe clamps or approved equal.

D. Unistrut brackets shall be hot-dipped galvanized Unistrut P2231, or approved equal.

E. Pipe straps shall be hot-dipped galvanized. Provide Unistrut P2558, B-Line Figure B2100 or Grinnell Figure 262 pipe straps, or approved equal.

2.06 PIPE COATINGS AND CORROSION PROTECTION

A. Prior to shipping piping that will be installed above grade, sandblast per SSPC SP-10 "Near White Blast Cleaning" and prime with Devoe Catha-Coat 302H inorganic zinc primer, 3-4 mils minimum DFT. After fabrication sandblast or wire brush all fittings and joints to clean bare metal and prime equal to pipe.

2.07 BALL VALVES

A. Regular Port Flanged Ball Valves: Carbon steel Uni-Body, standard reduced port, stainless steel ball and trim, glass filled Teflon seats, graphite stem seals, ANSI Class 150 raised face flanged ends with lockable handle. NACE MR0175 conformance and fire safe per API 607. PBV C-5410-31-2236-FTNL, or approved equal.

B. Full Port Flanged Ball Valves: Carbon steel split body, full bore, stainless steel ball and trim, glass filled Teflon seats, graphite stem seals, ANSI Class 150 raised face flanged ends with lockable handle. NACE MR0175 conformance and fire safe per API 607. PBV C-6410-31-2236-FTNL, or approved equal.

C. Threaded Ball Valves: Threaded carbon steel body, stainless steel ball and trim, PTFE seats, graphite seals, with lockable handle. PBV C-5312-38-2236-TL-NC, or approved equal.

D. The trim for all valves shall be rated for use with Unleaded Gasoline and Diesel.

E. Provide padlocks for all valves where indicated "Locked Closed" as specified or indicated on the Drawings. Padlocks to be in accordance with Section 32 31 13 – Chain Link Fence.

F. Provide handle extensions as required when indicated.

2.08 CHECK VALVE

A. Flanged Check Valves: Swing type check valve with carbon steel body, stainless steel trim and ANSI Class 150 raised face flanged ends. Check Valves 2" and larger, Crane No. 147 or equal. Check valves smaller than 2", Bonney Forge l1-61 or equal.

B. Threaded Check Valves: Swing type check valve with forged steel body and 13% CR trim. Vogt S-74 series or equal.

C. The trim for all valves shall be rated for use with Unleaded Gasoline and Diesel.

2.09 PRESSURE RELIEF VALVES

A. Angle pattern pressure relief valve with raised face flanged ends, carbon steel body, and stainless steel trim. Set relief valves at 75 psi unless otherwise indicated. Hydro Seal Model 30FLBV-0O for 2-inch relief valves and 1FLAXV-0O for 1-inch relief valves, or approved equal.

B. Seals and trim for all valves shall be rated for use with Unleaded Gasoline and Diesel.

PART 3 EXECUTION

3.01 PIPE

A. Pipe shall be handled and stored as specified by coating manufacturer to prevent coating and pipe damage.

B. Pipe shall be bundled, shipped and stored with one end flush, with end caps and bevel protectors installed and secured in each end.

C. The interior and ends of pipe shall be kept clean of foreign matter and water before, during and after installation. Replace end cap as work progresses to keep pipe interiors clean.

D. Provide piping supports as shown on the Drawings and as required to adequately support piping and associated loads.

E. Above grade piping shall have a 3-4 mils minimum DFT factory applied external coating of Devoe Catha-Coat 302H inorganic zinc primer as specified. After fabrication and assembly of pipe, sandblast or wire brush all fittings, joints, flanges, valves or damages areas to clean bare metal and prime equal to the factory applied pipe coating. Factory applied coatings that are tightly adhered may be left intact with minimal surface preparation. Clean entire lengths of above grade piping and apply a second coat of the specified primer in the field.

F. Label all above grade piping as to contents and mark direction of flow in accordance with ASME A13.1 and Section 09 97 13.23 – Exterior Steel Coatings. Periodically label each pipe run, 50-feet minimum, 150-feet maximum.

3.02 FITTINGS AND END CONNECTIONS

A. All pipe and fittings shall be welded. Threaded fittings are not allowed except where shown on the Drawings, or where required for connection to equipment.

B. Provide flanged connections or unions to allow removal of individual components and equipment.

C. Fittings shall be welded in place, inspected, and tested in accordance with Section 33 52 13.33 – Welded Pressure Piping, ANSI/ASME B31.4 and API 1104.

3.03 VALVES

A. Install all valves within 12 inches of a support at the locations shown on the Drawings.

B. Provide hand wheel or stem straight up, unless noted otherwise.

3.04 BRANCH CONNECTIONS

A. Install in accordance with ANSI/ASME B31.4.

B. Forged steel welded type branch connections are allowed for branch connections 2-inch and smaller with a nominal pipe size less than 50 percent of the nominal pipe size on header or main pipe run.

C. Provide butt welded reducing tees, or a combination of tees and reducers for branch connections larger than 2-inch, or greater that 50 percent of the main run.

D. Socket welded tees may be provided for branch connections on headers or main runs smaller than 2-inch.

E. Provide tees with pig bars where indicated on the Drawings to prevent pigs from entering the branch connection.

3.05 TESTING

A. Pressure testing of piping systems shall be in accordance with Section 33 52 13.33 – Welded Pressure Piping and this Section. Submit written procedures for testing, including test pressures, equipment to be used, and pipe segment identification numbers.

B. Prior to painting or concealing, CONTRACTOR shall perform a one-hour pneumatic or hydrostatic piping pressure test at a minimum of 150 psi. All pipe joints and connections shall be tested. Retest segments as necessary to test connections to previously tested piping systems.

C. Air testing is hazardous in nature as air is compressible and may be released explosively should the piping system rupture. CONTRACTOR shall be responsible for protecting life and property during testing.

D. Should water be used for testing, all hydrostatic test water must be removed after the test. Hydrostatic testing shall be reserved for piping systems with no valves or piping specialties installed which can be pigged to completely remove all water, or for prefabricated shop testing pipe spools which can be completely drained and air dried. Water from piping systems shall not be pushed into tanks after final draining and drying of tanks has been completed.

E. Protect and isolate items that may be damaged by the test pressure. Provide blind flanges, threaded caps or plugs at each end of the test section. Soak each joint with a leak detection solution and visually inspect for leaks. Repair any defect and retest. All welds that fail inspection shall be cut out, rewelded and retested.

F. Following successful pressure test, reassemble the system, remake all pipe joints, and install new gaskets on any flanged joints that are taken apart before reassembling. After final system assembly perform an operational leak test at 75 psi for a minimum of one (1) hour. Repair all defects.

G. Pressure test all pipe segments and fill out the AUTHORITY pipe pressure test report for each pipe segment. Devise a labeling and numbering system for each pipe segment making reference to drawings or sketches if necessary to clearly identify the piping segment. Deliver original pressure test reports to the Project Manager and copy the Engineer.

H. After assembling marine header and transfer pipelines and prior to introducing fuel, clean the interior of each pipeline by pigging. Propel pigs with compressed air. Pass a minimum of two foam pigs with imbedded wire brushes through each pipeline. Pass additional foam pigs through each pipeline until pigs are received at the opposite end essentially free of debris and water. Make final piping connection at each end after completing cleaning operations.

END OF SECTION

SECTION 33 52 13.33

WELDED PRESSURE PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes the welding requirements for all welded steel pipe and fittings.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 33 52 13.13 – Pipe, Valves and Fittings.

1.03 REFERENCES

A. American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME):
   1. B31.4 – Liquid Transportation Systems for Hydrocarbons and other Liquids.

B. American Petroleum Institute (API):
   1. API 1104 – Welding of Pipelines and Related Facilities.

C. American Society for Nondestructive Testing (ASNT):
   1. No. SNT-TC-IA – Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing.
   2. Supplement A – Radiographic Testing Method.

D. American Welding Society (AWS):
   1. A2.4 – Standard Symbols for Welding, Brazing and Nondestructive Examination.
   2. A3.0-B5 – Welding Terms and Definitions.
   3. QC1-96 – Specifications for Qualifications and Certification of Welding Inspector.
   4. Z49.1-1999 – Safety in Welding and Cutting.

1.04 SUBMITTALS

A. The CONTRACTOR shall submit each of the following items for approval one (1) month prior to the start of fabrication:

1. Welding Procedure Qualification Records (PQRs).
2. Welding Procedure Specifications (WPSs).
3. Welder Performance Qualifications (WPQ).
4. Nondestructive Testing (NDT) Procedures.
5. NDT Personnel Certification Procedures.
6. NDT Personnel Certification.
7. Welding Inspector Certification.
8. Shop Drawings: Show location, length, and type of welds, and indicate post-weld heat treatment and NDT as required.
9. Quality Control Procedures.
10. Testing Procedures.
11. Test Reports.

1.05 GENERAL REQUIREMENTS

A. Threaded fittings outside of structures are prohibited, except where specifically shown on the Drawings.

B. All piping and fittings outside of structures will be full penetration butt welded for piping larger than 1-1/2-inch nominal diameter.

