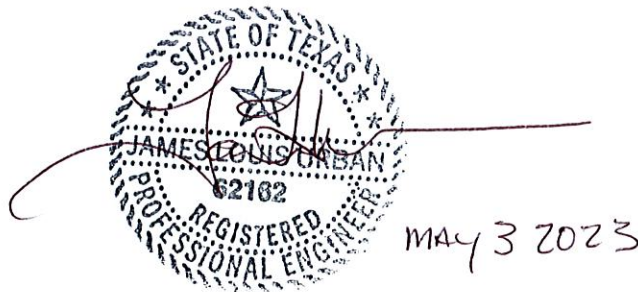


CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS  
FOR

# 2023 MUNICIPAL MARINA REPAIRS

PORT ARANSAS, TEXAS



OWNER:  
**CITY OF PORT ARANSAS**  
710 WEST AVENUE - A  
PORT ARANSAS, TEXAS 78373

Job No. 06100.B8.22  
MAY 2023



2725 SWANTNER  
CORPUS CHRISTI, TEXAS 78404

Firm No. 145  
TBPLS Firm No.: 10032400

# **INDEX**

## **DIVISION 1 – GENERAL REQUIREMENTS**

### **SECTION 1A – BID DOCUMENTS**

- 1A1[2] – Invitation to Bid
- 1A2[2] – Instructions to Bidders
- 1A3[2] – Proposal for Unit Price Bid
- 1A6[1] – Statement of Bidder's Qualifications
- 1A7[1] – Bid Bond

### **SECTION 1B – AGREEMENT**

- 1B2[1] – Agreement

### **SECTION 1C – BONDS**

- 1C1[1] – Performance Bond
- 1C2[1] – Payment Bond
- 1C5[1] – Insurance Requirements and Acknowledgment

### **SECTION 1D1.1 – STANDARD GENERAL CONDITIONS**

- Art. 1 – Definitions and Terminology
- Art. 2 – Preliminary Matters
- Art. 3 – Documents: Intent, Requirements, Reuse
- Art. 4 – Commencement and Progress of the Work
- Art. 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions
- Art. 6 – Bonds and Insurance
- Art. 7 – Contractor's Responsibilities
- Art. 8 – Other Work at the Site
- Art. 9 – Owner's Responsibilities
- Art. 10 – Engineer's Status during Construction
- Art. 11 – Amending the Contract Documents; Changes in Work
- Art. 12 – Claims
- Art. 13 – Cost of the Work; Allowances; Unit Price Work
- Art. 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work
- Art. 15 – Payments to Contractor; Set-Offs; Completion; Correction Period
- Art. 16 – Suspension of Work and Termination
- Art. 17 – Final Resolution of Disputes
- Art. 18 – Miscellaneous

### **SECTION 1D1.2 – SUPPLEMENTAL GENERAL CONDITIONS**

- Art. SC-1 – Definitions and Terminology
- Art. SC-2 – Preliminary Matters
- Art. SC-3 – Contract Documents
- Art. SC-4 – Commencement and Progress of the Work
- Art. SC-5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions Reference Points
- Art. SC-6 – Bonds and Insurance
- Art. SC-7 – Contractor's Responsibilities
- Art. SC-8 – Other Work at the Site

Art. SC-9 – Owner’s Responsibilities  
Art. SC-10 – Engineer’s Status During Construction  
Art. SC-11 – Amending the Contract Documents; Changes in the Work  
Art. SC-12 – Claims  
Art. SC-13 – Cost of the Work; Allowances; Unit Price Work  
Art. SC-14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work  
Art. SC-15 – Payments to Contractor; Set-Offs; Completion; Correction Period  
Art. SC-16 – Suspension of Work and Termination  
Art. SC-17 – Final Resolution of Disputes  
Art. SC-18 – Miscellaneous

#### SECTION 1E – SPECIAL CONDITIONS

1E1[1] – Name and Location of Project  
1E2 – Owner  
1E3 – Contract Drawings  
1E4 – Completion Date  
1E5 – Horizontal and Vertical Control  
1E6 – Schedule and Sequence of Construction  
1E7 – Testing  
1E8[1] – Measurement and Payment  
1E9[1] – State Sales Tax  
1E10[1] – Wage Rates  
1E11[1] – Inspection by City  
1E25[1] – Minority and Women’s Business Enterprises

### DIVISION 2 – SITE WORK

#### SECTION 2A – CLEARING OF SITE

2A2[1] – Deviations Occasioned by Existing Obstructions  
2A4[1] – Removing Existing Concrete and Structures

#### SECTION 2B – SITE WORK

2B1[1] – Site Grading  
2B5[5] – Site and Parking Lot Excavation and Backfill  
2B10[1] – Compacted Embankment

#### SECTION 2C – PILING

2C1[2] – Pile Driving

#### SECTION 2H – ROADS AND WALKS

2H2[2] – Soil-Cement Base Course (Existing Base Course and Portland Cement)  
2H11[3] – Hot Mix-Hot Laid Asphaltic Concrete Pavement  
2H17[1] – Removing and Replacing Pavements, Curb and Gutter, Driveways and Sidewalk

### DIVISION 3 – CONCRETE

#### SECTION 3A – CONCRETE FORM WORK

3A1, 3A2, 3A3 – Concrete Form Work

SECTION 3B – CONCRETE REINFORCEMENT

3B1, 3B2, 3B3 – Concrete Reinforcement

3B4 – Fiber Reinforced Polymer (FRP) For Concrete Reinforcement

SECTION 3C – CAST-IN-PLACE CONCRETE

3C1[1] – Normal Weight Aggregate Concrete

3C4[1] – Concrete Structures

3C9[1] – Cast-In-Place Concrete Bulkhead Cap

SECTION 3G – CONCRETE REPAIRS

3G1[1] – Concrete Bulkhead Cap Repair

DIVISION 6 – CARPENTRY

SECTION 6A – ROUGH CARPENTRY

6A3[1] – Wood Docks and Piers

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1A - BID DOCUMENTS**

#### **1A1<sup>[2]</sup> INVITATION TO BID**

Sealed Proposals addressed to the City of Port Aransas will be received at the office of the City of Port Aransas, 710 West Avenue – A, Port Aransas, Texas 78373 until Thursday, May 25, 2023 @ 3:00 P.M., at which time they will be publicly opened and read.

Proposals will be for repairing 2023 Municipal Marina Repairs.

The project consists of: Demolition and reconstruction of wooden docks, bulkhead cap, and sidewalk.

Bidders must submit a Cashier's or Certified Check issued by a bank satisfactory to City of Port Aransas, or a Proposal Bond from a reliable surety company, payable to City of Port Aransas in an amount not less than five percent (5%) of the bid submitted as a guaranty that the Bidder will enter into a contract using the forms provided within ten (10) days after notice of award of contract to him. Bids without the required check or proposal bond will not be considered. The City of Port Aransas will notify the successful Bidder, in writing, within thirty (30) days after the date of opening bids, of its acceptance of his proposal.

The successful Bidder will be required to furnish a Performance Bond and a Payment Bond each in the amount of contract, written by a responsible surety company authorized to do business in the State of Texas, listed in the latest issue of U. S. Treasury Circular 570 and satisfactory to the Owner, as required by Article 5160, V.A.T.C.S., as amended by H.B. 344, passed by the 56th Legislature, Regular Session, 1959.

The Contract Documents contain detailed Instructions to Bidders; however, the Contractors attention is directed to the following items:

1. The Bidder is hereby notified that the Owner has ascertained the Wage Rates, which prevail in the locality in which this work is to be done. The Contractor and Subcontractors shall pay not less than the Wage Rates so shown for each craft or type of "laborer", "workman" or "mechanic" employed on this project.

The Owner reserves the right to reject any or all bids and to waive formalities. In case of ambiguity or lack of clearness in stating the prices in the bids, the Owner reserves the right to consider the most advantageous construction thereof, or to reject the bid. Unreasonable (or "unbalanced") unit prices will authorize the Owner to reject the bid.

Bidders are expected to inspect the site of the work and to inform themselves regarding all local conditions.

Copies of the Contract Documents, which include drawings, general requirements, and technical specifications, may be obtained by a non-refundable fee of \$50.00 deposit with Urban Engineering, LLC, 2725 Swantner, Corpus Christi, Texas 78404-2832. To obtain a PDF format of plans, specification, and be added to bidders list email at Elsa Kroeger at Urban Engineering [elsak@urbaneng.com](mailto:elsak@urbaneng.com).

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1A - BID DOCUMENTS**

#### **1A2<sup>[2]</sup> INSTRUCTIONS TO BIDDERS**

##### **1A2.1 USE OF SEPARATE BID FORMS AND CERTIFICATES:**

These Contract Documents include a complete set of bidding and contract forms, which are for the convenience of bidders and are not, to be detached from the Contract Documents, filled out, or executed. Separate copies of Bid Forms are furnished for that purpose.

##### **1A2.2 INSPECTION OF SITE:**

Each Bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications, and all other Contract Documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing and the Owner will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

##### **1A2.3 INTERPRETATIONS OR ADDENDA:**

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Engineer. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Engineer at least five days before Bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all bidders shall be bound by such Addenda, whether or not received by the Bidders. A pre-bid conference may be held if requested by a sufficient number of prospective bidders.

##### **1A2.4 ALTERNATE BIDS:** There shall be no alternate bids allowed.

##### **1A2.5 BIDS:**

###### **1A2.5.1 General:**

All bids must be submitted on forms supplied by the Engineer and shall be subject to all requirements of the Contract Documents including the Drawings, and these Instructions to Bidders. All Bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder.

###### **1A2.5.2 Bid Package:**

The following items shall be submitted in the Bid Package:

- a. Bid Proposal
- b. Bid Guaranty

The above listed items shall be enclosed in envelopes, outer and inner, both of which shall be sealed and clearly labeled with the words, "Bid for the Construction of 2023 Municipal Marina Repairs, name of Bidder and date and time of bid opening in order to guard against premature opening of the Bid. The Owner may consider as Irregular any Bid on which there is an alternate or departure from the Bid Form hereto attached, and at its option may reject the same.

**1A2.6**     **BID GUARANTY:**

**1A2.6.1**   **General:**

The Bid must be accompanied by a Bid guaranty that shall not be less than five percent (5%) of the amount of the Bid. At the option of the Bidder, guaranty may be a certified check, bank draft, negotiable U. S. Government Bonds (at par value) or a Bid Bond in the form attached. The Bid Bond shall be secured by a guaranty or a surety company listed in the latest issue of U. S. Treasury Circular 570. The amount of such Bid Bond shall be within the maximum amount specified for such company in said Circular 570. No Bid will be considered unless it is accompanied by the required guaranty. Certified check or bank draft must be made payable to the order of City of Port Aransas. Cash deposits will not be accepted. The Bid guaranty shall insure the execution of the Agreement and the furnishing of the surety bond or bonds by the successful Bidder, all as required by the Contract Documents. Certified check or bank drafts, or the amounts thereof, Bid Bonds, and negotiable U.S. Government Bonds of unsuccessful Bidders will be returned as soon as practical after the opening of the Bids.

**1A2.6.2**   **Revised Bids:**

Revised Bids submitted before the opening of Bids, whether forwarded by mail or Faxed, if representing an increase in excess of 2 percent of the original Bid, must have the Bid guaranty adjusted accordingly, otherwise the Bid will not be considered.

**1A2.7**     **CORRECTIONS:**

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder.

**1A2.8**     **TIME FOR RECEIVING BIDS:**

Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered; except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other Bids is completed, and it shown to the satisfaction of the Owner that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered. Bidders are cautioned that, while Faxed modifications of bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified or amended, subject to rejection.

**1A2.9**     **OPENING OF BIDS:**

At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

**1A2.10**   **WITHDRAWAL OF BIDS:**

A Bid may be withdrawn on written or Faxed request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening provided; that written confirmation of any Faxed withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

**1A2.11**   **REJECTION OF BIDS:**

The Owner reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the Improvements embraced in this project.

**1A2.12 AWARD:**

The Contract will be awarded to the responsible Bidder submitting the lowest and/or best bid complying with the Contract Documents. The Owner reserves the right to accept or reject any or all bids if it is deemed to be in the best interest of the Owner. Further the Owner reserves the right to reject any bid because of irregularity or to waive such irregularity or such action as in the Owner's interest.

**1A2.13 EXECUTION OF AGREEMENT:**

**1A2.13.1 General:**

Subsequent to the award and within ten days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner an Agreement in the form included in the Contract Documents in such number of copies as the Owner may require.

**1A2.13.2 Bonds:**

Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in Paragraph 1A2.13.1 above, furnish surety bonds in a penal sum not less than the amount of the contract and for the payment of all persons, firms or corporations to whom the contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including the work. Such bonds shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bonds. These bonds shall be signed by a guaranty or surety company listed in the latest issue of the U. S. Treasury Circular 570 and the penal sum be within the maximum specified for such company in said Circular 570.