C. All piping and fittings outside of structures will be socket welded for piping 1-1/2 inch nominal diameter or smaller.

D. The pipeline system will operate at 20% or less of specified minimum yield strength as established by ANSI/ASME B31.4. All testing and inspections shall comply with ANSI/ASME B31.4 and the “20% or less” criteria, unless otherwise specified.

E. Deviations from applicable codes, approved procedures, and approved shop drawings will not be permitted without prior written approval.

F. Materials or components with welds made off the site will not be accepted if the welding does not conform to the requirements of this Specification, unless otherwise approved by the Engineer.

G. Welding shall not be started until welding procedures, welders, and welding operators have been approved by the Engineer.

H. Welds made prior to approval of welding procedures, welders, and welding operators shall be re-welded at the CONTRACTOR's expense.

I. Weld Procedure Qualification and Welder/Welding Operator Qualification shall be witnessed by an approved third party testing laboratory and/or agent. Costs of such testing shall be borne by the CONTRACTOR.

J. The Engineer shall be notified at least forty-eight (48) hours in advance of the time and place of the tests.

K. The CONTRACTOR shall maintain a current file of all PQR's, WPS's, WPQ's and Non-Destructive Examinations (NDE) procedures and test personnel qualifications used on this project.

L. The procedures for making transition welds between different materials or between plates or pipes of different wall thicknesses shall be qualified per API 1104 Section 5.

M. Previous Welder Qualifications, prior to one (1) year from the bid opening date, will not be allowed on this project.

N. Performance: The CONTRACTOR shall be responsible for the quality of all joint preparation, welding, and examination. All materials used in the welding operations shall be clearly identified and recorded. The inspection and testing defined in this Specification are minimum requirements. Additional inspection and testing shall be the responsibility of the CONTRACTOR when he deems it necessary to achieve the quality required. The CONTRACTOR's Quality Assurance Personnel shall keep accurate quality control records of all tests and inspections required during all fabrication, both at the shop and in the field.

O. Definitions: Definitions shall be in accordance with AWS A3.0.

P. Symbols: Symbols shall be in accordance with AWS A2.4.

Q. Safety: Safety precautions shall conform to ANSI Z49.1.

R. Delivery and Storage: All filler metals, electrodes, fluxes, and other welding materials shall be delivered to the site in manufacturer's original unopened packages and stored in a dry space until used. Packages shall be properly labeled and designed to give maximum protection from moisture and to assure safe handling. When electrode packs are opened, place unused electrodes in electrode storage oven.

1.06 QUALIFICATION OF PROCEDURES AND WELDERS

A. Weld Procedure Qualification shall be in compliance with the latest edition of the API Standard 1104 Section 5 and, in addition, shall include the following:

1. Three (3) Charpy Impact Tests shall be taken (sets of 3 specimens). The specimens shall be taken transverse to the weld with each set of specimens including:

- one notch located in the Heat Affected Zone (HAZ),
- one notch located in the center of the weld,
- and one notch located in the base metal.

2. The Charpy Impact Test results shall not be less than 25 ft-lbs. average, at -30°F with no single specimen having less than 20 ft-lbs when tested.

B. All Weld Procedure Specifications written for this project shall be per the API Standard 1104, Section 5, and each shall be fully supported by a PQR.

C. Welder Performance Qualifications shall be per the latest addition of API 1104, Section 6. Welders shall qualify using one or more of the WPS approved for this project. WPQ papers from previous jobs will not be accepted. Welders or welding operators who make acceptable procedure qualification test welds will be performance-qualified for the welding procedure used.

1.07 QUALIFICATION OF INSPECTION AND NDT PERSONNEL

A. All inspection and NDT personnel shall be qualified in accordance with the following requirements:
1. Welding Inspector Certification: Welding inspectors shall be certified in accordance with AWS QC1 Standard. Welding inspector shall be independent and not employed by the CONTRACTOR who performs the welding.
2. NDT Personnel Qualification: NDT personnel shall be certified, and a written procedure for the control and administration of NDT personnel training, examination, and certification shall be established. The procedures shall be based on appropriate specific and general guidelines of training and experience recommended by SNT-TC-IA, Supplement A – Radiographic.

PART 2 PRODUCTS

2.01 FILLER METAL

A. Weld filler metal shall comply with API 1104 paragraph 4.2.2 and AWS specifications as cited therein.

PART 3 EXECUTION

3.01 JOINTS AND BEVELS

A. All pipe joints (including line pipe, bends, elbows, tees, flanges, and branch connections) shall be full penetration butt-welded, except where socket weld connections are allowed. Comply with ANSI/ASME 31.4, and API 1104 as cited therein.

B. End bevels: Bevel or re-bevel ends by machine tool or machine oxygen cutting as required to make a satisfactory weld. Manual beveling is not approved. Comply with API 1104.

3.02 WELDING OPERATIONS

A. Welding shall be performed in accordance with qualified procedures using qualified welders and welding operators. Welding shall not be done when the quality of the completed weld could be impaired by the prevailing working or weather conditions. At his discretion, the Weld Inspector or Project Field Engineer may determine when weather or working conditions are unsuitable for welding.

3.03 INSPECTIONS AND TESTING OF PRODUCTION WELDS

A. Visual Inspection: Weld joints shall be visually inspected in accordance with API 1104 and as follows:
   1. Before welding, verify compliance with requirements for joint preparation, placement of alignment clamps, fit-up, and cleanliness.
   2. During welding, verify conformance to the qualified welding procedure.
   3. After welding, inspect for cracks, contour and finish, bead reinforcement, undercutting, overlap, and size of fillet welds. Provide 100% visual inspection in accordance with API 1104 and the requirements above.

B. Pressure Testing: Pressure testing of piping systems shall be in accordance with this Section and additional requirements in Section 33 52 13.13 – Pipe, Valves and Fittings.
   1. Isolate and pressure test each section of piping for minimum of one hour. Test pressure shall be 150 psi for hydrostatic testing and 125 psi for pneumatic testing. Test 100% of welds visually for leaks, use a leak detection solution for pneumatic testing. Do not conceal pipe joints before pressure testing is complete. Isolate equipment and components rated for lesser pressures so as not to damage these items.
   2. Leak test piping system a second time after all piping is assembled and equipment is installed, with the fluid intended to be transported in the completed piping system at 75 psi for a minimum of one (1) hour, or the maximum rated pressure of the weakest component in the system, whichever is less. If leak test cannot be performed with fluid, perform leak test with air. Test 100% of welds and pipe joints visually for leaks. Anything wet with fuel shall be assumed to be leaking. Piping system shall maintain pressure for one hour minimum. Repair any defects and retest the system as required.
   3. Notify Engineer seven (7) days in advance of pressure and leak tests so a designated representative can be present during testing.
   4. All flange gaskets shall be greased with a suitable compatible grease in order to achieve the pneumatic test specified above.

5. Pressure shall be maintained for sufficient time to complete the visual inspection of all joints.
6. Care shall be taken to ensure that test pressures are not applied to vented tanks. Such tanks shall be tested separately, as specified elsewhere.
7. Submit written procedures for testing, including test pressures, equipment to be used, and items to be tested.
8. Re-testing after the repair of defects shall be performed at no cost to the AUTHORITY.
9. Certified test results shall be submitted to the Engineer for approval.
    a. Test certification shall include gauge pressure, air temperature, time, date, witness, and pipeline identification number.

C. Radiographic Testing: NOT REQUIRED.

D. Weld Defects: If the inspection reveals that any welds fail to meet minimum quality requirements, those welds shall be removed, rewelded and retested.

E. Inspection and Tests by the AUTHORITY: The AUTHORITY may perform inspection and supplemental nondestructive or destructive tests as deemed necessary. The cost of supplemental NDT will be borne by the AUTHORITY. The correction and repair of defects and the reexamination of weld repairs shall be performed by the CONTRACTOR at no additional cost to the AUTHORITY. Inspection and tests will be performed as required for visual inspection and NDT, except that destructive tests may be required also. When destructive tests are ordered by the AUTHORITY and performed by the CONTRACTOR, and the specimens or other supplemental examinations indicate that the materials and workmanship do not conform to the Contract requirements, the cost of the tests, corrections, and repairs shall be borne by the CONTRACTOR. When the specimens or other supplemental examinations of destructive tests indicate that materials or workmanship do conform to the Specification requirements, the cost of the tests and repairs will be borne by the AUTHORITY. When destructive tests are made, repairs shall be per API 1104.

3.04 ACCEPTANCE STANDARDS

A. Pressure test: No leaks.

B. Visual: Comply with API 1104, Section 9.

C. Radiography: NOT USED

3.05 CORRECTIONS AND REPAIRS.

A. Defects shall be removed and repaired as per API 1104, unless otherwise specified at no additional cost to the AUTHORITY.

END OF SECTION

SECTION 33 52 13.43

SPILL RESPONSE EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Specification applies to standard spill response equipment and overpack drums for storing this equipment.

1.02 RELATED REQUIREMENT

A. Section 01 33 00 – Submittal Procedures.

1.03 REFERENCED STANDARDS

A. United States Department of Labor, Occupational Safety and Health Administration (OSHA); 29 Code of Federal Regulations (CFR) 1910.

1.04 SUBMITTALS

A. Submit manufacturer's data for all spill response equipment and supplier for each item. Group item by each supplier.

B. Unless otherwise indicated alternate manufacturers will be acceptable as long as they supply similar equipment with the same quality and performance.

1.05 GENERAL

A. The CONTRACTOR is responsible for providing spill response equipment as specified in accordance with this Section.

B. All equipment and materials shall be new unless indicated otherwise.

C. Place items inside overpack drums, except pump and smart ash burner. Store spill response equipment in a covered area near the project site within 300 feet of the bulk tank farm, at the location specified by the Kipnuk Traditional Council.

PART 2 PRODUCTS

2.01 SPILL RESPONSE EQUIPMENT

A. Provide all spill response equipment as specified in the below Bid Schedule.

B. Smart Ash Incinerator: Cyclonic barrel burner that can be used with or without fuel that is suitable for disposal of dry loads that support combustion, such as oily rags, absorbent pads, etc. The unit shall incinerate waste with efficiency, in an environmentally correct manner and been tested following EPA testing formats.

1. The air powered incinerator must be suitable for use with no external fuel, with stainless steel lid, painted tubular steel frame and have two axial vane 120 VAC blowers. After loading open top 55-gallon steel drum, lighting the refuse and clamping the lid, fans shall create a whirlwind of fire and intense heat inside the drum, burning the refuse with no smoke and no smell. When combustion is complete the remaining ash must be 3% or less, by volume, of the original load.
2. Cyclonic barrel incinerator shall meet Federal EPA defined exemptions from State Emission Plans for Cyclonic Barrel Burners as defined by the Federal Register Code of Federal Regulations 40 CFR Part 60.
3. Spill Shield Inc. Elastec/American Marine products Smart Ash Cyclonic Barrel Burner or equal.

C. Portable centrifugal pump shall be designed to pump petroleum products with shielded ignition and spark plug, spark-arresting muffler, anti-sparking aluminum impeller, and long life mechanical seal with Viton elastomers and stainless steel trim. Portable pump substitute must be approved.

2.02 BID SCHEDULE

	Item/Description	Unit Cost	Extend. Cost
Absorbent Material and Containers			
4 ea.	Overpack Drums, 95 Gallon Poly (See Note 2)		
1 ea	Open-top Drum, 55 Gallon, Metal		
3 ea.	Absorbent Roll, min 30”x140’, min absorb 50 gal/bale		
3 ea.	Absorbent Pads, min 16”x20”, 100 Pieces Ea., min absorb 24 gallons/bale		
8 ea.	Absorbent Boom, min 4”x40’, min 100 gal/40’		
4 ea.	Absorbent Sweep, 19” x 100’, min absorb 25 gal/bale		
Personnel Protective Equipment			
100 pr.	Gloves, Nitrile AF18 Chem-Resist, Pairs		
16 ea.	Tyvek Suits, XL Polyethylene Coated		
10 pr.	Goggles		
6 ea.	Hardhats		
Recovery Equipment			
4 ea.	3000 gallon Fold-A-Tank		
1 ea.	2-inch portable centrifugal pump, gas-powered Goulds/Marlow 2AM32-P rated at 130 gpm with 2” camlocks (Option: Diesel-powered Gorman Rupp #82E1-L100EE-X rated at 210 gpm with 2” camlocks)		
1 ea.	Discharge Hose with 2” camlocks, 100’ total length		
1 ea.	Suction Hose with 2” camlocks, 50’ total length		
4 ea.	Shovel		
4 ea.	Rake		
6 rolls	Garbage/Disposal Bags (for oily waste, 50 bags per roll)		
Miscellaneous			
1 ea.	Smart Ash incinerator		
5 ea.	Fire Extinguishers, Portable, Type 3A-40BC		
4 ea.	Padlocks, keyed-alike		
		TOTAL $	

Notes:

1. Absorbent material can be natural or synthetic.
2. Place all spill response items in overpack drums. If items will not fit within 4 overpacks, then provide additional overpacks.
3. Permanently label all overpack drums “SPILL RESPONSE EQUIPMENT” with minimum 3” high letters. Securely attach a laminated manifest to the outside of each drum listing all of the materials contained within, place second manifest on top of equipment inside drum.

PART 3 EXECUTION

3.01 INSTALLATION

A. Place all small items in overpack drums. Place portable pump and centrifugal incinerator on floor inside the covered area designated by the Traditional Council. Alternatively place items on shelves within covered area. If shelves are used they must be sufficiently strong to hold equipment.

END OF SECTION

SECTION 33 56 13.13

VERTICAL STORAGE TANKS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tank procurement requirements for eight (8) each 71,500-gallon vertical bulk storage tank for diesel and gasoline, constructed in accordance with API Std 650 – Welded Steel Tanks for Oil Storage, 12th Edition, March 2013.

B. Work required in this request includes tank design, shop drawings, shop fabrication, shipping and erection of the tanks, including the tank appurtenances specified in this document, OSHA ladders, hand rails, guard rails, nozzles, other connections indicated on the Drawings, as well as inspection, testing, and external tank coatings.

C. Tanks may be erected in the shop and shipped to the field as completely manufactured and coated assemblies, or they may be field erected and coated.
   1. The provisions of API 650 Annex J applies to shop erected tanks, except for the maximum tank diameter and a self-supported roof is not required.
   2. Proper support, shoring and bracing of the tank bottom and tank roof must be provided during shipment of completely assembled tanks.
   3. Tank movement shall be in accordance with API 653.
   4. After placing tanks on their permanent foundation they must be hydrostatically tested in accordance with API 650/653.

D. Tanks are to be located in Kipnuk, Alaska 99614.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 09 97 13.23 – Exterior Steel Coatings.

C. Section 33 52 13.13 – Pipe, Valves and Fittings.

D. Section 33 52 13.33 – Welding Pressure Piping.

1.03 REFERENCE STANDARDS

A. CONTRACTOR shall use the most current edition of the referenced standards.

B. API Standard 650 – Welded Steel Tanks for Oil Storage.

C. API Std 650 Storage Tank Data Sheets (attached to this specification).

D. API Standard 653 - Tank Inspection, Repair, Alteration, and Reconstruction.

E. API Standard 2000 – Venting Atmospheric and Low Pressure Storage Tanks.

F. ASME Boiler and Pressure Vessel Code, Section IX – Welding and Brazing Qualifications.

G. ASTM A123 – Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip.

H. Occupational Safety and Health Administration (OSHA) 29CFR1910.

1.04 SUBMITTALS

A. Tank shop drawings and material lists with catalog cuts for all piping materials, equipment, and tank appurtenances. Any substitutions shall be submitted and approved prior to the start of tank fabrication. All deviations from these Specifications and the Drawings shall be clearly shown and identified on the shop drawings.

B. The CONTRACTOR shall submit tank shop drawings for review at least 45 days prior to fabrication. A professional engineer, registered in the State of Alaska shall sign and seal tank shop drawings and the design calculations. Changes and clarifications shall be incorporated into revised shop drawings and resubmitted for review at least two weeks prior to the start of fabrication. Fabrication shall not start prior to shop drawing approval, except when authorized by Engineer.

C. The CONTRACTOR shall submit the following for approval one (1) month prior to the start of tank erection.
   1. Welding Procedure Qualification Records (PQRs)
   2. Welding Procedure Specifications (WPSs)
   3. Welder Performance Qualifications (WPQs)
   4. Nondestructive Testing (NDT) Procedures and NDT Personnel Certifications
   5. Welding Inspector Certification
   6. Quality Control Plan

D. API tank shell settlement evaluation and hydrostatic test report within 7 days of hydrostatic testing.

E. CONTRACTOR shall submit API 650 Suitable for Service Certification within 30 days of completion of tank work.

F. Provide operation and maintenance data for all valves, equipment, and appurtenances. Submit operation and maintenance data in comprehensive bound manual.

1.05 QUALITY ASSURANCE

A. All work associated with vertical storage tanks shall be in accordance with American Petroleum Institute Standards (API) 650 and API 653.

B. Qualifications: The CONTRACTOR(s) who erect and/or moves tanks shall have a minimum of 5 years' experience in work associated with the construction, relocation, reconstruction, and modification to vertical fuel storage tanks constructed in accordance with API 650.

C. A professional engineer, registered in the State of Alaska, with a minimum of 5 years' experience in the design and modifications of API 650 welded oil storage tanks shall seal tank shop drawings.

D. Testing: Provide independent testing firm to perform testing and inspection including:
   1. Vacuum box testing.
   2. Welding inspection.

E. Tank Hydrostatic Test: After tanks are fully erected and placed in their final position they shall be hydrostatic test in accordance with API 650.

F. Hydrostatic test water must be provided and the source determined by the CONTRACTOR. Water must be clean, with filtration equivalent to 5-micron. The CONTRACTOR must provide means to transport test water from the source to the tanks. Do not leave hydrostatic test water in any single tank longer than 48 hours.