**1A2.13.3 Default:**

The failure of the successful Bidder to execute such Agreement within ten days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable Bid is received by re-advertising, the defaulting Bidder shall have no claim against the Owner for a refund.

**1A2.14 STATEMENT OF BIDDER'S QUALIFICATIONS:**

Each Bidder shall, upon request of the Owner submit for that purpose a statement of the Bidder's qualifications, his experience record in constructing the type of improvements in this project, and his organization and equipment available for the work contemplated; and when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as he deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Owner such information and data for this purpose as it may request. The right is reserved to reject any bid where the investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

Bidders must have 10 years of experience in floating concrete dock system.

**1A2.15 WAGE RATES:**

The Contractor must abide by the Wage and Hour Laws of the State of Texas, and must pay not less than the legally prescribed rate for Nueces County.



**1A2.16** UNIT PRICES:

The unit prices for each of the several items in the proposal of each Bidder shall include its pro-rata share of overhead and profit so the sum of the products obtained by multiplying the quantity shown for each item by the unit price Bid represents the total Bid. Any Bid not conforming to this requirement maybe rejected as informal. The special attention of all bidders is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%) except for work not covered in the Drawings and Technical Specifications as provided for Changes in the Work (Extra Work) provisions of the General Conditions.

**1A2.17** RETAINAGE:

See Subsection 1E8 Measurement and Payment of the Special Conditions.

**1A2.18** GUARANTEE:

See Article 7.17 of the General Conditions and SC-7.10 of the Supplemental General Conditions.

**1A2.19** ACCELERATED IMPLEMENTATION OF DATE OF GUARANTEE:

See Article SC-7.11 of the Supplemental General Conditions.

**1A2.20** LACK OF INFORMATION:

See Article SC-3.5 of the Supplemental General Conditions.

**1A2.21** TENTATIVE APPROVAL OF MAJOR ITEMS OF EQUIPMENT:

The Manufacture is required to obtain tentative approval (prior to bidding) for certain major items of equipment to be incorporated into the project. See Subsection 1E17 for a list of major items on which tentative approval is required. To be considered, specific information must be received by the Engineer no later than 10 calendar days prior to the date set for bid opening. If the 10th day falls on Saturday or Sunday, then submission must be delivered to the Engineer by 5:00 P.M. on the following Monday. All other equipment must meet all requirements of the specifications, but tentative approval (prior to Bidding) will not be given. Any information on equipment, other than that listed in Subsection 1E17, submitted to the Engineer prior to bidding will not be reviewed and will be automatically be discarded without notification.

**1A2.22** STATE SALES TAX:

See Subsection 1E9 – State Sales Tax

**DIVISION 1 - GENERAL REQUIREMENTS****SECTION 1A - BID DOCUMENTS****1A3<sup>[2]</sup> PROPOSAL FOR UNIT PRICE BID**

TO: City of Port Aransas  
 710 West Avenue – A  
 Port Aransas, Texas 78373

Date: \_\_\_\_\_

**PROPOSAL FOR THE CONSTRUCTION OF****2023 MUNICIPAL MARINA REPAIRS****PORT ARANSAS, TEXAS**

We, the undersigned, having familiarized itself with local conditions affecting the cost of the work with all requirements of Contract Documents as prepared by the Engineers, and all Addenda to said Documents, hereby proposes to furnish all things as required by said Documents and addenda thereto for the construction of said improvements for the unit prices for work in place for the items as set out hereinafter.

**1A3.1 BASE BID FOR CONSTRUCTION OF ENTIRE PROJECT:**

Dollars and \_\_\_\_\_ cents (\$\_\_\_\_\_).

**1A3.2 BID SCHEDULE:**

The bid for 1A3.1 is further itemized as follows:

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
<b>DOCK 2 AND DOCK 3</b>					
1.	Demolition and Reconstruction of Sidewalk and Bulkhead Cap	1	LS	\$_____	\$_____
<b>BOAT RAMP</b>					
1.	Demolition and Reconstruction of Boat Ramp Cap, Divider Cap, Wood Bumpers and Asphalt Repairs	1	LS	\$_____	\$_____
<b>DOCK 12</b>					
1.	Dock 12 Demolition and Reconstruction	1	LS	\$_____	\$_____
<b>PEGGY ANN</b>					
1.	Peggy Ann Dock Demolition and Reconstruction	1	LS	\$_____	\$_____
<b>TOTAL BID</b>				\$_____	

NOTE: The unit prices stated herein before must include all labor, materials, bailing, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for and the Owner reserves the right to delete all or a portion of any Bid Item. The above quantities are approximate and may vary from the final quantities. Do not order material based on these approximate quantities.

**1A3.3 REJECTIONS OF BIDS**

We, the undersigned, understands that the Owner reserves the right to reject any or all Bids and to waive any informalities in the bidding.

**1A3.4 SITE INVESTIGATIONS**

We, the undersigned, have investigated the site conditions, full satisfied ourselves of both the surface and subsurface conditions there, and based our bid accordingly.

**1A3.5 TIME OF COMPLETION**

We, the undersigned, will commence work within 10 Calendar Days after the date of the written notice to proceed with construction and to substantially complete the entire project by September 30, 2023. Should we fail to comply with this requirement, we agree to pay liquidated damages in the amount of \$ 500 per Calendar Day until the work is completed.

**1A3.6 BIDDER QUALIFICATIONS**

We, the undersigned, do hereby agree that if requested we will furnish written evidence to demonstrate our qualifications to perform the work.

**1A3.7 WAGES AND SALARIES**

We, the undersigned, do hereby agree to fully comply with the prevailing wage rates for Nueces County (These rates are set out in Subsection 1E10 of the Special Conditions), and that We and our Subcontractors will pay not less than those for each craft or type of “Laborer”, “Workman” or “Mechanic” employed on this project.

ATTEST:

\_\_\_\_\_

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_  
(Seal if Corporation)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone

**1A3.7 ADDENDUM RECEIPT**

Receipt of the following addenda to the Contract Documents is acknowledged:

ADDENDA NO.	DATE RECEIVED	SIGNED	ADDENDA NO.	DATE RECEIVED	SIGNED
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**1A3.8 BID ACCEPTANCE**

If written notice of the acceptance of this Bid is mailed, Faxed, or delivered to the Bidder within thirty (30) days after the date for opening of Bids or anytime thereafter before this Bid is withdrawn, the Bidder will, within ten (10) days after the date of such mailing, Faxing, of delivery of such notice, execute and deliver to the Owner, an Agreement in the form included in the Contract Documents and surety bonds in accordance with Section 1A2 of the Instructions to Bidders. The Bidder hereby designates as his office to which such notice of acceptance may be mailed, Faxed, or delivered:

NOTE: Owner reserves the right to delete all or a portion of any bid Item. Bidder understands that the Owner reserves the right to reject any or all Bids and to waive any informalities in the bidding.

**1A3.9 INFORMATION CONCERNING BIDDER**

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

Bidder Is: Individual ( ) Partnership ( ) Corporation ( )

Residence of Bidder (if individual): \_\_\_\_\_

Date of Bid: \_\_\_\_\_

If Bidder is a partnership, fill in the following blanks:

Name of Partners: \_\_\_\_\_

If Bidder is a corporation, fill in the following blanks

Organized under the laws of the State of \_\_\_\_\_

Name and Home address of the President \_\_\_\_\_

\_\_\_\_\_  
Name and Address of the Treasurer \_\_\_\_\_

\_\_\_\_\_

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1A - BID DOCUMENTS**

#### **1A6<sup>[1]</sup> STATEMENT OF BIDDER'S QUALIFICATIONS**

(To be submitted by the lowest and/or best Bidder  
only upon the specific request of the Owner.)

All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand. (Attach a schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract? If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this contract.
12. Experience on construction work similar in importance to this project.
13. Background and experience of the principal members of your organization, including the officers.

14. Credit available:

15. Give Bank reference:

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?

17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
(Name of Bidder)

By: \_\_\_\_\_

Title: \_\_\_\_\_

State of \_\_\_\_\_)

County of \_\_\_\_\_)

\_\_\_\_\_, being duly sworn, deposes and says that he  
is \_\_\_\_\_ of \_\_\_\_\_  
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
(Notary Public)

My commission expires \_\_\_\_\_, 20 \_\_\_\_.

## DIVISION 1 - GENERAL REQUIREMENTS

### SECTION 1A - BID DOCUMENTS

#### 1A7<sup>[1]</sup> BID BOND

KNOW ALL MEN BY THESE PRESENTS; that we the undersigned, \_\_\_\_\_ as PRINCIPAL, and \_\_\_\_\_ as SURETY, are held and firmly bound unto City of Port Aransas, Nueces COUNTY, TEXAS hereinafter called OWNER in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated \_\_\_\_\_, 2023, for the construction of:

**2023 MUNICIPAL MARINA REPAIRS**  
PORT ARANSAS, TEXAS

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within ninety (90) day after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into written Contract with the OWNER in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such Contract, or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the OWNER the difference between the amount specified in said Bid and the amount for which the OWNER may procure the require work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this \_\_\_\_\_ Day of \_\_\_\_\_, 2023, the name and corporate seal of each corporate party hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

In presence of \_\_\_\_\_ (SEAL)  
(Individual Principal)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
(Business Address)

Attest:

\_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
(Corporate Principal)

\_\_\_\_\_

\_\_\_\_\_  
(Business Address)

By: \_\_\_\_\_  
President

Affix  
Corporate  
Seal

\_\_\_\_\_

Attest:

\_\_\_\_\_

\_\_\_\_\_  
(Corporate Surety)

By: \_\_\_\_\_

Affix  
Corporate  
Seal

Countersigned

By: \_\_\_\_\_

Attorney-in-Fact, State \_\_\_\_\_  
(Power-of-attorney for person signing for Surety Company must be attached to bond.)

### **CERTIFICATE AS TO CORPORATE PRINCIPAL**

I, \_\_\_\_\_, certify that I am the  
\_\_\_\_\_  
Secretary of the Corporation names as Principal in the attached  
Bond that \_\_\_\_\_ who signed the said Bond on behalf of the Principal was then  
the \_\_\_\_\_ of said Corporation, that I know his signature and his  
signature thereto is genuine; and that said Bond was duly signed, sealed and attested for and in behalf of said  
Corporation by authority of the governing body.

\_\_\_\_\_  
(Signed)

Title \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_

Affix  
Corporate  
Seal



## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1B - AGREEMENT**

#### **1B2<sup>[1]</sup> AGREEMENT**

STATE OF TEXAS

COUNTY OF NUECES

THIS AGREEMENT made and entered into this the \_\_\_\_\_ day of \_\_\_\_\_, 2023, by and between City of Port Aransas, of the County of Nueces, State of Texas acting through it's City Manager thereunto duly authorized so to do, Party of the First Part, termed in the Contract Documents as the "OWNER and \_\_\_\_\_ Party of the Second Part, termed in the Contract Documents as the "CONTRACTOR".

WITNESSETH:

That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, and under the conditions expressed in the bond bearing even date herewith, the said CONTRACTOR hereby agrees with the said OWNER to commence and complete the construction of certain improvements described as follows:

#### **2023 MUNICIPAL MARINA REPAIRS PORT ARANSAS, TEXAS**

and all work extra in connection therewith, under the terms as stated in the General Conditions of the Agreement; and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the conditions and prices stated in the proposal attached hereto, and in accordance with all the General Provisions and Requirements, and in accordance with the Plans, which include all maps, plats, blueprints, and other drawings and printed or written explanatory matter thereof, and the Specifications and Special Provisions therefore, and the Performance Bond and Payment Bond hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

THE CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given to him, and to substantially complete by September 30, 2023, after the date of the written notice to commence work. In defaulting thereof the Contractor shall be liable for liquidated damages as provided for in the Contract Documents.

THE OWNER agrees to pay the Contractors in current funds for the performance of the contract in accordance with the Proposal submitted herefore, subject to additions and deductions, as provided in the General Provisions and Requirements, and to make payments on account thereof as provided therein, and the prices as shown by the Proposal or bid of the Contractor shall be full compensation to be received by said Contractor under the terms of this contract.

IN WITNESS WHEREOF, the parties to these presents have executed this agreement in five (5) parts at Nueces County, Texas, the year and day first above written.

City of Port Aransas  
Party of the First Part (OWNER)

ATTEST:

\_\_\_\_\_

By: \_\_\_\_\_  
David Parsons | City Manager

\_\_\_\_\_  
Party of the Second Part (CONTRACTOR)

ATTEST:

\_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DIVISION 1 - GENERAL REQUIREMENTS**

**SECTION 1C - BONDS**

**1C1<sup>[1]</sup> PERFORMANCE BOND  
(Public Work)**

(As required by Chapter 93 of the Regular Sessions  
of the 56th Legislature of Texas)

THE STATE OF TEXAS

COUNTY OF NUECES

KNOW ALL MEN BY THESE PRESENTS:

That we (1) \_\_\_\_\_ a  
(2) \_\_\_\_\_ of \_\_\_\_\_ hereinafter called Principal and  
(3) \_\_\_\_\_ of \_\_\_\_\_  
State of \_\_\_\_\_, hereinafter called the Surety, are held and firmly bound  
unto (4) City of Port Aransas of Nueces hereinafter called Owner, in the penal sum of  
\_\_\_\_\_, (\$ \_\_\_\_\_) Dollars in  
lawful money of the United States, to be paid in (5) \_\_\_\_\_ for the payment of  
which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and  
successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the principal entered into a certain  
contract with (6) City of Port Aransas the Owner, dated the \_\_\_\_\_ day \_\_\_\_\_  
of 2023, a copy of which is hereto attached and made a part hereof for the construction of 2023  
Municipal Marina Repairs (hereinafter called the "work").

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform the work in accordance with  
the plans, specifications and contract documents during the original term thereof, and any extensions  
thereof which may be granted by the Owner, with or without notice to the Surety and if he shall satisfy all  
claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner  
from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and  
repay the Owner all outlay and expense which the Owner may incur in making good any default, then this  
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that if any legal action be filed upon this bond, venue shall lie in  
Nueces County, State of Texas and that said surety, for value received hereby stipulates and agrees that  
no change, extension of time, alteration or addition to the terms of the contract or to the work to be  
performed thereunder or the specifications accompanying the same shall in any wise affect its obligation  
on this bond, and it does hereby waive notice of any such change, extensions of time, alteration or  
addition to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_ 2023.

ATTEST:

\_\_\_\_\_  
Principal (Secretary)

(SEAL)

\_\_\_\_\_  
Principal

By: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Address

ATTEST:

\_\_\_\_\_  
Surety (Secretary)

(SEAL)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

\_\_\_\_\_

NOTE: Date of Bond must not be prior to date of Contract.

- (1) Correct name of Contractor
- (2) A Corporation, a Partnership or an Individual, as case may be
- (3) Correct name of Surety
- (4) Correct name of Owner
- (5) County or Parish and State
- (6) Owner
- (7) If Contractor is Partnership, all partners should execute bond

**IMPORTANT:**

Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

\* \* \* \* \*

**CERTIFICATE AS TO CORPORATE PRINCIPAL**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_ Secretary of the Corporation named as Principal in the attached Bond; that \_\_\_\_\_ who signed the said Bond on behalf of the Principal was then the \_\_\_\_\_ of said Corporation; that I know his signature and his signature thereto is genuine; and that said Bond was duly signed, sealed and attested for and in behalf of said Corporation by authority of the governing body.

\_\_\_\_\_  
(Signed)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Affix Corporate Seal)

**SECTION 1C - BONDS**

**DIVISION 1 - GENERAL REQUIREMENTS**

**1C2<sup>[1]</sup> PAYMENT BOND  
(Public Work)**

(As required by Chapter 93 of the Regular Sessions  
of the 56th Legislature of Texas)

THE STATE OF TEXAS

COUNTY OF NUECES

KNOW ALL MEN BY THESE PRESENTS:

That we (1) \_\_\_\_\_ a (2) \_\_\_\_\_  
of \_\_\_\_\_ hereinafter called Principal and (3) \_\_\_\_\_  
of \_\_\_\_\_ State of \_\_\_\_\_, hereinafter called the Surety,  
are held and firmly bound unto (4) City of Port Aransas of Nueces hereinafter called  
Owner, and unto all persons, firms, and corporations who may furnish materials for, or perform labor  
upon the building or improvements hereinafter referred to, in the penal sum of \_\_\_\_\_,  
(\$ \_\_\_\_\_) Dollars in lawful money of the United States, to be paid in  
(5) \_\_\_\_\_ for the payment of which sum well and truly to  
be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally,  
firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the principal entered into a certain  
Contract with (6) City of Port Aransas the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 2023, a copy of  
which is hereto attached and made a part hereof for the construction of 2023 Municipal Marina Repairs  
(hereinafter called the "work").

NOW, THEREFORE, the condition of this obligation is such that, if the Principal shall faithfully perform  
the work in accordance with the plans, specifications and contract documents, then this obligation shall be  
void; otherwise to remain in full force and effect.

This bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code and all  
liabilities on this bond shall be determined in accordance with the provisions thereof to the same extent as  
if it were copied at length herein.

PROVIDED FURTHER, that if any legal action be filed upon this bond, venue shall lie in Nueces  
County, State of Texas and that said surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the contract or to the work to be  
performed thereunder or the specifications accompanying the same shall in any wise affect its obligation  
on this bond, and it does hereby waive notice of any such change, extensions of time, alteration or  
addition to the terms of the contract or to the work or to the specifications.

PROVIDED FURTHER, that no final settlement between the Owner and Contractor shall abridge the  
right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in five (5) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

ATTEST:

\_\_\_\_\_  
Principal (Secretary)

(SEAL)

\_\_\_\_\_  
Principal

By: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Address

ATTEST:

\_\_\_\_\_  
Surety (Secretary)

(SEAL)

\_\_\_\_\_  
Surety

By: \_\_\_\_\_

\_\_\_\_\_

NOTE: Date of Bond must not be prior to date of Contract.

(1) Correct name of Contractor

(2) A Corporation, a Partnership or an Individual, as case may be

(3) Correct name of Surety

(4) Correct name of Owner

(5) County or Parish and State

(6) Owner

(7) If Contractor is Partnership, all partners should execute bond

IMPORTANT:

Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

\* \* \* \* \*

**CERTIFICATE AS TO CORPORATE PRINCIPAL**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_ Secretary of the Corporation named as Principal in the attached Bond; that \_\_\_\_\_ who signed the said Bond on behalf of the Principal was then the \_\_\_\_\_ of said Corporation; that I know his signature and his signature thereto is genuine; and that said Bond was duly signed, sealed and attested for and in behalf of said Corporation by authority of the governing body.

\_\_\_\_\_  
(Signed)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

(Affix Corporate Seal)

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1C - BONDS**

#### **1C5<sup>[1]</sup> INSURANCE REQUIREMENTS AND ACKNOWLEDGMENT**

##### **1C5.1 SCHEDULE OF INSURANCE REQUIRED FOR THIS CONTRACT:**

- a. Workmen's Compensation: Statutory including Employer's Liability.
- b. Commercial General Liability policy with \$1,000,000 each occurrence, \$2,000,000 annual aggregate limits. Explosion, Collapse and Underground property damage hazards included. Products and Completed Operations Liability, Mobile Equipment Liability, Personal Injury Offenses and Contractual Liability shall be included. The policy will include the Per Project General Aggregate endorsement. This General Liability coverage will be primary and noncontributory to any policies written for the benefit of the Owner and Urban Engineering. Additional Insured and Waiver of Subrogation clauses in favor of the Owner and Urban Engineering.
- c. Automobile Liability policy with a \$1,000,000 Combined Single Limit. This coverage is to include all cars and trucks owned, rented, borrowed, hired or leased, and others of non-ownership nature used by employees. Additional Insured and Waiver of Subrogation clauses in favor of the Owner and Urban Engineering.
- d. Business Umbrella Liability Policy with \$1,000,000 / \$1,000,000 limits. The Umbrella policy will provide coverage over the General Liability, Products Liability, Completed Operations Liability, Automobile Liability and Employers' Liability coverages. The Umbrella Liability policy will be following form to all primary policies' coverages.
- e. Pollution Liability: \$1,000,000 Aggregate / \$1,000,000 Per Incident Limits. CONTRACTOR shall obtain and maintain coverage to include exposure of long-term environmental impact.
- f. Builder's Risk: Adequate to fully cover the insurable portions of the project.

##### **1C5.2 WORKER'S COMPENSATION INSURANCE COVERAGE:**

- a. Definitions:  
Certificate of coverage ("certificate") – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project – includes the time from the beginning of the work on the project until the Contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in §406.906) – includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide

services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- b. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
- c. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.
- d. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.
- e. The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
  - (1) A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
  - (2) No later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- f. The Contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- g. The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- h. The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' compensation "commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- i. The Contractor shall contractually require each person with whom it contracts to provide services on a project, to:
  - (1) Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
  - (2) Provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
  - (3) Provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
  - (4) Obtain from each other person with whom it contracts, and provide to the contractor:



- (a) A certificate of coverage, prior to the other person beginning work on the project; and;
    - (b) A new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
  - (5) Retain all required certificates of coverage on file for the duration of the project and for one year thereafter;
  - (6) Notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
  - (7) Contractually require each person with whom it contracts, to perform as required by paragraphs (1) – (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- j. By signing this Contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the Contractor who will provide services on the project will be covered by Workers' Compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- k. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the Contract void if the Contractor does not remedy the breach within ten days after receipt of Notice of Breach from the governmental entity.

### 1C5.3 ACKNOWLEDGMENT BY INSURANCE COMPANY REPRESENTATIVE:

The following acknowledgment is to be executed and included in the contract documents. This acknowledgment is in addition to certificates of insurance to be provided by the contractor to the Engineer and the Owner.

*As the authorized Insurance Agent for the Insurance Company providing insurance coverage for this project, I have read and understand the extent of the insurance coverage required and certify that the policies of insurance listed on the certificate of insurance have been issued to the insured named on the certificate for the policy period indicated. Notwithstanding any requirements, term or condition of any contract or other document with respect to which the certificate may be issued or may pertain, the insurance afforded by the policies described on the certificate are subject to all the terms, exclusions and conditions of such policies. Should any of the policies be cancelled before the expiration date, notice will be delivered in accordance with the policy provisions.*

\_\_\_\_\_  
(Name of Insurance Company)

By: \_\_\_\_\_  
(Authorized Insurance Company Representative)

Title: \_\_\_\_\_

## 1D1.1 STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology .....	1
1.01 Defined Terms .....	1
1.02 Terminology .....	5
Article 2 – Preliminary Matters .....	6
2.01 Delivery of Bonds and Evidence of Insurance .....	6
2.02 Copies of Documents .....	6
2.03 Before Starting Construction .....	6
2.04 Preconstruction Conference; Designation of Authorized Representatives .....	7
2.05 Initial Acceptance of Schedules .....	7
2.06 Electronic Transmittals .....	7
Article 3 – Documents: Intent, Requirements, Reuse .....	8
3.01 Intent .....	8
3.02 Reference Standards .....	8
3.03 Reporting and Resolving Discrepancies .....	8
3.04 Requirements of the Contract Documents .....	9
3.05 Reuse of Documents .....	10
Article 4 – Commencement and Progress of the Work .....	10
4.01 Commencement of Contract Times; Notice to Proceed .....	10
4.02 Starting the Work .....	10
4.03 Reference Points .....	10
4.04 Progress Schedule .....	10
4.05 Delays in Contractor’s Progress .....	11
Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions .....	12
5.01 Availability of Lands .....	12
5.02 Use of Site and Other Areas .....	12
5.03 Subsurface and Physical Conditions .....	13
5.04 Differing Subsurface or Physical Conditions .....	14
5.05 Underground Facilities .....	15

5.06	Hazardous Environmental Conditions at Site .....	17
Article 6 – Bonds and Insurance .....		19
6.01	Performance, Payment, and Other Bonds .....	19
6.02	Insurance—General Provisions .....	19
6.03	Contractor’s Insurance .....	20
6.04	Owner’s Liability Insurance .....	23
<del>6.05</del>	<del>Property Insurance .....</del>	<del>23</del>
<del>6.06</del>	<del>Waiver of Rights .....</del>	<del>25</del>
<del>6.07</del>	<del>Receipt and Application of Property Insurance Proceeds .....</del>	<del>26</del>
Article 7 – Contractor’s Responsibilities .....		26
7.01	Supervision and Superintendence .....	26
7.02	Labor; Working Hours .....	26
7.03	Services, Materials, and Equipment.....	26
7.04	“Or Equals” .....	27
7.05	Substitutes .....	28
7.06	Concerning Subcontractors, Suppliers, and Others .....	29
7.07	Patent Fees and Royalties .....	31
7.08	Permits .....	31
7.09	Taxes .....	32
7.10	Laws and Regulations.....	32
7.11	Record Documents.....	32
7.12	Safety and Protection.....	32
7.13	Safety Representative .....	33
7.14	Hazard Communication Programs .....	33
7.15	Emergencies .....	34
7.16	Shop Drawings, Samples, and Other Submittals.....	34
7.17	Contractor’s General Warranty and Guarantee.....	36
7.18	Indemnification .....	37
7.19	Delegation of Professional Design Services .....	37
Article 8 – Other Work at the Site .....		38
8.01	Other Work .....	38
8.02	Coordination .....	39
8.03	Legal Relationships.....	39