G. The CONTRACTOR shall obtain and pay for all permits required to discharge hydrostatic test water, including but not limited to Alaska Department of Environmental Conservation permit.

1.06 GENERAL REQUIREMENTS

A. The tank supplier/manufacturer is responsible for designing the tank in accordance with the requirements of this Specification. Tank shall be designed by a Registered Engineer, specializing in fuel storage tanks, licensed in the State of Alaska. Calculations and Shop Drawings shall be submitted for approval, and both must be signed and sealed by the Registered Engineer.

B. The tanks shall be erected by the CONTRACTOR and/or at the CONTRACTOR's expense. The tank fabricator shall design the tank and provide all tank materials (i.e. steel plate, roller plate, rolled sections, nozzles, etc.) required for erection of the tanks. The tank fabricator shall provide all erection requirements (i.e. welding procedures, inspection, testing, etc.). Upon completion of the tank erection, the tank fabricator shall provide Inspector to inspect and issue API 650 Suitable for Service Certification.

C. At the CONTRACTOR's option tanks may be either shop or field erected. Shop erected tanks must be completely assembled, inspected, tested and coated before delivery to the project site, ready for installation. If the shop erection option is being selected, indicate this in the submittals.

D. All welding, Welding Procedure Qualification Records, Welding Procedure Specifications, and Welder Performance Qualifications shall be performed in accordance with API 650 and ASME BPVC Section IX.

E. Welding procedures must include impact tests in the heat affected zones when required, and weld metal requirements must be the same as for the plate material.

F. Ladders and catwalks shall comply with OSHA requirements.

G. Data Plate: Provide stainless steel API data plate attached to tank standoff. All data to be engraved or stamped onto the data plate so as not to be obliterated by future coating application. This data plate shall be in accordance with API 650.

H. After erecting tank and installing all shell attachments coat tanks in accordance with Section 09 97 13.23 – Exterior Steel Coatings. Provide tank signage as specified in Section 09 97 13.23.

PART 2 PRODUCTS

2.01 TANK MATERIALS

A. Tank materials shall be in accordance with API 650 for a design metal temperature of -20 degrees F. The minimum one day mean temperature for Kipnuk, Alaska is -35 degrees F.

B. Pipe and Conduit Supports: As detailed. If not specifically detailed provide solid backed Unistrut continuously seal welded in place in accordance with Section 33 52 13.13 – Pipe, Valves and Fittings.

2.02 NORMAL VENT

A. Diesel Tanks: Tee vent with screens and threaded connection. Morrison Bros. Co. Model 155, or approved equal.

B. Gasoline Tanks: Provide pressure/vacuum type normal vent on all gasoline and avgas tanks. Pressure/vacuum vent shall have threaded connection, cast low copper, aluminum body, set to open at 1/2 oz./sq. in. pressure or vacuum. Shand and Jurs, Model 94020-13-01-01-05 or approved equal.

2.03 EMERGENCY VENT

A. Aluminum body, brass seats, flanged connection emergency vent set to open at 8 oz/sq-in pressure. Emergency vent shall be sized in accordance with NFPA 30 and API Standard 2000.

B. Loose manhole bolts are not permitted.

C. Morrison Bros., Co. Model 244F for vents 8 inches and larger, or 244 with companion flange for vents 6 inches and smaller, or approved equal.

2.04 LIQUID LEVEL GAUGE

A. Liquid level tape gauge shall have a cast aluminum body and cover, stainless steel constant power spring, and perforated tape. Tape gauge accuracy should be within ±1/16”. Gauge is to be designed for moderate service.

B. Provide Shand and Jurs Model 92021, Class C, with Installation Kit No. 1, or approved equal.

2.05 LEVEL SWITCHES

A. Float activated magnetic level switch with stainless steel adjustable compression fitting at top, 2" MPT connection, and 2" x 2-1/2” forged steel threaded bushing for tank connection.

B. Suitable for installation in Class I, Division I Hazardous Environments.

C. Actuation set points shall be as indicated; coordinate stem length with switch set point(s).

D. Innovative Components Stock No. 94491, or approved equal. For Critical High/High/Low level switch specify L1 (low level), L2 (high level), and L3 (critical high level) distances from bottom of 2" MPT fitting and approve shop drawing prior to ordering. For Critical High/High level switch specify L2 for high level and L3 for critical high level.

2.06 GAUGING HATCH

A. Lockable gauging hatch, threaded, 3-inch diameter, brass hatch with cast iron cover for tank gauging. Provide Morrison Bros. Co. Figure 178 BB-IC, or approved equal.

2.07 LADDERS AND GUARDRAILS

A. Provide Federal OSHA compliant tank access ladders, handrails and guardrails as indicated. Provide ladders complete with full height side rails. Ladders are intended for maintenance access and must have guardrails at top of tanks where indicated. Guardrail height to be 42 inches to top rail, with intermediate rail and toe-board. Ladders, handrails and guardrails to be hot-dip galvanized, fitted to the tanks with bolted connections and removed for shipping. Hot dip galvanizing to be in accordance with ASTM A123.

PART 3 EXECUTION

3.01 SHIPPING

A. Tank shell, roof, and base material shall be sized such that it is suitable for shipping in standard connexes or flats. Rolled materials shall be packaged on welded steel saddles, which maintain the rolled shape radius tolerances to within plus or minus 3-inches of the design radius. The saddles shall be constructed to ship the shell plate curved downward, i.e. with the center of the plate high, and the edges low.

B. Shop fabricated tanks shall be packaged for ocean transport. Lifting connections (eyes) shall be provided for tank handling. Tank openings, with the exception of the tank emergency vent, shall be sealed for shipping with provisions made to relieve excess pressure/vacuum which may damage the tank during transportation while preventing precipitation or salt water spray from entering tank. Minimum vent opening shall be 1/2-inch diameter.

C. All tank appurtenances and equipment shall be packaged, palletized, or crated for barge transport. Include packing layout in shop drawings for review and approval. Tank appurtenances and equipment shall be protected from moisture and shall be packaged in weather tight enclosures.

3.02 TANK ERECTION

A. For field erected tanks, tank construction shall not start before foundation has been approved by the Engineer. Do not place shop erected tanks in their final position until foundation has been approved.

B. Tanks, fittings and nozzles shall be erected in accordance with the tank fabricators requirements, the Shop Drawings, and API 650.

C. All welds shall be continuous seal welds. No “stitch” or “skip” welding is permitted.

D. Install all penetrations and equipment on roof and shell plum and level, and all shell nozzles square to tank tangent lines.

E. After tank hydrostatic testing, remove all water from tank, squeegee residual water from floor, remove shell and roof manholes, and force ventilate tank with eductor fan until shell, floor, roof, and all other interior surfaces are dry.

F. After field erection of tanks is complete, coat tanks in accordance with Section 09 97 13.23 – Exterior Steel Coatings.

3.03 SURVEYING

A. CONTRACTOR shall provide interior tank bottom surveys prior to first filling of each tank. Survey shall include elevations near interior shell at 30 degree increments (starting at North), floor elevations on 30 degree radials at 10 foot spacing and floor center and sump bottom elevations.

B. CONTRACTOR shall provide exterior ringwall foundation level survey prior to first tank filling and within 2 days of completion of tank hydrostatic testing.

3.04 HYDROSTATIC TESTING AND TANK FOUNDATIONS MEASUREMENTS

A. The CONTRACTOR must erect structural steel tank foundations to be level within +/- 1/8 inch in any 30 ft of the circumference and within +/- 1/4 inch in the total circumference measured from the average elevation. Survey foundation upon completion and submit to Engineer at least seven (7) days prior to hydrostatic testing. Tank foundations levelness shall be within limits established by API.

B. In addition tank foundation elevation measurements with an accuracy of plus or minus 0.01 inches or better shall be taken before, during, and after hydrostatic testing. Elevation measurements shall be made in eight locations equally spaced around the perimeter of each tank, on the same datum, and in the same orientation each time. These elevation measurements shall be submitted with the API tank shell settlement evaluation for each tank.

C. Hydrostatic testing for each tank shall have duration of no less than two hours.

D. After tank hydrostatic testing, remove all water from tank, squeegee residual water from floor, remove shell and roof manholes, and force ventilate tank with eductor fan until shell, floor, roof, and all other interior surfaces are dry.

3.05 TANK SETTLEMENT COMPENSATION

A. CONTRACTOR shall adjust piping and pipe supports at connections to tanks during and after filling of tanks for hydrostatic test water to prevent tank damage due to settlement.

END OF SECTION

API

API Std 650 Storage Tank Data Sheet

Data Sheet Status: _____

* For boxes marked with *, if blank, Mfr. shall determine and submit as per Appendix L. For all lines, see Appendix L for line-by-line instructions.