Article 9 – Owner’s Responsibilities.....	40
9.01 Communications to Contractor.....	40
9.02 Replacement of Engineer .....	40
9.03 Furnish Data .....	40
9.04 Pay When Due.....	40
9.05 Lands and Easements; Reports, Tests, and Drawings .....	40
9.06 Insurance .....	40
9.07 Change Orders.....	40
9.08 Inspections, Tests, and Approvals.....	41
9.09 Limitations on Owner’s Responsibilities .....	41
9.10 Undisclosed Hazardous Environmental Condition.....	41
9.11 Evidence of Financial Arrangements.....	41
9.12 Safety Programs .....	41
Article 10 – Engineer’s Status During Construction.....	41
10.01 Owner’s Representative.....	41
10.02 Visits to Site.....	41
10.03 Project Representative.....	42
10.04 Rejecting Defective Work.....	42
10.05 Shop Drawings, Change Orders and Payments.....	42
10.06 Determinations for Unit Price Work .....	42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work .....	42
10.08 Limitations on Engineer’s Authority and Responsibilities.....	42
10.09 Compliance with Safety Program.....	43
Article 11 – Amending the Contract Documents; Changes in the Work .....	43
11.01 Amending and Supplementing Contract Documents .....	43
11.02 Owner-Authorized Changes in the Work .....	44
11.03 Unauthorized Changes in the Work .....	44
11.04 Change of Contract Price .....	44
11.05 Change of Contract Times .....	45
11.06 Change Proposals .....	45
11.07 Execution of Change Orders.....	46
11.08 Notification to Surety.....	47
Article 12 – Claims.....	47

12.01	Claims .....	47
Article 13 – Cost of the Work; Allowances; Unit Price Work.....		48
13.01	Cost of the Work .....	48
13.02	Allowances .....	51
13.03	Unit Price Work .....	51
Article 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....		52
14.01	Access to Work.....	52
14.02	Tests, Inspections, and Approvals.....	52
14.03	Defective Work.....	53
14.04	Acceptance of Defective Work.....	53
14.05	Uncovering Work .....	54
14.06	Owner May Stop the Work .....	54
14.07	Owner May Correct Defective Work.....	54
Article 15 – Payments to Contractor; Set-Offs; Completion; Correction Period .....		55
15.01	Progress Payments.....	55
15.02	Contractor’s Warranty of Title .....	58
15.03	Substantial Completion.....	58
15.04	Partial Use or Occupancy .....	59
15.05	Final Inspection .....	59
15.06	Final Payment.....	60
15.07	Waiver of Claims .....	61
15.08	Correction Period .....	61
Article 16 – Suspension of Work and Termination .....		62
16.01	Owner May Suspend Work .....	62
16.02	Owner May Terminate for Cause .....	62
16.03	Owner May Terminate For Convenience .....	63
16.04	Contractor May Stop Work or Terminate .....	63
Article 17 – Final Resolution of Disputes .....		64
17.01	Methods and Procedures.....	64
Article 18 – Miscellaneous .....		64
18.01	Giving Notice .....	64
18.02	Computation of Times.....	64
18.03	Cumulative Remedies .....	65

18.04	Limitation of Damages .....	65
18.05	No Waiver .....	65
18.06	Survival of Obligations .....	65
18.07	Controlling Law .....	65
18.08	Headings.....	65



## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a

Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and

easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
    - a. does not conform to the Contract Documents; or
    - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
    - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### **2.03 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating

systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

### **ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

#### **3.02 *Reference Standards***

- A. Standards Specifications, Codes, Laws and Regulations
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*
  - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,



error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or

interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

## **ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

### 4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

### 4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  2. abnormal weather conditions;
  3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
  4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

**ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;  
HAZARDOUS ENVIRONMENTAL CONDITIONS**

**5.01** *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

**5.02** *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas:*
  - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

#### 5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
  - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
  - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
  2. is of such a nature as to require a change in the Drawings or Specifications; or
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
  - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
  - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
- 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
- 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
  - 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
  - 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
    - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
    - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments*:
  - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
    - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
    - d. Contractor gave the notice required in Paragraph 5.05.B.
  - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
  - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.



## 5.06 Hazardous Environmental Conditions at Site

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
  2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous

Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 6 – BONDS AND INSURANCE

### 6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

#### 6.03 *Contractor's Insurance*

- A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
  4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
  2. claims for damages insured by reasonably available personal injury liability coverage.
  3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
    - a. Such insurance shall be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Broad form property damage coverage.
  4. Severability of interest.
  5. Underground, explosion, and collapse coverage.
  6. Personal injury coverage.
  7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
  8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to

industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds:* The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance:* If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
  - 1. include at least the specific coverages provided in this Article.
  - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

#### 6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

#### 6.05 *Property Insurance*

- A. ~~*Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~
  - 1. ~~include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."~~
  - 2. ~~be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.~~
  - 3. ~~cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for~~

~~the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.~~

- ~~4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).~~
  - ~~5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).~~
  - ~~6. extend to cover damage or loss to insured property while in transit.~~
  - ~~7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.~~
  - ~~8. allow for the waiver of the insurer's subrogation rights, as set forth below.~~
  - ~~9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.~~
  - ~~10. not include a co-insurance clause.~~
  - ~~11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.~~
  - ~~12. include performance/hot testing and start-up.~~
  - ~~13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.~~
- ~~B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.~~
- ~~C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.~~
- ~~D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.~~
- ~~E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.~~
- ~~F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction~~



~~equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.~~

6.06 *Waiver of Rights*

- ~~A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.~~
- ~~B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:~~
- ~~1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and~~
  - ~~2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.~~
- ~~C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.~~
- ~~D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.~~

#### 6.07 *Receipt and Application of Property Insurance Proceeds*

- A. ~~Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.~~
- B. ~~Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.~~
- C. ~~If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.~~

### **ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES**

#### 7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, 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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

#### 7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

#### 7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and

incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
      - 3) it has a proven record of performance and availability of responsive service; and
      - 4) it is not objectionable to Owner.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
  - B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
  - C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional

data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an “or-equal”, which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer’s Determination:* Neither approval nor denial of an “or-equal” request shall result in any change in Contract Price. The Engineer’s denial of an “or-equal” request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

#### 7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
  - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
  - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
    - a. shall certify that the proposed substitute item will:
      - 1) perform adequately the functions and achieve the results called for by the general design,
      - 2) be similar in substance to that specified, and
      - 3) be suited to the same use as that specified.
    - b. will state:
      - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
      - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - 1) all variations of the proposed substitute item from that specified, and
    - 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

#### 7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
  - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
  - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

#### 7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

#### 7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

#### 7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;



2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
  - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
  - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
  - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
  - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
  - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

#### 7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 7.16 *Shop Drawings, Samples, and Other Submittals*

##### A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data

to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal;
  6. the issuance of a notice of acceptability by Engineer;
  7. any inspection, test, or approval by others; or
  8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

#### 7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings,

calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

## **ARTICLE 8 – OTHER WORK AT THE SITE**

### **8.01 *Other Work***

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

## 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

## 8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9 – OWNER'S RESPONSIBILITIES**

### **9.01    *Communications to Contractor***

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### **9.02    *Replacement of Engineer***

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

### **9.03    *Furnish Data***

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### **9.04    *Pay When Due***

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

### **9.05    *Lands and Easements; Reports, Tests, and Drawings***

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### **9.06    *Insurance***

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

### **9.07    *Change Orders***

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.



9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

**ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

#### 10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

#### 10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

#### 10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

#### 10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

#### 10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

#### 10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

#### 10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

### **ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK**

#### 11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
  - 1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
  - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

#### 11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

#### 11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
  1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. 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 11.04.C.2.a through 11.04.C.2.e, inclusive.

#### 11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

#### 11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the

requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
  2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
  3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

#### 11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

#### 11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety 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 Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### **ARTICLE 12 – CLAIMS**

#### 12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
  1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
  3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
  1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
  2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If

the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

#### **ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

##### **13.01 *Cost of the Work***

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
  1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
  2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
  1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. 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' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of 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 Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the 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.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than 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, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the

deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than 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. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 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.
- 4. 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.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

### 13.02 Allowances

- A. 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 performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
  - 1. the cash 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
  - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

### 13.03 Unit Price Work

- A. 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 unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
  - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
  - 2. there is no corresponding adjustment with respect to any other item of Work; and
  - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a

decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

#### **ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

##### **14.01 *Access to Work***

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

##### **14.02 *Tests, Inspections, and Approvals***

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
  - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  - 3. by manufacturers of equipment furnished under the Contract Documents;
  - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

**ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

**15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
  - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. 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, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
  - 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
  - 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
  - 1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, requiring correction or replacement;



- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
- d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
  - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. the Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. the Contract Price has been reduced by Change Orders;
  - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
  - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

- I. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement

#### 15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
  - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
  - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the

Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 15.06 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
  - d. a list of all disputes that Contractor believes are unsettled; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

##### B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment,

in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

#### 15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed 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, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such other adjacent areas;
  - 2. correct such defective Work;
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate

the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17 – FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
  - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
  - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
  - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agree with the other party to submit the dispute to another dispute resolution process; or
  - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18 – MISCELLANEOUS**

### **18.01 *Giving Notice***

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

### **18.02 *Computation of Times***

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.



18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

## DIVISION 1 - GENERAL REQUIREMENTS

### SECTION 1D - GENERAL CONDITIONS

#### 1D1.2 [1] SUPPLEMENTAL GENERAL CONDITIONS

These Supplemental General Conditions amend or supplement the "Standard General Conditions of the Construction Contract" and other provisions of the Contract Documents. All provisions which are not so amended or supplemented remain in full force and effect.

#### ARTICLE SC-1 DEFINITIONS AND TERMINOLOGY

**ENGINEER** - Whenever the word "ENGINEER" is used in this Contract, it shall be understood as referring to Urban Engineering, LLC, 2725 Swantner, Corpus Christi, Texas 78404, (361) 854-3101, or their authorized representative.

**Design Specification** - Whenever the term "Design Specification" is used, it shall be understood that the performance of the completed work is as designed by the ENGINEER, and the CONTRACTOR must follow the requirements of the drawings and specifications; follow the manufacturer's recommendations (material and equipment); follow industry standard procedures and provide top quality workmanship.

**Performance Specification** - Whenever the term "Performance Specification" is used, it shall be understood that the performance of the completed work is the responsibility of the CONTRACTOR, provided the OWNER has faithfully followed all written operational and maintenance instructions supplied by the CONTRACTOR. The CONTRACTOR is not relieved of the responsibility for improper performance of the completed work even if there was improper operation and/or maintenance by the OWNER but it obviously was not the cause of improper performance. In a performance specification, the CONTRACTOR is responsible for the design of the item furnished and installed by him. It is intended that the item function properly without excessive operation and maintenance being required by the OWNER. The item furnished must incorporate the features specified but still perform as intended. The materials specified are to set a minimum standard but shall not be considered a design. If the design furnished by the CONTRACTOR requires higher quality material in order to perform as intended, it shall be furnished at no increase in cost to the Contract amount. When minimum dimensions are specified, they shall not be considered a design. If the design furnished by the CONTRACTOR requires larger dimensions in order to perform as intended, it shall be furnished at no increase in cost to the Contract amount.

**Material** - Whenever the word "Material" is used or inferred in this Contract, it shall be understood as referring to material that is new. Both workmanship and material shall be of good quality. The CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials being furnished. Materials described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.

**Notice** - All notices permitted or required to be given under the terms of the Contract Documents shall be in writing. Any such notices shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an office of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, return receipt requested, to the address of the receiving party shown on the Agreement, or to such other address as such party may have indicated to the other party in accordance with the terms of this paragraph.

**Contract Documents** - Contract Documents are defined in Article 1 of the General Conditions. Also to be considered as Contract Documents are the "Bidding Documents" (Invitation to Bid, Instructions to Bidders, Proposal Bid Form, Bid Bond, etc.) "Special Conditions" and any other Federal or State requirements listed in the Index.

**Special Conditions** - Whenever the term "Special Conditions" is used, it shall be understood as being those general requirements that are set out in such detail that they apply only to this Contract.

**Standard Specifications** - All references to standard specifications or manufacturer's installation directions shall mean the latest edition thereof. Reference to technical society, organization or body is made in specifications in accordance with the following abbreviations:

AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
ASA	American Standards Association
ASTM	American Society for Testing Materials
AWWA	American Water Works Association
FS	Federal Specifications
PCA	Portland Cement Association
AIEE	American Institute of Electrical Engineers
NEC	National Electrical Code
UL	Underwriter's Laboratories
AISI	American Iron and Steel Institute
API	American Petroleum Institute
IPCEA	Insulated Power Cable Engineer's Association
NEMA	National Electrical Manufacturer's Association
AWS	American Welding Society
AISC	American Institute of Steel Construction.

Some specification items cover construction requirements and materials in a comprehensive manner, and only pertinent portions of these items apply.

**Calendar Day** (as related to contract time of completion as stipulated in the Contract Documents) - A Calendar Day is any day of the calendar, including Saturdays, Sundays and Holidays.

## ARTICLE SC-2 PRELIMINARY MATTERS

### **2.1 Progress Schedule:**

Paragraphs 2.03, 2.05 and 4.04 of the Standard General Conditions requires the preparation and updating of a Progress Schedule. This schedule shall be revised once each month to show actual progress to proposed progress. Three copies of the revised schedule shall be submitted with the Contractor's Monthly Request for Payment. The monthly request for payment will not be approved by the ENGINEER until these copies have been received.

### **2.2 Shop Drawings Schedule:**

See Article SC-7 Contractor's Responsibilities of these Supplemental General Conditions.

### **2.3 Schedule of Values:**

A Cost Breakdown shall be provided as set out in Article SC-15.2 of the Supplemental General Conditions for all lump sum items.

### **2.4 Schedule of Payments:**

The schedule of payments shall list the items in the breakdown of the bid with a column to show the anticipated dollar value completed each month and a column to show the actual dollar value completed each month. The schedule shall show total anticipated monthly payments and the accumulative percent complete (based on dollar value) as well as actual total monthly payment and the accumulative percent complete. ***This schedule of payments shall be revised once each month to show actual payment to estimated payment.*** The estimated payments shall be updated each month to show the anticipated payment for the following month. Failure of the CONTRACTOR to diligently prepare this schedule of payments may cause his monthly payment to be delayed.

## ARTICLE SC-3 CONTRACT DOCUMENTS

### **3.1 General:**

The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

### **3.2 Conflicts and Partial Omissions:**

A conflict occurs only when specific instructions that conflict are given. Example: Drawings show concrete sidewalk to have 6 x 6 - #6 x #6 wire mesh reinforcing but specifications call for 6 x 6 - #10 x #10 wire mesh

reinforcing. This conflict would be resolved by invoking the priority of Contract Documents as set out below (drawings take priority over specifications). In the case of dimensions, figured dimensions take precedent over scaled dimensions. A partial omission occurs when information is shown only in one section of the Contract Documents. Example: Drawings do not show waterstop in construction joints but technical specifications do require them. The waterstop must be provided at no increase in Contract price because a requirement in any Contract Document is binding.

### **3.3 *Priority of Interpretation:***

In the event of a conflict between the various Contract Documents, the priority of interpretation shall be in the following order: Signed Agreement, Federal or State Requirements (if any), Addenda, Drawings, Special Conditions, Invitation for Bids, Instructions to Bidders, Supplemental General Conditions, General Conditions, Technical Specifications, Proposal, Notice to Bidders and Bonds.

### **3.4 *Errors and Omissions:***

The CONTRACTOR shall carefully check these specifications and the Contract Drawings, and report to the ENGINEER any errors or omissions discovered, whereupon full instructions will be furnished promptly by the ENGINEER. If errors or omissions are so discovered and reported before the work to which they pertain is constructed, and if correction of such errors or omissions causes an increase in Contractor's cost, CONTRACTOR shall be compensated for such increase in cost as provided elsewhere. CONTRACTOR shall bear the expense of correcting any errors and omissions on the drawings or specifications, which are not discovered or reported by the CONTRACTOR prior to construction and which, in the opinion of the ENGINEER, could have been discovered by reasonable diligence on the part of the CONTRACTOR.

It is the intent of this Contract that all work must be done and all material must be furnished in accordance with the generally accepted practice, and in the event of any discrepancies between the separate Contract Documents, the priority of interpretation defined above shall govern. Further, it is the intent of the Contract Documents that the CONTRACTOR shall perform all work to complete the project ready for its intended use. The CONTRACTOR will not be allowed extra payment when a literal interpretation of any portion of the Contract Documents would conflict with the obvious intent of the Contract Documents. Example: The Plan View of a building indicates 17 doors but the door schedule indicates 16 doors; the CONTRACTOR will provide 17 doors without being allowed extra payment. The ENGINEER shall be permitted to make such corrections or interpretations as may be deemed necessary for the fulfillment of the intent of the Contract Documents.

In the event the CONTRACTOR discovers an apparent error or discrepancy, he shall immediately call this to the attention of the ENGINEER. The CONTRACTOR shall not take advantage of any apparent error or omission in the Contract Documents to obtain additional compensation.

### **3.5 *Lack of Information:***

If the CONTRACTOR feels that there is insufficient information in order for him to prepare his bid and/or construct the work, he is required to make a written request for additional information. The CONTRACTOR shall not use the lack of information as a basis for requesting extra compensation.

## **ARTICLE SC-4 COMMENCEMENT AND PROGRESS OF THE WORK**

No Supplemental Provisions This Contract

## **ARTICLE SC-5 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS REFERENCE POINTS**

### **5.1 *Lands for Work:***

OWNER provided, as indicated on the drawings, land upon which work is to be done right-of-way for access to it, and such other lands, which are designated for use of CONTRACTOR. CONTRACTOR provides at his expense and without liability of OWNER any additional land and access thereto that may be required for his construction operations, temporary construction facilities, or for storage materials.

### **5.2 *Subsurface Conditions:***

Technical Data: See Section 2B14 - Geotechnical Investigation, if included.

**5.3 Contractor's Buildings:**

The building of structures for housing men, or the erection of tents or other forms of protection, will be permitted only at such places as the ENGINEER shall direct, and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in a manner satisfactory to the ENGINEER. Also see Section 1E15 Field Office of the Special Conditions, if included.

**5.4 Sanitation:**

Necessary sanitary conveniences for the use of laborers on the work, properly secluded from the public observation, shall be constructed and maintained by the CONTRACTOR in such manner and at such points as shall be approved by the ENGINEER, and their use shall be strictly enforced.

**5.5 Utility Services for Construction:**

If temporary utility services, including water, are required, contract with utility company concerned. CONTRACTOR to furnish all temporary utility services and water at his expense.

**5.6 Underground Utilities:**

The drawings show as much information as can be reasonably obtained by an engineering survey party and from City and utility company records regarding the location and nature of pipelines, storm sewers, water lines, sanitary sewer, telephone conduits, etc. However, the accuracy of or completeness of such information is not guaranteed. It shall be the Contractor's responsibility to locate such underground features sufficiently in advance of operation to preclude damage to same. In the event of damage to underground facilities whether shown or not in the drawings, the CONTRACTOR shall make the necessary repairs to place the facilities back in service at no increase in the Contract price and all such repairs shall conform to the requirements of the company or agency servicing the facility.

**5.7 Deviations Occasioned by Utility Structures:**

Whenever existing utilities present obstructions to grades and alignment of structures immediately notify ENGINEER who, without delay, will determine whether existing improvements are to be relocated. Where necessary to move services, poles, guy wires, pipelines or other obstructions, make arrangements with owners of utilities. OWNER will not be liable for damages on account of delays due to changes made by owners of privately owned utilities which hinder progress of work.

**5.8 Existing Obstructions:**

No obstructions are known to exist within the limits of the project. However, the ENGINEER does not in any way warrant that the CONTRACTOR may not find obstructions. The CONTRACTOR shall be responsible for removing and disposing of any obstructions found in the project areas.

**5.9 Fences and Other Obstructions:**

Where necessary to take down fences, signs or other obstructions, replace facilities in their original condition, regardless if on public or private property.

**ARTICLE SC-6 BONDS AND INSURANCE**

**6.1 Bonds:**

See Subsection 1A2 "Instructions To Bidders" for the bonds that are required for this project.

**6.2 Insurance:**

See Subsection 1C5 "Insurance Requirements and Acknowledgment" for a schedule of Insurance coverage required for this project.

## ARTICLE SC-7 CONTRACTOR'S RESPONSIBILITIES

### **7.1 Shop Drawings:**

Shop drawings are submittal information that the CONTRACTOR is required to furnish to the ENGINEER. Shop drawings include but are not limited to the following:

- A. Fabrication drawings
- B. Setting drawings
- C. Manufacturer's design drawings
- D. Manufacturer's detailed specifications
- E. Schedules and cut sheets

#### *7.1.1 Items on Which Shop Drawings are Required:*

The CONTRACTOR shall furnish to the ENGINEER, for approval, within 10 days of the date of the "Notice to Proceed with Construction" (Work Order), a complete list of all items on which shop drawings will be prepared.

#### *7.1.2 Preparation of Shop Drawings:*

Shop drawings shall be prepared in such a form and detail that full compliance with the Contract Documents and the best practices of the industry are clearly demonstrated. All shop drawings involving equipment of any nature shall include a full and complete parts list, the current street address and current phone number of the nearest authorized dealer, the current street address and current phone number of the nearest authorized repair facility, and a full and complete list of recommended spare parts. The CONTRACTOR shall include with each and every shop drawing submitted a signed statement that the submittal has been reviewed by the CONTRACTOR and is in full compliance with the Contract Documents. In the event there are minor deviations from the Contract Documents, the CONTRACTOR shall itemize each and every deviation and state in writing why the deviation is required and exactly how the submitted equipment or material will be equal to or better than that required by the Contract Documents. Shop Drawings received without the required statement and/or without a complete list of deviations shall be rejected and a resubmittal will be required.

#### *7.1.3 Payment for Preparation of Shop Drawings:*

The CONTRACTOR shall receive no direct payment for the preparation of shop drawings; that cost is considered subsidiary to the appropriate bid item.

#### *7.1.4 Submission of Shop Drawings:*

The CONTRACTOR shall submit to the ENGINEER, with such promptness as to cause no delay in his own work or in that of any other Contractor, six copies of all shop drawings required, and the ENGINEER shall pass upon them with reasonable promptness. If ENGINEER rejects drawings, resubmit corrected drawings until drawings are acceptable to ENGINEER. Such procedure shall not be considered cause for delay. Obtain approval prior to purchase or fabrication.

#### *7.1.5 Responsibility for Shop Drawings:*

Review by the ENGINEER shall not constitute acceptance by the ENGINEER of any responsibility for the accuracy, coordination and completeness of the shop drawings or the items of equipment or material represented in the submission. Accuracy, coordination and completeness of shop drawings shall be the sole responsibility of the CONTRACTOR, including full responsibility to conform with any of the Engineer's review comments, corrections, modifications or notes and to fully conform with the Contract Documents. In all cases, the CONTRACTOR and the CONTRACTOR alone is responsible for the correctness of dimensions.

#### *7.1.6 Charges for Resubmittal of Shop Drawings:*

The CONTRACTOR shall submit complete and acceptable shop drawings at least by the first resubmittal. The OWNER shall therefore withhold from payments due the CONTRACTOR to cover the additional costs of the ENGINEER'S review beyond the first resubmittal. Any reviews beyond the first resubmittal will be done at the ENGINEER'S CONVENIENCE and at the ENGINEER'S standard billing rates.

**7.2 Reporting Errors and Omissions:**

See Paragraph SC-3.4 of these Supplemental General Conditions.

**7.3 Alternate Designs:**

If alternate design features are proposed for convenience of CONTRACTOR, submit design calculations and detailed drawings covering proposed changes and related modifications of contract drawings to ENGINEER for approval. Make drawings same size as contract drawings and of comparable quality. Make payment of charges resulting from modifications including engineering charges for checking such designs.

**7.4 Variations Due to Equipment:**

Foundations, structural supports, electrical work and piping shown on drawings for items of equipment may be changed if necessary to accommodate equipment furnished. Every effort has been made to design foundations, structural supports, electrical work and piping so that no changes will be necessary; however, exact dimensions and size of subject foundations and structural supports and exact electrical and piping installation cannot be finally determined until various items of equipment are purchased and manufacturer's certified shop drawings are secured. Make required changes, with prior approval of ENGINEER, at no cost to OWNER. If substitute items of equipment are authorized which vary materially from those shown on the drawings, prepare and submit equipment data and detailed drawings covering necessary modifications to ENGINEER for approval. Make drawings same size as contract drawings and of comparable quality. Make payment of charges resulting from substitution, including engineering charges for checking modifications.

**7.5 Certifications:**

The CONTRACTOR shall have the manufacturer or supplier of all materials used in the construction of this project certify that the particular material being furnished conforms to the requirements of these specifications.

**7.5.1 Certification Form:**

A sample certification form for reinforced concrete pipe is as follows:

"I, \_\_\_\_\_, representing \_\_\_\_\_, do hereby certify that the concrete pipe being furnished for the \_\_\_\_\_ conforms to the ASTM Specification C-76, for Class III, Wall B, reinforced concrete culvert pipe.

Signed \_\_\_\_\_  
Title \_\_\_\_\_

Certifications for other material shall be similar as to form and content. The furnishing of this certificate does not prevent the ENGINEER from rejecting at the project site any material that has been damaged or that does not, in the opinion of the ENGINEER, meet the requirements of these specifications.

**7.6 Protection of Property and Facilities:**

**7.6.1 Protection of Adjoining Property:**

The said CONTRACTOR shall take proper means to protect the adjacent or adjoining property or properties in any way encountered, which might be injured or seriously affected by any process of construction to be undertaken under this Agreement, from any damage or injury by reason of said process of construction; and, he shall be liable for any and all claims for such damage on account of his failure to fully protect all adjoining property. The CONTRACTOR agrees to indemnify, save and hold harmless the OWNER against any claim or claims for damages due to any injury to any adjacent or adjoining property, arising or growing out of the performance of the Contract; but, any such indemnity shall not apply to any claim of any kind arising out of the existence or character of the work.