GENERAL Special Documentation Package Requirements: Spec Section 33 56 13.13

Measurement Units to be used in API Std 650: SI ☐ US Customary ☑

1. Manufacturer* _____ Contract No.* _____
   Address* _____
   Mfg. Serial No.* _____ Year Built* _____ Edition & Addendum to *API 650** 12th, 03/2013
2. Purchaser Alaska Energy Authority Contract No. Kipnuk Bulk Fuel Upgrade
   Address 813 W Northern Lights Blvd. Anch AK 99503
   Tank Designation 101, 102, 103, 201, 202, 301, 302, 303
3. Owner/Operator Kipnuk Traditional Council Location Kipnuk, AK 99614
4. Size Limitations* 76,500 gallons Tank Diameter* 25.33' Shell Height* 19.0'
   Capacity: Maximum* _____ Net Working* _____ Criteria:* _____
5. Products Stored:
   Liquid Diesel / Gasoline (& 0.76 for Gas) Max. S.G.: 0.86 at -30 °F
   Blanketing Gas N/A Vapor Pressure _____ PSIA at Max. Operating Temp.
   % Aromatic _____ Suppl. Spec. _____ H_2S Service? Yes ☐ No ☐ Suppl. Spec. _____
   Other Special Service Conditions? Yes ☐ No ☐ Suppl. Specs. _____

DESIGN AND TESTING Purchaser to Review Design Prior to Ordering Material? Yes ☐ No ☐

6. Applicable API Standard 650 Appendices:* A ☐ B ☐ C ☐ F ☐ G ☐ H ☐ I ☑ J ☑ L ☐ M ☐ O ☐ P ☐ S ☐ U ☐ V ☐ W ☐
7. Max. Design. Temp. 100 °F Design Metal Temp.* -20 °F Design Liquid Level* 19.0'
   * Design Pressure 0.5" W.C. External Pressure N/A Pressure Combination Factor _____ #2.5 psi For Emergency Venting.
   Maximum Fill Rate 250gpm Maximum Emptying Rate 250gpm
   Flotation Considerations? Yes ☑ No ☐ Flot. Suppl. Spec:* _____ Applied Supplemental Load Spec. _____
8. Seismic Design? Yes ☑ No ☐ Appendix E ☑ Alternate Seismic Criteria _____ Seismic Use Group III
   MBE Site Class D Vertical Seismic Design? Yes ☑ No ☐ Vertical Ground Motion Accelerator A_v: 0.140g
   Basis of Lateral Acceleration (Select one): ☑ Mapped Seismic Parameters? S_s 0.117 S_1 0.078 S_0 0.050; ☐ Site-Specific Procedures?: MCE
   Design Required? Yes ☑ No ☐; ☐ Other (Non-ASCE) Methods _____
   ☐ Freeboard Required for SUG I Design Roof Tie Rods @ Outer Ring?* Yes ☐ No ☐
9. Wind Velocity for non-U.S. sites, 50-yr wind speed (3-sec Gust)* 130 mph
   Top Wind Girder Style* _____ Dimensions* _____ Use Top Wind Girder as Walkway? Yes ☐ No ☐
   Intermediate Wind Girders?* Yes ☐ No ☐ Intermediate Wind Girder Style* _____ Dimensions* _____
   Check Buckling in Corroded Cond.? Yes ☐ No ☐
10. Shell Design: 1-Ft Mthd?* Yes ☐ No ☐; Variable-Des-Pt Mthd?* Yes ☐ No ☐ Alternate ☐; Elastic Anal. Mthd?* Yes ☐ No ☐ Alternate
    Plate Stacking Criteria* Centerline-Stacked? Yes ☐ No ☐ Flush-Stacked? Yes ☐ No ☐ Inside ☐ Outside ☐
    Plate Widths (Shell course heights) and Thicknesses * Numbers below indicate Course Number.
    1. _____ 2. _____ 3. _____ 4. _____ 5. _____
    6. _____ 7. _____ 8. _____ 9. _____ 10. _____
    11. _____ 12. _____ 13. _____ 14. _____ 15. _____
    Joint Efficiency* _____ % Shell-to-Bottom Weld Type* _____ Shell-to-Bottom Weld Exam Mthd* _____
    Exceptions to Seal-welded Attachments (see Section 5.1.3.7): _____

Approvals:	Revisions:	Title:
		By: Ck'd: Date:
		Drawing No.: Sheet ___ of ___

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* If box is blank, Manufacturer shall determine and submit as per Appendix L.

11. Open-Top and Fixed Roofs: (See Sheet 6 for Floating Roofs) Open Top? * Yes ☐ No ☐

Fixed Roof Type* Cone Roof Support Columns*: Pipe ☑ Or Structural Shape ☐ _____

Cone Slope* 1:12 Dome or Umbrella Radius* _____ Weld Joints* _____ (Lap, Butt, Other)

Seal Weld Underside of: Lap-Joints? Yes ☐ No ☐; Seal Weld Underside of Wind Girder Joints? Yes ☐ No ☐

Gas-tight? Yes ☐ No ☐ Joint Efficiency* _____%

Thickness* _____ In. Snow Load * _____ App. Suppl. Load Spec.* _____ Column Lateral Load _____

Normal Venting Devices* _____ Emergency Venting Devices* _____

Free Vents in Areas Where Snow and Ice May Block Vent* _____

For Non-Frangible Roofs: Seal Weld Roof Plates to Top Angle on the Inside? Yes ☐ No ☐ ; Weld rafters to Roof Plates Yes ☐ No ☐

Roof-to-Shell Detail* _____ Radial Projection of Horizontal Component of Top Angle* Inward ☐ Outward ☐

12. Bottom: Thickness* _____ Style* _____ Slope* None. Weld Joint Type* _____

Provide Drip Ring? Yes ☐ No ☐ Alternate Spec. _____

Annular Ring? Yes ☐ No ☐ Annular Ring: Minimum Radial Width* _____ Thickness* _____

13. Foundation: Furnished by* General Contractor Type* Structural Steel Grillage

Soil Allow. Bearing Pressure* _____ Per Spec.* _____ Anchors: Size* 1" Qty* 8

Foundation Design Loads: Base Shear Force: Wind* _____ Seismic* _____ Overturning Moment: Wind* _____ Seismic* _____

Ring Forces: Weight of Shell + Roof New* _____ Corroded* _____ Roof Live Load* 40psf (Snow) Internal Pressure* _____

Partial Vacuum* _____ Wind* _____ Seismic* _____

Bottom Forces: Floor Wt. New* _____ Corroded* _____ Product Wt.* _____ Water Wt.* _____ Internal Pressure* _____

Partial Vacuum* _____ Other Foundation Loads* _____ Min. Projection of Fdn. Above Grade: _____

14. Responsibility for Heating Water, If Required: Purchaser ☐ Manufacturer ☐

Hydro-Test Fill Height* _____ Settlement Measurements Required? Yes ☐ No ☐ Extended Duration of Hydro-Test: _____

☐ Predicted Settlement Profile is Attached

Responsibility for Setting Water Quality: Purchaser ☐ Manufacturer ☐ Supplemental Test Water Quality Spec. _____

Test Water Source & Disposal Tie-In Locations _____ Hydro-Test Appendix J Tank? Yes ☐ No ☐

Post-Pressure-Test Activities Required of the Manufacturer: Broom Clean ☐ Potable Water Rinse ☐ Dry Interior ☐

Other ☐ _____

15. Inspection by Fabricator in Shop; Erector in Field

Supplemental NDE Responsibility Fab./Erect. Supplemental NDE Spec. Manufacturer/API 650 (Purch., Mfg., Other)

Positive Material Identification? Yes ☑ No ☐ PMI Requirements: Certified Mill Reports

Max. Plate Thickness for Shearing _____

Must Welds not exceeding 6 mm (1/4 in.) Be Multi-Pass? Yes ☐ No ☐ Must Welds greater than 6 mm (1/4 in.) Be Multi-Pass? Yes ☐ No ☐

Leak Test Mthd: Roof* _____ Shell* _____ Shell Noz./Manhole Reinf. Plt.* _____

Bottom* _____ Floating Roof Components* _____

Modify or Waive API Dimensional Tolerances (see 7.5)? No ☑ Yes ☐ Specify: _____

Specify Additional Tolerances, If any, and Circumferential and Vertical Measurement Locations:

- Allowable Plumbness: _____ Measure and Record at a Minimum of ____ Locations or Every ____ m (ft) around the Tank, at the Following Shell Heights: (select one box): ☐ 1/3 H, 2/3 H and H ☐ Top of Each Shell Course ☐ Other: _____
- Allowable Roundness: ** _____ Measure Radius and Record at a Minimum of _____ Locations or Every _____ m (ft) around the Tank, at the Following Shell Heights (select one box):

☐ Top of Tank, H ☐ 1/3 H, 2/3 H and H ☐ Top of Each Shell Course ☐ Other: _____

**See Data Sheet Instructions for the Maximum Allowable Additional Radial Tolerance.

Approvals:	Revisions:	Title:
		By: Ck'd: Date:
		Drawing No.: Sheet ___ of ___

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16. **Coatings:**
Internal Coatings by: N/A Per Spec.* _____
(Not Req'd., Others, Tank Mfg.)
External Coating by: General Contractor Per Spec.* Section 09 97 13.23
(Not Req'd., Others, Tank Mfg.)
Under-Bottom Coating by: N/A Per Spec.* _____
(Not Req'd., Others, Tank Mfg.)