**7.6.2 Public Utilities and Private Property:**

The CONTRACTOR shall protect all buildings and other property, which may be endangered during progress of the work and leave same in as good condition as when found. Where sewer mains, water mains, sewer services, water services, gas mains, gas services, telephone or electrical conduits, poles and facilities of other public utilities are encountered, give protection in all cases. Where excavation is made below existing utilities, substantially support with wood blocks, beams or other means as

directed, any pipe, conduit, or other units so that same may be left in good working condition with no damage of after settlement. The CONTRACTOR shall replace or repair damaged property at no cost to the OWNER. No valve, switch or other control on existing utility systems shall be operated for any purposes by the CONTRACTOR without approval of the ENGINEER and the utility. Exercise care in performing work so as not to interrupt service. Locate and uncover existing utilities ahead of heavy excavation equipment. If utility service must be interrupted, all consumers affected by such operations shall be notified by the CONTRACTOR as directed by the ENGINEER and/or utility before the operation and advised of the probable time when service will be restored.

**7.6.3 Protection of Trees, Plants and Shrubs:**

Except when shown otherwise on the drawings, all existing trees, plants and shrubs shall be protected from damage during construction operations. Substantially constructed guards, barricades or other protective measures shall be provided as required to protect against moving equipment. CONTRACTOR shall replace at his own expense any trees, plants and shrubs which, in the opinion of the ENGINEER, are damaged or destroyed due to carelessness. Trees, plants and shrubs that fall within the limits of street, sidewalk or driveway excavation shall be removed by the CONTRACTOR. If the abutting property owner requests it, the CONTRACTOR shall remove them in a manner suitable for replanting and carefully deposit them on the landowner's property (large trees are excepted); otherwise, they shall become the property of the CONTRACTOR. Unless shown otherwise on the drawings, trees, plants and shrubs that fall within the limits of pipe trench excavation shall be removed and replanted by the CONTRACTOR in their original position as nearly as possible. As long as the CONTRACTOR uses reasonable diligence in removing and replanting trees, plants and shrubs, he shall not be responsible for their survival.

**7.7 Equipment, Materials and Construction Plant:**

The CONTRACTOR shall be responsible for the care, preservation and protection of all materials, supplies, machinery, equipment, tools, apparatus, accessories, facilities, all means of construction, and any and all parts of the work, whether the CONTRACTOR has been paid, partially paid, or not paid for such work, until the entire work is completed and accepted.

**7.7.1 Storage of Materials:**

No materials shall be stored nor shall any equipment be parked on adjacent property without the expressed consent of the owner of the property concerned. Watertight storage facilities of suitable size with floors raised above the ground shall be provided for materials liable to damage from exposure to the weather. Other materials shall be stored on blocks off the ground per manufacturer's recommendation or as directed by the ENGINEER. Materials shall be so placed as to permit easy access for inspection and identification. Any material, which has deteriorated, become damaged or is otherwise unfit for use, shall not be used in the work. Upon completion of all work or when directed by the ENGINEER, the CONTRACTOR shall remove the storage facilities from the site.

**7.7.2 Material and Equipment:**

Incorporate into work only new materials and equipment, unless otherwise designated. Store these materials and equipment in such manner to protect them from damage. Manner of protection subject to specific approval of ENGINEER. Pipe, fittings, equipment and other serviceable materials found on site of work, or dismantled by reason of construction, remain property of OWNER. Remove and deliver materials to OWNER at designated points. Pay for usable materials that are damaged through negligence at prevailing market price.

**7.8 Detours:**

The CONTRACTOR shall provide barricades, signs, lights, guards and any other items required to maintain properly marked detours around his operation.



**7.9 *Inconvenience to the Public:***

It is the declared and acknowledged intent of these specifications that all work such as backfilling of excavations, repairs to roads and driveways, and cleanup work or other such operations shall follow as closely as practical to the laying and constructing operation in such manner that the public is not unnecessarily inconvenienced, nor a hazard to public safety created. The ENGINEER shall be entitled to notify the CONTRACTOR if his force and/or equipment are insufficient to such a degree that the public is unnecessarily inconvenienced and/or a hazard to the public safety is created. The CONTRACTOR, upon such notification by the ENGINEER, shall make the necessary changes to his force and/or equipment, or the ENGINEER may stop the work in order to insure the proper execution of the work and to avoid inconveniences to the public or avoid safety hazards as herein noted.

**7.10 *Guarantee:***

***PUBLICLY FUNDED PROJECTS***

All work, including equipment, shall be warranted to be free from defects due to faulty workmanship or materials for a period of one (1) year from date of issue of a Certificate of Substantial Completion by the ENGINEER.

This guarantee does not include maintenance. This guarantee does not include normal wear. (If, during the one-year period, OWNER transfers title to the work and/or equipment, it is understood that the guarantee will inure to the benefit of the new owner.) Upon notice from OWNER, his agent or assigns, repair defects in all construction, which develop during specific period at no cost to OWNER or his assigns. Neither final acceptance nor final payment nor any provision in Contract Documents relieves CONTRACTOR of above guarantee. Notice of observed defects upon notice entitles OWNER or his assigns to repair or replace it and recover reasonable cost therefrom from CONTRACTOR and/or his surety. This guarantee does not include damage due to improper operation and maintenance by the OWNER, provided the CONTRACTOR provides the following:

- 7.10.1 The CONTRACTOR furnish the OWNER with written operational and maintenance instructions on all items.
- 7.10.2 During the warranty period the CONTRACTOR make periodic (at least once every 60 days) trips to the project site and inspect the items for proper operation and maintenance.
- 7.10.3 After each inspection trip, the CONTRACTOR shall submit his findings in writing to the OWNER and the ENGINEER.

Failure to fulfill any one or all of these conditions will make the CONTRACTOR liable for repairing damage (at no cost to the OWNER) to items under warranty, even if in his opinion it was due to improper operation and/or maintenance by the OWNER.

**7.11 *Accelerated Implementation of Date of Guarantee:***

Upon written request to the OWNER, certain items of equipment will be considered for beginning their warranty period prior to the date of Certificate of Substantial Completion. To be considered, the following conditions must be present:

- 7.11.1 Item must be in full, continuous and satisfactory operation for at least 30 days before beginning warranty period.
- 7.11.2 Placing the item into full service must be acceptable to the OWNER.
- 7.11.3 Like items will be considered as a group. Example: If a lift station contains 4 pumps, all 4 pumps must be in place and operating in a fully automatic mode before beginning the warranty period can be considered.

If the OWNER does allow the CONTRACTOR to begin the warranty period on certain items prior to the issuance of the CERTIFICATE OF SUBSTANTIAL COMPLETION, that in no way affects the Guarantee on the remainder of the work.

#### ARTICLE SC-8 OTHER WORK AT THE SITE

No Supplemental Provisions This Contract

#### ARTICLE SC-9 OWNER'S RESPONSIBILITIES

No Supplemental Provisions This Contract

#### ARTICLE SC-10 ENGINEER'S STATUS DURING CONSTRUCTION

##### **10.1 *Changes and Alterations:***

The ENGINEER shall be entitled to make such changes and alterations as the ENGINEER may see fit in the line, location, grade, form, dimensions, scope of the work, plans or material for the work herein contemplated, or any part thereof either before or after the beginning of this construction, without affecting the validity of this Contract and the accompanying Performance and Payment Bonds. If such changes or alterations diminish the quantity of the work to be done, they shall not constitute the basis for a claim for damages, or anticipated profits on the work that may be dispensed with, except as provided for unit price items under the Measurement and Payment provisions. If the amount of work is increased, and the work can fairly be classified under the specifications, such increase shall be paid for according to the quantity actually done and at the unit price, if any, established for such work under this Contract, except as provided for unit price items under the Measurement and Payment provisions; otherwise, such additional work shall be paid for as provided under Article 11 of the General Conditions. In case the ENGINEER shall make such changes or alterations as shall make useless any work already done or material already furnished or used in said work, then the CONTRACTOR shall be compensated for any material or labor so used, and for any actual loss occasioned by such change, due to actual expenses incurred in preparation for the work as originally planned.

##### **10.2 *Right of ENGINEER to Modify Methods and Equipment:***

If at any time the working force of the CONTRACTOR is inadequate for securing the progress herein specified, the CONTRACTOR shall, if so ordered in writing, increase his force or equipment, or both, to such an extent as to give reasonable assurance of compliance with the schedule of progress.

##### **10.3 *Jobsite Safety:***

Neither the ENGINEER'S activities, nor the presence of ENGINEER or its employees and sub-consultants at a construction site, shall relieve the CONTRACTOR of its obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending and coordinating the Work in accordance with the contract documents and any health or safety precautions required by any regulatory agencies. ENGINEER and its personnel have no authority to exercise any control over any construction contractor or its employees in connection with their work or any health or safety programs or procedures. The CONTRACTOR shall be solely responsible for jobsite safety.

#### ARTICLE SC-11 AMENDING THE CONTRACT DOCUMENTS - CHANGES IN THE WORK

No Supplemental Provisions This Contract

#### ARTICLE SC-12 CLAIMS

No Supplemental Provisions This Contract

#### ARTICLE SC-13 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

No Supplemental Provisions This Contract

#### ARTICLE SC-14 TESTS & INSPECTIONS; CORRECTION; REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

No Supplemental Provisions This Contract

**ARTICLE SC-15 PAYMENTS TO CONTRACTOR: SET-OFFS; AND COMPLETION;  
CORRECTION PERIOD**

***15.1 Measurement:***

***15.1.1 Estimated Quantities for Lump Sum Bid Items:***

The Contract Documents are intended to show clearly all work to be done and materials to be furnished hereunder. It is also the intent of the Contract Documents that the project be complete and ready for use and that the lump sum price bid include any incidental or miscellaneous items needed for the proper operation of the completed project whether specifically called for or not.

***15.1.2 Estimated Quantities for Unit Price Contracts:***

The Contract Documents are intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this Contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this Contract may differ somewhat from these estimates. Payment shall be for the actual amount of such work done and the material furnished. The CONTRACTOR agrees that he will make no claim for damages, anticipated profits, or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this Contract and the estimated quantities contemplated and contained in the proposal; provided, however, should the net monetary value of all additive and subtractive changes in quantities of such items of work (i.e., difference in cost) increase or decrease the original contract price by more than twenty-five percent (25%) will entitle the CONTRACTOR to revised consideration. Any revised consideration is to be determined by agreement between the parties. It is also the intent of the Contract Documents that the quantities not be increased outside the limits of the work as bid without the mutual consent of CONTRACTOR and the OWNER.

***15.2 Payments on Lump Sum Bid Items:***

The CONTRACTOR shall prepare and furnish to the ENGINEER for approval, a "Cost Breakdown" (Schedule of Values) for all work to be accomplished on lump sum bid items. This "Cost Breakdown" shall be used for determining the value of work accomplished each month by the CONTRACTOR so that partial payments may be made. This "Cost Breakdown" shall be prepared in such a manner and in sufficient detail to allow the ENGINEER to certify the value of work completed and to recommend payment be made to the CONTRACTOR.

The ENGINEER shall be the sole judge as to the suitability of the "Cost Breakdown" furnished for the above stated purpose. The Engineer will not allow an "unbalanced cost breakdown". This "Cost Breakdown" will be used for establishing prices for Extra Work only if the prices are agreeable to both the CONTRACTOR and the OWNER.

***15.3 Payments on Unit Price Contracts:***

Payment shall be made on the basis of actual measured and/or computed length, area, solid contents, number and weight, unless otherwise specifically provided, and no extra measurements and measurements customary in the trade shall be used as a basis for payment hereunder.

***15.4 Failure to Complete on Time:***

The Time of Completion is the essence of the Contract. For each Calendar Day that any work shall remain incomplete after the time specified in the Proposal and Contract, or as automatically increased by additional work ordered after the Contract is signed, the Damages in the amount of **\$ 500.00** Per Calendar Day will be deducted from the moneys due the CONTRACTOR, as liquidated damages. The moneys thus deducted for such delay, failure or non-completion is not to be considered as a penalty but shall be deemed, taken and treated as reasonable liquidated damages since it would be impractical and most difficult to fix the actual damages. Contractor shall not be charged with liquidated damages when the delay in completion of the work is due to any preference, priority or allocation order duly issued by the Owner or to unforeseen causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the

Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and abnormal and unforeseeable weather (such as abnormal rainfall, tornadoes and hurricanes). The Contractor is required to promptly give written notice of such delays to the Engineer.

ARTICLE SC-16 SUSPENSION OF WORK AND TERMINATION

No Supplemental Provisions This Contract

ARTICLE SC-17 – FINAL RESOLUTION OF DISPUTES

No Supplemental Provisions This Contract

ARTICLE SC-18 MISCELLANEOUS

No Supplemental Provisions This Contract

## DIVISION 1 - GENERAL REQUIREMENTS

### SECTION 1E - SPECIAL CONDITIONS

#### 1E1<sup>[1]</sup> NAME AND LOCATION OF PROJECT

1E1.1 NAME OF PROJECT: 2023 Municipal Marina Repairs.

1E1.2 LOCATION OF PROJECT: Port Aransas, Texas.

#### 1E2 OWNER

1E2.1 NAME: The word "Owner" in these specifications shall be understood as referring to the City of Port Aransas or anyone acting for the Owner under due authority.

1E2.2 ADDRESS: 710 West Avenue – A, Port Aransas, Texas 78373

#### 1E3 CONTRACT DRAWINGS

SHEET

NO.

TITLE

1. Cover Pager
2. Dock 12 – Demo & Plan View
3. Dock 12 Framing Plan
4. Dock 12 Main Dock Framing Details
5. Dock 12 Finger Pier Framing Details
6. Peggy Ann Dock Demo and Framing Plan
7. Peggy Ann Dock Framing Details
8. Dock 2 & 3 Bulkhead Cap
9. Boat Ramp
10. General Details

#### 1E4 COMPLETION DATE

1E4.1 GENERAL: The work is to be substantially complete by September 30, 2023. Calculation of time shall begin from the date construction is begun but in any case no later than 10 days after notice to proceed is received by the Contractor. Should the Contractor fail to substantially complete a part or parts within the specified time, liquidated damages will be assessed in the amount of \$ 500.00 per Calendar Day until the work is complete.

#### 1E5 HORIZONTAL AND VERTICAL CONTROL

1E5.1 HORIZONTAL CONTROL: Engineer will provide a Horizontal control point on the site (to be avoided), staking of the limits of spoil areas, staking of the haul routed and staking of the limits of channel areas to be excavated and dredged.

1E5.2 VERTICAL CONTROL: Engineer will provide a benchmarks on the site.

## **1E6 SCHEDULE AND SEQUENCE OF CONSTRUCTION**

### **1E6.1 REQUIRED SCHEDULES:**

Article SC-2 of the Supplemental General Conditions contains provisions that require that the Contractor prepare a Progress Schedule and Schedule of Payments. Those schedules shall incorporate the schedule and sequence of construction requirements as set out in this section.

### **1E6.2 SCHEDULE OF CONSTRUCTION:**

It is the meaning and intent of this Contract that the Contractor shall be allowed to prosecute his work at such times and seasons in such order or precedence, and in such manner as shall be the most conducive to economy of construction, subject to the following conditions:

- a. The schedule of construction shall be structured to meet all requirements of Section 1E4 Completion Date of the Special Conditions.
- b. The schedule of construction shall not conflict with any provision of the Contract Documents and also that when the Owner is having other work done, either by contract or by their own force, the Engineer may direct the time and manner of constructing the work done under this Contract so that conflict will be avoided and the construction of various works being done for the Owner will be harmonized.
- c. The schedule of construction shall be structured to conform to sequence of construction as set out hereinafter.

### **1E6.3 SEQUENCE OF CONSTRUCTION:**

#### **1E6.3.1 General:**

The following sequence of construction is intended to provide an order of construction that will result in as little disturbance to existing marina operations as possible. Contractor shall be responsible for being aware of the operating conditions of the marina that will affect the construction sequence. In the event that valves or gates are inoperable, or other conditions exist that require modification of the sequence of construction, then it is the Contractor's responsibility to devise substitute methods for accomplishing the construction with the assistance of the City personnel.

#### **1E6.3.2 Construction Sequence:**

1. Notify city, marina, and boating public of upcoming dredging activities 14 days in advance of mobilization.
2. Conduct pre-dredge survey to verify plan survey at contractor's expense.
3. Submit dredging execution plan and dredging material transportation/disposal plan to Engineer for review, 14 days prior to beginning dredging operations.
4. Carry out dredging activities as shown on the plans and described herein.
5. Conduct a post dredge survey and provide copy of survey with volume calculations to Engineer.

#### **1E6.3.3 Work by Others:**

When the Owner is having other work done, either by contract or by their own force, the Engineer may direct the time and manner of constructing the work done under this Contract so conflict will be avoided, and the construction of various works being done for the Owner will be harmonized.

**1E6.3.4**    Boat Traffic and Access:

The safety of the Public and the Contractor's personnel shall have the highest priority. Safe boat traffic flow, comparable to normal flow and access to marina shall be possible when the Contractor is not working. During normal working hours, when necessary for safety reasons, portions of the marina may be temporarily closed to boat traffic. No section of the marina shall be temporarily closed more than 8 hours at one time. The Contractor shall notify all persons affected by the temporary closure 24 hours in advance of the closure. The Contractor shall provide a construction schedule and a boat traffic control plan at the pre-construction meeting.

## **1E7 TESTING**

**1E7.1**        GENERAL:

**1E7.1.1**    Laboratory Testing: When "Laboratory Testing" is required under this section, it shall be performed by a recognized testing laboratory selected by the Owner. The cost of "Laboratory Testing" shall be borne by the Owner.

**1E7.1.2**    Contractor Testing: None required.

**1E7.1.3**    Retesting: In the event that any test fails, that test shall be done over (after corrective measures have been taken) and the cost of retesting shall be borne by the Contractor.

**1E7.2**        SCHEDULE OF TESTING:

**1E7.2.1**    Subgrade Preparation, Embankment and Backfill:

a. Laboratory Testing:

- |   |       |
|---|-------|
| (1) Moisture-Density Relationship (Proctor Curve) | 1 Ea. |
| (2) In-Place Density Tests                        | 1 Ea. |

b. Contractor Testing: None Required

**1E7.2.2**    Concrete: (See Subsection 3C1)

a. Laboratory Testing:

    (1) Mix Designs:

- |                       |       |
|-----------------------|-------|
| (a) 3000 psi Concrete | 1 Ea. |
| (b) 5000 psi Concrete | 1 Ea. |

    (2) Laboratory Control of Mixing: None Required

    (3) Field Test Cylinders: (1 set is 3 cylinders)

- |                                       |              |
|---------------------------------------|--------------|
| (a) <u>Concrete Cap, and Sidewalk</u> | Every 50 CY. |
|---------------------------------------|--------------|

Contractor Testing: None Required

## **1E8 MEASUREMENT AND PAYMENT**

**1E8.1**        GENERAL:

**1E8.1.1**    Quantities and Measurements:

No extra or customary measurements of any kind will be allowed, but the actual measured and/or computed length, area, solid contents, number and weight only shall be considered. The method of measuring the bid items and payment of bid items is set out hereinafter.

**1E8.1.2**    Measurement:

All items shall be measured as set out in the proposal.

**1E8.2**

**PAYMENT:**

The work to complete this project shall be paid for at the Contract price bid. Payment shall be full compensation for all materials required, all operations, all labor, all tools, all equipment, and all other incidentals required to complete the work as shown on the drawings and specified herein.

**1E8.3**

**Final Payment:**

See Article 15, paragraphs 15.06 of the Standard General Conditions of the Construction Contract. Payment shall be full compensation for all materials, supplies, machinery, power, fuel, transportation, royalty fees and any other facilities necessary for the execution and completion of the project.

**1E8.4**

**ITEMS NOT LISTED ON THE PROPOSAL:**

Items of work not listed on the Proposal form necessary to complete the project as shown on the drawings and as specified are considered as subsidiary to the established bid items and there will be no separate payment. Their cost should be included in the appropriate bid item.



**1E8.2**

**PAYMENT:**

The work to complete this project shall be paid for at the Contract price bid. Payment shall be full compensation for all materials required, all operations, all labor, all tools, all equipment, and all other incidentals required to complete the work as shown on the drawings and specified herein.

**1E8.3**

**Final Payment:**

See Article 15, paragraphs 15.06 of the Standard General Conditions of the Construction Contract. Payment shall be full compensation for all materials, supplies, machinery, power, fuel, transportation, royalty fees and any other facilities necessary for the execution and completion of the project.

**1E8.4**

**ITEMS NOT LISTED ON THE PROPOSAL:**

Items of work not listed on the Proposal form necessary to complete the project as shown on the drawings and as specified are considered as subsidiary to the established bid items and there will be no separate payment. Their cost should be included in the appropriate bid item.

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1E - SPECIAL CONDITIONS**

#### **1E9<sup>[1]</sup> STATE SALES TAX**

##### **1E9.1 GENERAL:**

The Contractor's attention is directed to the State of Texas Comptroller of Public Accounts Limited Sales, Excise and Use Tax Rules and Regulations. Upon compliance with certain conditions, these rules provide for exemption from this tax of materials for use in work done for an exempt agency under a contract. The Owner of this project is an exempt agency. Any bidder may elect to exclude this sales tax from his bid. If the bidder submitting the lowest acceptable bid for performing the work on this project elects to comply with the above mentioned rules on any bid item included in this Contract he shall obtain any necessary permit or permits from the State Comptroller allowing the purchase of material for use in this project without having to pay the limited sales, excise and use tax at the time of purchase. The Owner will furnish the Contractor with its exemption certificate for those materials used in the project. The Owner will make no further allowance for and will make no price adjustment above or below the originally bid unit prices on account of this tax.

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1E - SPECIAL CONDITIONS**

#### **1E10<sup>[1]</sup> WAGE RATES**

1E10.1 GENERAL: The following wage decision shall apply for the construction of this project:

"General Decision Number: TX20230021 01/06/2023

Superseded General Decision Number: TX20220021

State: Texas

Construction Type: Heavy

Counties: Nueces and San Patricio Counties in Texas.

HEAVY CONSTRUCTION PROJECTS (including Sewer and Water Line Construction and Drainage Projects)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
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If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this

wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number    Publication Date  
0                      01/06/2023

SUTX1987-001 12/01/1987

Rates                      Fringes

CARPENTER (Excluding Form  
Setting).....\$ 9.05 \*\*

Concrete Finisher.....\$ 7.56 \*\*

ELECTRICIAN.....\$ 13.37 \*\*                      2.58

Laborers:

Common.....\$ 7.25 \*\*

Utility.....\$ 7.68 \*\*

Power equipment operators:

Backhoe.....\$ 9.21 \*\*

Motor Grader.....\$ 8.72 \*\*

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WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

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\*\* Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average

calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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## WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations

Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"



## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1E - SPECIAL CONDITIONS**

#### **1E11<sup>[5]</sup> INSPECTION**

##### **1E11.1     GENERAL:**

The Public work will be subject to inspection and checked by the Owner and Engineer periodically. Should, however, at any time the City Inspectors, on visiting the job, feel that any work is being improperly done by the Contractor and not in accordance with these specifications and they desire corrections, clarifications, or reasons for the deviation, they shall have the right to proceed as follows:

##### **1E11.1.1   Notification:**

Notify the representative of Urban Engineering, Consulting Engineers for the Owner, of all conditions complained of and of the corrective conditions desired to be made. Every effort will be made to reach an agreement with the Owner, but if such cannot be arrived at, then the Owner shall have the right to order the representative of Urban Engineering to temporarily delay construction until such time as Urban Engineering can work out a satisfactory agreement with the Owner for the Contractor to proceed.

##### **1E11.1.2   Delay:**

If for any reason the conditions as outlined above occur and for any reason a representative of Urban Engineering cannot be reached immediately then, and only then, shall the City Inspectors have the right to temporarily delay construction until they can contact Urban Engineering at their office so that satisfactory adjustment can be made between them and the City for the work to proceed.

##### **1E11.1.3   Negotiations:**

All major disagreements, if any, must be adjusted by Urban Engineering, it being understood that except in cases as outlined above, all negotiations of the Contractor with the City or with the City Inspectors or vice-versa will be handled through Urban Engineering, and only they shall have the right to issue instructions to the Contractor.

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 1E - SPECIAL CONDITIONS**

#### **1E25<sup>[1]</sup> MINORITY AND WOMEN'S BUSINESS ENTERPRISES**

##### **1E25.1 GENERAL:**

The City of Port Aransas is committed to developing, establishing, maintaining, and enhancing minority involvement in all the city's procurement activities. The City's goal is to have at least a 20% M/WBE participation with all procurement processes. It is The City's wish to involve qualified minority/women-owned businesses to the greatest extent feasible in the procurement of goods, equipment, services, and construction projects. The City, its contractors, their suppliers and subcontractors, and vendors of goods, equipment services, and professional services shall not discriminate on the basis of race, color, religion, national origin, handicap, or sex in the award and/or performance of contracts. However, competition and quality of work remains the ultimate "yardstick" in contractor, subcontractor, vendor, service, professional service, and supplier utilization. All vendors, suppliers, professionals, and contractors doing business or anticipating doing business with The City of Port Aransas shall support, encourage, and implement affirmative steps toward our common goal of establishing equal opportunity for all citizens of Port Aransas.