17. **Cathodic Protection System?** Yes ☐ No ☑ Per Spec.* _____

18. **Leak Detection System?** Yes ☑ No ☐ Per Spec.* as detailed on Drawings

19. **Release Prevention Barrier?** Yes ☑ No ☐ Per Spec.* as detailed on drawings

20. **Tank Measurement System: Required?** Yes ☑ No ☐ **Remote Capability Required?** Yes ☐ No ☑
By:* Mechanical Tape Gauge Per Spec.* 33 56 13.13

21. Weight of Tank: Full of Water* _____ Empty* _____ Shipping* _____ Brace/Lift Spec.* by Manufacturer

22. **References*:** ***API Std 650, Appendix L***

23. **Remarks*:**

Approvals:	Revisions:	Title:
		By: Ck'd: Date:
		Drawing No.: Sheet ___ of ___

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* If box is blank, Manufacturer shall determine and submit as per Appendix L.

TABLE 1 MATERIALS OF CONSTRUCTION

Component	Material*/Thickness*	C.A.	Component	Material*	C.A.
Shell, Course __ to __			Reinforcing Pads		
Shell, Course __ to __			Manhole/Nozzle Necks		
Shell, Course __ to __			Manhole/Nozzle Flanges		
Shell, Course __ to __			Flange Covers		
Shell, Course __ to __			Anchor Attachments		
Roof			Submerged Piping		
Bottom			Wetted Structurals		+
Annular Ring			Non-wetted Structurals		+

+ Check here if C.A. is to apply to each exposed surface ☐.

TABLE 2 BOLTS AND ANCHORS

Component	Head Type*	Bolt or Anchor Material*	Nut Material*	Thread Series*	C.A.
Flange Bolting					++
Structural Bolting					++
Anchor Bolts					++

++ Total C.A., on the nominal diameter.

TABLE 3 NOZZLE AND MANHOLE SCHEDULE* (for Fixed Roof, Shell, and Bottom)

Mark	Service	Size, NPS, or Dia. (in.)	Neck Sch or Wall Thick.	Reinf. Plate Dimensions	Full Pen. On Open. (Y/N)	Flange Type	Flange Class or Thick.	Gasket Bearing Surf. Dimen. and Finish	Gasket Thick. and Dimen.	Gasket Mat'l. and Descript.	Proj. to FF or CL or from Datum Lines
	Fill/Eject	3"ϕ	40								
	Aux	2"d	40								
	Whistle	1"ϕ	80								
Shell	MH	24"d									
Roof:	MH	24"									
	L-Swtch	2.5"	40								
	PRV	2"	40								
	G-Htch	3"	40								
	Spare	3"	40								
	N-Vent	3"	40								
	E-Vent	Sized by Tank Designer	40								

Approvals:	Revisions:	Title:		
		By:	Ck'd:	Date:
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* If box is blank, Manufacturer shall determine and submit as per Appendix L.

OTHER TANK APPURTENANCES

24. Platform, ~~Stairway~~ Ladder, and Railing: Galvanizing Req'd?* Yes ☑ No ☐ ~~Stairway~~ Ladder Style* Fixed Walk Surf. Type* _____
(Straight or Helical)

Stair and Walkway Clear Width* _____ National Safety Standards* OSHA

Architectural/Structural Specification* _____

Gauger's Platform Req'd? Yes ☐ No ☑ Qty Req'd.* _____ Per Spec. * _____

25. Jacket Required?* Yes ☐ No ☑ Other Heaters/Coolers Required?* Yes ☐ No ☐

Supplemental Jacket, Heater, or Cooler Specifications* _____

26. Mixer/Agitator: Quantity _____ Size* _____ Per Spec.* _____

27. Insulation: Required? Yes ☐ No ☑ Thickness* _____ Material* _____

Per Specs* _____ Responsibility for Insulation and Installation _____
(Purchaser, Manufacturer, Others)

28. Structural Attachments: Lift Lugs?* Yes ☑ No ☐ Desc.* Heads (Minimum); Cap. 4X Tankdweight

Shell Anchorage?* Yes ☐ No ☐ Type* _____ Scaffold Cable Support? Yes ☐ No ☐

29. Various Other Items: Welded Flush-Type: Shell Connection ☐ Cleanout Fitting ☐ Waive Application of Appendix P? Yes ☐ No ☐

Miscellany #1 _____ Miscellany #2 _____

Miscellany #3 _____ Miscellany #4 _____

Miscellany #5 _____ Miscellany #6 _____

TABLE 4 OTHER TANK APPURTENANCES*

Mark	Quantity	Service or Description	Size	Orientation	Height from Datum	Material	Remarks

Approvals:	Revisions:	Title:
		By: Ck'd: Date:
		Drawing No.: Sheet ___ of ___

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* If box is blank, Manufacturer shall determine and submit as per Appendix L.

FLOATING ROOF DATA N/A

30. Floating Roof Selection

Design Basis: Appendix C ☐ Or Appendix H ☐

Type of Roof: (External or Internal): Single Deck Pontoon* ☐ Double Deck* ☐

(Internal Only): Tubular Pontoon* ☐ Metallic Sandwich Panel* ☐

Other ☐ _____ Supplemental Spec.:_____

31. Seals

Primary Seal: Shoe ☐ Envelope ☐ Wiper/Compression Plate ☐ Other ☐ _____ Supplemental Spec: _____

Shoe Mechanism: Mfg. Std. ☐ Other ☐ _____

Electrically Isolate Mechanism from Shoes? Yes ☐ No ☐ Wax Scrapers Required? Yes ☐ No ☐

Minimum Shoe Thickness* _____ Carbon Steel Shoes to be Galvanized? Yes ☐ No ☐

Secondary Seal: Shoe ☐ Envelope ☐ Wiper ☐ None ☐ Other ☐ _____ Supplemental Spec: _____

32. Data for All Floating Roofs:

Overflow Openings in Shell Acceptable? Yes ☐ No ☐ Shell Extension? Yes ☐ No ☐

Roof-Drain Check Valves Required? Yes ☐ No ☐ Roof-Drain Isolation Valves Required? Yes ☐ No ☐

Freeze Protection for Roof Drains Required? No ☐ Yes ☐ Supplemental Requirements: _____

Roof-Drain Piping to External Nozzles: Mfg. Std. ☐ Armored Flexible Pipe ☐ Swivels in Rigid Pipe ☐ Other ☐ _____

Foam Dam? Yes ☐ No ☐ Supplemental Spec. _____

Minimum Deck Thickness* _____

Bulkhead Top Edges to be Liquid-Tight? Yes ☐ No ☐ Seal-weld Underside of Roof? Yes ☐ No ☐

Electrical Bonding: Shunts: Yes ☐ No ☐ Cables: Yes ☐ No ☐ Supplemental Spec. _____

Qty of Non-Guide-Pole Gauge Wells Required _____ Qty of Sample Hatches Required _____

Guide Pole for Gauging? Yes ☐ No ☐ Slots in Guide Pole? Yes ☐ No ☐ Datum Plates? Yes ☐ No ☐ Striking Plates? Yes ☐ No ☐

Guide Pole Emissions-Limiting Devices: Sliding Cover ☐ Pole Wiper ☐ Pole Sleeve ☐ Float ☐ Float Wiper ☐ Pole Cap ☐

Qty. of Roof Manholes* _____ Minimum High-Roof Clearance Above Bottom: _____

Removable Leg Storage Racks? Yes ☐ No ☐ ; Leg Sleeves ☐ or Fixed Low Legs ☐

33. Additional Data for External Floating Roofs:

Weather Shield? Yes ☐ No ☐ Suppl. Spec. _____

Rolling Ladder Req'd? Yes ☐ No ☐ Field Adjustable Legs? Yes ☐ No ☐

Design Rainfall Intensity _____ In./Hr. (mm/hr) Based on a _____ Minute Duration Associated with the _____ Storm

Design Accumulated 24-Hour Rainfall _____ In. (mm) Based on the _____ Storm

Distortion and Stability Determinations Required? Yes ☐ No ☐ Supplemental Specification _____

Landed Live Load* _____

Approvals:	Revisions:	Title:		
		By:	Ck'd:	Date:
		Drawing No.:	Sheet ___ of ___	

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34. **Additional Data for Internal Floating Roofs:** N/A

Two-Position Legs? Yes ☐ No ☐ Cable-Supported Roof? Yes ☐ No ☐ Fixed-Roof Inspection Hatches Required?: Yes ☐ No ☐

Internal Roof Drain Required? Yes ☐ No ☐ Omit Distribution Pads Supporting Uniform Live Loads? Yes ☐ No ☐

Corrosion Gauge Required? Yes ☐ No ☐ Fixed Ladder Required?: Yes ☐ No ☐ ; Type of Roof Vent: *_____

Modified Minimum Point Load? Yes ☐ No ☐ Supplemental Specification _____

Mfr. to Leak Test * ___ % of Compartments ☐ In Assembly Yard ☐ In Erected Position ☐ Unknown; see separate contract terms

Roof Erector's Flotation Test: w/ tank hydro ☐ at completion of roof ☐ at later date ☐ _____ Not required ☐

Flotation Test Media: Water ☐ Product ☐ (see H.6.6.1) Water Quality: Potable ☐ Other ☐ See Supplemental Spec _____

Flotation Test: Duration _____ Fill Height: _____

Flotation Test Items provided by Purchaser (see H.6.7): None ☐ List Attached ☐

Responsible Party for Inspecting Roof during Initial Fill: Purchaser ☐ Other ☐ _____

TABLE 5 FLOATING ROOF MATERIALS

Component	Material*/Thickness*	C.A./Coating*	Component	Material*/Thickness*	C.A./Coating*
Deck Plate			Datum Plate		
Inner Rim Plate			Tubular Pontoon		
Outer Rim Plate			Pontoon Bulkhead		
Foam Dam			Submerged Pipe		
Sandwich Panel Face Plate			Guide Pole		
Sandwich Panel Core			Secondary Seal		
Gauge Well			Secondary Seal Fabric		
Drain Sumps			Wiper Tip		
Opening Sleeves			Wax Scraper		
Floating Suction Lines			Weather Seal		
Primary Fabric Seal			Envelope Fabric		
Foam Log Core			Shoe Mechanisms		
Landing Legs			Primary Seal Shoe		
Landing Leg Bottom Pads			Removable Covers		
Manhole Necks			Rolling Ladder		
Vents			Inlet Diffusers		

Approvals:	Revisions:	Title:		
		By:	Ck'd:	Date:
		Drawing No.:	Sheet ___ of ___	

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* If box is blank, Manufacturer shall determine and submit as per Appendix L.

Tank Plan and Sketches:

⇒ See Construction Drawings

Notes:

Approvals:	Revisions:	Title:		
		By:	Ck'd:	Date:
		Drawing No.:	Sheet ___ of ___	

SECTION 33 56 13.23

HORIZONTAL STORAGE TANKS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Specification includes requirements for new shop built horizontal tanks required for this project. The capacities, quantities and configurations of tanks shall be as indicated on the Drawings.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00 – Submittal Procedures.

B. Section 05 50 00 – Metal Fabrications.

C. Section 09 97 13.23 – Exterior Steel Coatings.

D. Section 33 52 13.13 – Pipe, Valves and Fittings.

E. Section 33 52 13.33 – Welded Pressure Piping.

1.03 REFERENCES

A. UL Standard 142 – Steel Aboveground Tanks for Flammable and Combustible Liquids.

B. UL Standard 2085 – Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids.

C. International Fire Code – 2009.

D. NFPA No. 30 – Flammable and Combustible Liquids Code.

E. AWS D1.1 – Structural Welding Code.

F. AWS A2.0 – Standard Welding Symbols.

G. AWS A 2.4 – Symbols for Welding and Nondestructive Testing.

H. AWS A 3.0 – Welding Terms and Definitions.

I. ASME BPVC IX – ASME Boiler and Pressure Vessel Code Section IX, Welding and Brazing Qualifications.

J. ASTM A 105 – Carbon Steel Forgings for Piping Applications.

K. ASTM A 106 – Seamless Carbon Steel Pipe for High-Temperature Service.

L. ASTM A123 – Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip.

M. ASTM A 234 – Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.

N. Occupational Safety and Health Administration (OSHA) 29CFR1910.

1.04 SUBMITTALS

A. Shop drawings and material lists with catalog cuts for all piping materials, equipment, and tank appurtenances. Any substitutions must be submitted and approved prior to the start of tank fabrication. Clearly show and identify all deviations on shop drawings.

B. Submit shop drawings for review at least one month prior to fabrication. UL certified tank fabricator must produce shop drawings. Fabricator shall not start tank fabrication prior to shop drawing approval, except when specifically authorized to do so.

C. Submit AWS compliant and UL approved welding procedure qualifications, welding procedure specifications, welder performance qualifications, and nondestructive testing procedures one (1) month prior to the start of tank assembly.

D. Provide operation and maintenance data for all equipment and appurtenances. Submit operation and maintenance data in comprehensive bound manual.

1.05 QUALITY ASSURANCE

A. Manufacturer: Minimum five years' experience in type of tank specified.

B. Weld Inspection: Provide independent testing firm or designated QC person who works for tank manufacturer whose sole job is Quality Control to inspect tank welds on a regular basis.

C. Tank Leak Test: Provide tank integrity testing in the form of an air pressure test in accordance with UL 142 at the manufacturer's shop, and in the field after tanks are installed on foundation in their final positions in accordance with NFPA 30 and the International Fire Code.

1.06 GENERAL REQUIREMENTS

A. All tanks shall conform to this Specification and the Drawings. The tanks shall be furnished with all equipment and appurtenances as specified and shown.

B. The tanks shall, as a minimum, meet the requirements of the most current edition of Underwriters Laboratories Inc. (UL) Standard for Safety UL 142, "Steel Aboveground Tanks for Flammable and Combustible Liquids". Tanks and saddles must be listed and labeled by UL.

C. Ladders and catwalks shall comply with OSHA requirements.

D. All welding, Welding Procedure Qualification Records, Welding Procedure Specifications, and Welder Performance Qualifications shall be performed in accordance with tank fabricators requirements, UL 142, AWS, and ASME Boiler and Pressure Vessel Code Section IX, Welding and Brazing Qualifications. All welds shall be continuous seal welds. No "stitch" or "skip" welding is permitted.

E. All fuel system equipment shall be UL listed and labeled, where available, and shall be rated for the specified service conditions.

1.07 TANK DESIGN

A. Design Responsibilities:
   1. Tank Manufacturer shall design, as specified herein and shown on the Drawings, welded steel tanks and associated accessories.
   2. Tank Manufacturer shall design and size tank emergency venting using the specified emergency vents.

B. Design Requirements:
   1. Tank Joints: The tanks shall incorporate joints in accordance with UL 142. Shell joints shall be double welded or full penetration butt welds conforming to No. 1 or No. 2 of Figure 6.1 respectively. Primary tank head joints shall be double welded full fillet lap joints conforming to No. 2 or No. 6 of Figure 6.2.
   2. Tank Skids: Provide tank skids for each tank, which are suitable for dragging the tank into position during installation, and lifting one end at a time while empty without damage to the tank, saddles, or skids. Skids shall be constructed of wide flange beams with a minimum size as shown on the Drawings, or approved equal. Limit tank height to 10 inches from bottom of tank to bottom of skid. Provide minimum 4-inch diameter Schedule 80 pipe tow bar welded to each end of skids with welded plate end caps.

3. Tank Saddles: Provide UL Listed horizontal tank saddles meeting the requirements of UL 142. Saddles shall be constructed on top of the skids. Any portion of the saddle or supporting beam that is recessed into the skids shall not extend more than one-half the depth of the skid from the top flange.
4. Tank Catwalks and Ladders: Provide Federal OSHA compliant tank catwalks and ladders as indicated. Provide ladders complete with full height side rails. Catwalks are intended for maintenance access to the tank equipment and must have handrails where indicated. Handrail height to be 42 inches with top rail with intermediate rail, and toe-board. Catwalks, handrails, and ladders to be hot-dip galvanized and shall have bolted connections to tanks so they can be removed for shipping. Hot dip galvanizing to be in accordance with ASTM A123 and Section 05 50 00 – Metal Fabrications.
5. Lifting Eyes: Lifting connections (eyes) shall be provided for tank handling during ocean transportation. Lifting eyes shall be designed to carry the full weight of the tank with a factor of safety of five (5).
6. Manholes: Provide manhole lids, bolts, and fuel resistant gaskets for each tank.
7. Tank Penetrations:
    a. Flanged nozzles to be ANSI Class 150 raised face flanges, Schedule 40, unless indicated otherwise.
    b. Threaded nozzles to be male pipe thread, Schedule 80, unless indicated otherwise.
    c. Single wall tank couplings shall be forged steel, Phoenix Forge, standard heavy curved type with female pipe thread.
    d. Install all penetrations and equipment plumb, level and square to the main axis of the tank.
    e. Provide 1/4-inch thick round reinforcing (doubler) plates on all tank couplings and nozzles 3-inches in diameter and larger. Doubler plates shall be 3-inches larger in diameter than the pipe outside diameter. Emergency vent connections do not need reinforcing plates.
    f. All flanges and nozzles shall extend a minimum of 6-inches from the outer tank shell, unless otherwise indicated.
8. Appurtenances: All equipment and appurtenances shall be designed so equipment can be easily removed for future maintenance. Flanged connections or unions shall be provided as required for individual component removal. Provide forged steel bushings as required for installing appurtenance into tank.
9. Signage: All tanks shall be labeled in accordance with the International Fire Code. Provide standard manufactured adhesive labels. Tank labeling shall include but is not limited to:
    a. IFC Chapter's 22 and 34 standard labeling.
    b. NFPA 704 (Diesel 2-2-0 and Gasoline 2-3-0) for 100-foot visibility.

c. Product Identification.
d. Compartment storage capacity.
e. Tank Number (example; KLTD-201)
f. “Danger-Flammable, No Smoking” sign with red letters on a white background.
g. Tank Penetration labeling (1” minimum height).
h. Steel Tank Institute (STI) if applicable.
i. Coordinate signage with additional requirements indicated on the Drawings and Section 09 97 13.23 – Exterior Steel Coatings.

Provide plastic laminated tank depth-to-volume chart for each tank, or each compartment of multi-compartment tanks. Provide laminated depth-to-volume charts loose for field installation by the CONTRACTOR, submit copy to Engineer.

10. Data Plate: Tanks shall have UL listing data recorded onto a brass tag attached to tank. All data shall be engraved or stamped onto the data plate so as not to be obliterated by future coating application. This data plate is in addition to the UL Label if an adhesive UL Label is provided.
11. Operating Conditions: Provide fuel tank, fuel tank components, seals, equipment and appurtenances suitable for continuous operation under the following maximum operating conditions.
    a. Temp. Range: -30°F to +100°F
    b. Products:
        - Diesel
        - Unleaded Gasoline

PART 2 PRODUCTS

2.01 TANKS

A. UL 142 listed and labeled horizontal single wall, skid mounted, atmospheric, horizontal storage tanks. Tanks shall be shop fabricated and coated by a UL certified manufacturer, complete and ready for use.

2.02 COATINGS

A. External tank coating shall be in accordance with Section 09 97 13.23 – Exterior Steel Coatings. Coat all pipe, valves, fittings, and tank appurtenances not coated with the tank in accordance with Section 09 97 13.23.

2.03 TANK MATERIALS

A. Tank materials shall be as follows unless otherwise indicated or specified:
    1. Plate: ASTM A36
    2. Structural Sections: ASTM A36

3. Pipe and Piping Materials: ASTM A53 pipe, Schedule 40, unless otherwise indicated or required to accommodate tank appurtenance. Fittings to be ASTM A105 forged steel and ASTM A234 butt weld fittings. All fittings to be welded unless threaded fittings have been indicated.
4. Pipe and Conduit Supports: Solid backed Unistrut continuously seal welded in place. For pipe supports elevated above the tank provide 2” x 2” x 1/4” angle stanchions terminated 12” above the tank for field trimming or extension to the proper elevation. Provide all stanchions with continuous welded repads and end plates.

2.04 NORMAL VENTS

A. Threaded 2-inch pressure/vacuum vents with integral whistle overfill alarm. Set vent to open at 8 oz/sq-in pressure and 1 oz/sq-in vacuum. Set whistle alarm to activate at setpoint indicated.

B. Morrison Bros., Co. Model 922, or approved equal.

2.05 EMERGENCY VENT

A. Aluminum body, brass seats, flanged connection emergency vent set to open at 16 oz/sq-in pressure. Emergency vent shall be sized in accordance with UL 142.

B. Loose manhole bolts are not permitted.

C. Morrison Bros., Co. Model 244F for vents 8 inches and larger, or 244 with companion flange for vents 6 inches and smaller, or approved equal.

2.06 LIQUID LEVEL CLOCK GAUGE

A. Stainless steel float operated clock gauge for tanks up to 12 feet in diameter, readout in feet and inches with 1/8 inch increments. Mark 90% of tank capacity on the face of all gauges. Provide liquid level gauge complete with stilling well.

B. Morrison Bros., Co. Model 818, or approved equal.

2.07 LEVEL SWITCH

A. Float activated magnetic level switch with stainless steel adjustable compression fitting at top, 2" MPT connection, and 2" x 4” forged steel threaded bushing for tank connection.

B. Suitable for installation in Class I, Division I Hazardous Environments.

C. Actuation set points shall be as indicated, coordinate stem length with switch set point(s). Actuation level distances shall be for percent of tank capacity, not percent of tank height.

D. Innovative Components Stock No. 94491, or approved equal. For Critical High/High/Low level switch specify L1 (low level), L2 (high level), and L3 (critical high level) distances from bottom of 2" MPT fitting and approve shop drawing prior to ordering. For Critical High/High level switch specify L2 for high level and L3 for critical high level.

2.08 FILL LIMITING VALVE

A. 2-inch float actuated internal valve with drop tube capable of being installed through 4 inch tank coupling. Valve activation level shall be as indicted on the Drawings.

B. Remove ball check valve from above the poppet and replace with a 1/2”-20 NF bolt with brass washer to prevent fuel bypass after the float has been activated.

C. EBW Warden 2-inch AST overfill valve Model 709-400 with ball check valve removed or approved equal. Provide overfill valve complete with drop tube.

2.09 SUBMERSIBLE PUMP

A. 3/4 hp, 208-230 V single-phase explosion proof submersible turbine pump with intake screen and integral leak detector. Install pump intake at level shown on the Drawings.

B. Red Jacket Model P75S1 with trapper intake screen, or approved equal.

2.10 ANTI-SIPHON VALVE

A. Ductile Iron body anti-siphon valve with bronze trim, designed for pressure systems, set to open at 15 feet head pressure with special expansion relief set at 25 psi.

B. Morrison Bros., Co. Model 910ER-7215 AP with expansion relief, or approved equal.

2.11 GAUGING HATCH

A. Lockable sample/gauging hatch, threaded, 2-inch diameter, brass hatch with cast iron cover for tank gauging. Provide Morrison Bros. Co. Figure 178 BB-IC, or approved equal.

2.12 FLEX FITTINGS

A. Stainless steel corrugated inner core with stainless steel outer braided cover, ASME Class 150 fixed flange by floating flange ends with 18" live length, unless otherwise indicated. 150 psi minimum working pressure, factory tested to 225 psi minimum. Provide factory test certification for each flex. Metraflex Metra-Mini, Penn Flex Series 700 flexible metal hose and braid, or approved equal.

2.13 FOOT VALVE

A. Brass body, single poppet foot valve with light spring for low opening pressure.

B. For drop tubes smaller than 3/4-inch bush down a 3/4-inch foot valve.

C. Morrison Bros., Co. Model 158B, or approved equal.

PART 3 EXECUTION

3.01 SHIPPING

A. Equipment, ladders, catwalks and piping shall be shipped separately from tanks. All items shall be packaged to prevent damage during shipping. Care will be taken to protect the connection points for ease of field installation.

B. All tank openings, with the exception of the tank emergency vent, shall be sealed for shipping with provisions made to relieve excess pressure/vacuum which may damage the tank during transportation while preventing precipitation or salt water spray from entering tank. Minimum vent opening shall be 1/2-inch diameter.

C. Tanks shall be shop fabricated and packaged for ocean transport. Lifting connections (eyes) shall be provided for tank handling.

D. All appurtenances shall be fitted to the tank, then unmounted, packaged, and shipped separately with the tank.

E. All tank appurtenances and equipment shall be packaged, palletized, or crated for barge transport. Tank appurtenances and equipment shall be protected from moisture, packaged and crated in weather tight enclosures.

END OF SECTION

SECTION 33 71 73

SERVICE ENTRANCE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Arrangement with Utility Company for permanent electric service including payment of Utility Company charges for service.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 – Grounding and Bonding for Electrical System.

B. Section 26 05 33 - Raceway and Boxes.

C. Section 26 05 53 – Identifications for Electrical Systems.

1.03 SUBMITTALS

A. Submit shop drawings and product data under provisions of Division 1.

B. Submit meterbase product data to the local utility for approval prior to ordering.

C. Submit operations and maintenance data under provisions of Section 26 05 00 – Common Work Results for Electrical, and Division 1.

1.04 SYSTEM DESCRIPTION

A. System Voltage: 120/240 volts, single-phase, three-wire, 60 Hertz.

B. Service Entrance: Overhead.

1.05 QUALITY ASSURANCE

A. Utility Company: Kipnuk Light Plant.

B. Install service entrance in accordance with Utility Company’s rules and regulations.

PART 2 - PRODUCTS

2.01 METERING EQUIPMENT

A. Meter: Per Utility Standards.

B. Self-Contained Meter Base: NEMA 3R rated self-contained meter socket with circuit breaker disconnecting means with safety socket feature and factory installed test-block/bypass facilities. Automatic type, slide type, horn type, screw type and lever type meter socket bypass devices are specifically prohibited. The service entry section and the meter socket shall be sealable and isolated or barriered from other integral enclosure sections to effectively prevent the attachment to un-metered conductors or terminals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Make arrangements with Utility Company to obtain permanent electric service to the project.

B. Overhead: Install service rack and weatherhead at height as required by Utility Company. Utility Company will connect service drop to service entrance conductors.

C. All service entrance equipment shall have signage for arc hazard installed. The marking shall be located to be clearly visible to qualified personnel before examination, adjustment, servicing or maintenance of the equipment. At a minimum the signage shall state the following:

Warning

Arc Flash and Shock Hazard

Appropriate PPE Required

END OF SECTION