## **DIVISION 2 - SITE WORK**

### **SECTION 2A - CLEARING OF SITE**

#### **2A2<sup>[1]</sup> DEVIATIONS OCCASIONED BY EXISTING OBSTRUCTIONS**

##### **2A2.1 SCOPE:**

The drawings show the locations of all known surface and subsurface structures. In the case of underground obstructions such as existing water, sewer, storm sewer, gas, electrical lines or underground debris that are not shown on the drawings, their location is not guaranteed. The Owner assumes no responsibility for failure to show any or all these structures on the drawings or to show them in their exact location. Failure to show will not be considered sufficient basis for claims for additional compensation for extra work in any manner whatsoever unless the obstruction encountered necessitates substantial changes in the lines or grades or requires the building of special work for which no provision is made in the drawings and which is not essentially subsidiary to some item of work for which provision is made. It is assumed, that as elsewhere provided, the Contractor has thoroughly inspected the site, is informed as to the correct location of surface structures, and has included the cost of such incidental work in the price bid, and has considered and allowed for all foreseeable incidental work due to variable sub-surface conditions, whether such conditions and such work are fully and properly described on the drawings or not. Minor changes and variations of the work specified and shown on the drawings shall be expected by the Contractor and allowed for as incidental to the satisfactory completion of a whole and functioning work or improvement.

##### **2A2.2 ABANDONED LINES:**

When a line is uncovered that is not necessary for the proper operation of the plant, the line shall be cut and plugged with concrete. Owner's representative shall be notified prior to authorizing the cutting and plugging. No claim for additional compensation for extra work will be considered for this.

##### **2A2.3 SERVICE LINES**

When an unshown line is uncovered that must remain in service for the proper operation of the plant, the line shall be rerouted. In this instance, consideration of a claim for additional compensation for extra work will be handled on an individual basis.

##### **2A2.4 TRENCHING AHEAD:**

###### **2A2.4.1 General:**

The Contractor is required to conduct trenching operations in a manner which will allow conflicts to be anticipated thereby allowing measures to be taken in certain cases to circumvent the conflict. Specifically the Contractor shall do the following:

- a. Trenching shall be performed a minimum of 100 feet (or the total length of the trench) ahead of pipe laying operations. Pilot Trenches may be used at the Contractor's option.
- b. If unshown buried lines are discovered which may cause conflict, Contractor shall stop pipe laying operations and notify Engineer of discovery.

###### **2A2.4.2 Grade Alignment:**

If conflict can be avoided by adjusting grades by a maximum of two feet up or down and no additional fittings are required, no claim for additional compensation for extra work will be considered. Lines requiring adjustments greater than 2 feet, additional fittings or the soil being trenched significantly different will be considered for extra compensation on an individual basis.

###### **2A2.4.3 Avoidable Conflicts:**

Conflicts occurring because of the Contractor's failure to comply with 2A2.4.1 and which could have been avoided by grade adjustment in accordance with 2A2.4.2 will not be considered for extra compensation.

##### **2A2.5 EXTRA WORK**

No work for which extra compensation is to be received shall be performed until approved by the Engineer and the Owner.

## **DIVISION 2 - SITE WORK**

### **SECTION 2A - CLEARING OF SITE**

#### **2A4<sup>[1]</sup> REMOVING EXISTING CONCRETE AND STRUCTURES**

**2A4.1**     SCOPE:

This specification shall govern for all work necessary to remove and dispose of existing concrete and structures as required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**2A4.2**     MATERIAL:

Concrete, masonry, broken pipe, timber, and other existing structures required to be removed because of new construction shall become the property of the Contractor.

**2A4.3**     CONSTRUCTION METHODS:

**2A4.3.1**   General:

The Contractor shall completely remove existing structures which are to be abandoned to a depth of 24 inches below finished grade. Any remaining cavity shall be completely filled with 1,500 psi concrete (see Subsection 3C1) or caliche stabilized with Portland cement (two sacks cement per cubic yard of caliche - in place measure).

**2A4.3.2**   Culvert and Storm Sewer Pipe:

The Contractor shall carefully remove all abandoned culvert and storm sewer pipe 15 inches in diameter or larger that underlies proposed curb or pavement, or that is in the way of new construction. It shall be removed in such a manner that it is suitable for reuse. The Contractor shall load, haul and unload this pipe at the disposal site shown on the drawings. Any pipe which is damaged where, in the opinion of the Engineer, it is no longer suitable for use shall become the property of the Contractor. Pipes smaller than 15 inches in diameter shall be left in place unless they conflict with proposed construction. The Contractor shall plug the ends of pipe to be left in place with 1,500 psi concrete (see Subsection 3C1).

#### **2A7<sup>[1]</sup> DEMOLITION AND SITE CLEAN UP**

**2A7.2.3**   Miscellaneous Debris:

Miscellaneous debris shall be removed from below the pier and 10 feet out from the pier's footprint.

**2A7.3**     DISPOSAL:

All debris shall be disposed of in accordance with all local, state and federal laws.

## **DIVISION 2 - SITE WORK**

### **SECTION 2B - EARTHWORK**

#### **2B1<sup>[1]</sup> SITE GRADING**

**2B1.1**     SCOPE:

This specification shall govern for all work necessary to accomplish shaping and grading indicated on the drawings and specified herein and shall include maintaining surface drainage during construction, finish grading and all phases of the cleanup operation. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**2B1.2**     GENERAL:

The Contractor shall uniformly grade the entire project site to provide a pleasing appearance.

**2B1.3**     CONSTRUCTION METHODS:

**2B1.3.1**   Finishing Slopes and Surfaces:

The Contractor shall shape and grade the project site to conform to the proposed grade and/or sections shown on the drawings, and as directed by the Engineer. In any case, the Contractor shall grade the site to provide positive drainage away from buildings and towards roads and drainage facilities. The finished appearance shall be reasonably smooth and even (abrupt changes in slope shall not be used). The degree of finish for grading slopes shall be that ordinarily obtainable from either blade-grader operations, or by hand-shovel operations, as the Contractor may elect, subject to the approval of the Engineer.

Adjust any existing or new valve boxes, manhole rims, etc. to new final grades and pour concrete pads as shown in details provided in drawings.

**2B1.3.2**   Clean-Up:

The Contractor shall keep the site and structures free from accumulations of waste materials, debris, etc. caused by the work or his employees. All material, debris, rocks, concrete spoil, etc. exposed at grade or lying on top of the ground shall be picked up and disposed of by the Contractor. Upon completion of the project and before requesting final inspection, the site and his work shall be "broom clean" or its equivalent.

## **DIVISION 2 - SITE WORK**

### **SECTION 2B - EARTHWORK**

#### **2B5<sup>[5]</sup> SITE AND PARKING LOT EXCAVATION AND BACKFILL**

**2B5.1**     SCOPE:

This specification shall govern for all work necessary to accomplish the site and parking lot excavation, subgrade preparation and backfill required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**2B5.2**     GENERAL:

Comprehensive item for excavation and earthwork (dig up, move, use, remove, haul dispose) for all classes of material within site and parking lot area. Construct, shape, and finish all earthwork to specified line and grade. Compact earth subgrade where shown on plans, as cut section or embankment. Excess and waste becomes contractor's property unless otherwise specified. Contractor to furnish any borrow needed unless otherwise specified. Furnish and place topsoil where called for on plans. Excavate for side street transitions and non-concrete driveway adjustments.

**2B5.3**     CONSTRUCTION METHODS:

**2B5.3.1**   Stripping and Excavation:

- a. Strip top 6" in all areas to underlie compacted fill, curbs, base or pavement, by removing all humus, vegetation, other unsuitable materials.
- b. Remove existing trees, shrubs, fences, curb, gutter, sidewalk, drives, paving and structures within graded area which interfere with new construction or finished grade.
- c. Stockpile topsoil for future use in top 3" to provide finish grades as shown on grading plan.
- d. Dispose of silt, muck, organic materials and debris. Do not use in project.

**2B5.3.2**   Fill: See Subsection 2B10 Compacted Embankment for requirements.

**2B5.3.3**   Subgrade Preparation:

- a. Cut or build embankment in compacted layers, finish to specified line and grade.
- b. If subgrade is to be lime-stabilized (see Section 2B8).
- c. Maintain moisture and density until covered by base.
- d. Dig out soft or wet areas found at any time, replace with suitable material, recompact (especially utility trenches).

**2B5.3.4**   Curb Backfill and Top Soil:

- a. Compact earth behind curbs without delay after curb completion.
- b. Top 3" (where disturbed by construction or where unsatisfactory material is exposed by excavation) of finished earth grade shall be top soil excavated from the site. No excessive clods.

**2B5.3.5**   Excess and Unsuitable Material: All excess and/or unsuitable excavated material shall be loaded and hauled off by the Contractor.

## **DIVISION 2- SITE WORK**

### **SECTION 2B - EARTHWORK**

#### **2B10<sub>[1]</sub> COMPACTED EMBANKMENT**

**2B10.1**     SCOPE:

This specification shall govern for all work necessary to place and compact all suitable materials obtained from street, storm sewer, channel and structural excavation for utilization in the construction of street or roadway embankments, dikes, levees, backfill of structures and retaining walls as required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**2B10.2**     MATERIAL:

Material used for embankment shall be free from muck, trees, stumps, brush, roots, rubbish and in all ways be suitable for embankment.

**2B10.3**     CONSTRUCTION METHODS:

**2B10.3.1**   General:

Prior to placing any embankment, the surface of the ground, including plowed, loosened ground, or surface roughened by small washes or otherwise, shall be restored to approximately its original slope by blading or other methods and where indicated on plans or required by the Engineer the ground surface thus prepared shall be compacted by sprinkling and rolling. Where indicated on plans or directed by the Engineer, the surface of hillsides to receive embankment shall be loosened by scarifying or plowing to a depth of not less than 4 inches, or cut into steps before embankment materials are placed. The embankment shall then be placed in layers, as hereinafter specified, beginning at the low side in part width layers and increasing the widths as the embankment is raised. The materials which have been loosened shall be recompacted simultaneously with the embankment material placed at the same elevation. Where embankments are to be placed adjacent to or over existing roadbeds, the roadbed slopes shall be plowed or scarified to a depth of not less than 4 inches and the embankment built up in successive layers, as hereinafter specified, to the level of the old roadbed shall before its height is increased. Then, if directed, the top of the old roadbed shall be scarified and recompacted with the next layer of the new embankment. The total depth of the scarified and added material shall not exceed the permissible depth of layer. Trees, stumps, roots, vegetation, or other unsuitable materials shall not be placed in embankment. Embankments shall be constructed to the grades shown on the drawings. After completion, it shall be continuously maintained at its finished section and grade until the project is accepted. Except as otherwise specified, earth embankments shall be constructed in successive layers for the full width of the cross section and in such lengths as are suited to the sprinkling and compaction methods utilized. Prior to compaction, the layers shall not exceed 6 inches in depth. Layers of embankment may be formed by utilizing equipment which will spread the material as it is dumped, or they may be formed by being spread by blading or other acceptable methods from piles of windrows dumped from excavating or hauling equipment in such amounts that material is evenly distributed. Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction. Where non-uniform layers abut each other, each layer shall be feather-edged for at least 100 feet or the material shall be so mixed as to prevent abrupt changes in the soil. No material placed in the embankment by dumping in a pile or windrow shall be incorporated in a layer in that position, but all such piles or windrows shall be broken and the embankment material mixed by blading, harrowing or similar methods to the end that a uniform material or uniform density is secured in each layer. Water required for sprinkling to bring the material to the moisture content necessary for maximum compaction shall be evenly applied, and it shall be the responsibility of the Contractor to secure a uniform moisture content throughout the layer by such methods as may be necessary. In order to facilitate uniform wetting of the embankment material, the Contractor may apply water at the material source. Such procedure shall be subject to the approval of the Engineer. Each layer of embankment shall be compacted by approved power drawn rollers to the density

2B10

Compacted Embankment

Page 1 of 2

specified. All earth cuts, full width or part width cuts in side hill, which are not required to be excavated below subgrade elevation for base and backfilled, shall be scarified to a uniform depth of at least 6" below grade, and the material shall be mixed and reshaped by blading and then sprinkled and rolled in accordance with the requirement outlined above for earth embankments and to the same density as that required for the adjacent embankment.

**2B10.3.2** Retaining Walls, Storm Sewers and Bridges:

Embankments or backfill placed adjacent to and over pipes, culverts, retaining walls, storm sewers and bridges shall be of suitable material and shall be placed in successive layers approximately parallel to the finished grade. Special care shall be taken to prevent any wedging action against the structure. For such distances along embankments adjacent to structures where it is impractical to employ the compaction methods above specified, the embankment material shall be placed in layers not exceeding 6" depth of loose material, thoroughly mixed and wetted uniformly to the moisture content directed, and shall be compacted by approved methods, maintaining the required moisture content by additional sprinkling, if necessary, until each layer has been uniformly compacted to the density specified. Embankments placed around spill-through type abutments shall be constructed in 6" loose layers of uniform suitable material placed in such manner as to maintain approximately the same elevation on each side of the abutment, and all materials shall be mixed, wetted and compacted as specified above.

**2B10.3.3** Density:

For each layer of embankment, backfill and selected material, it is the intent of this specification to provide an apparent dry density of the minus 1/4 inch material of not less than **95 percent Standard Proctor Density** as prescribed by A.A.S.H.O. Standard Method T-99, latest revision. It is also the intent of this specification that the sequence of work in constructing embankments or backfill shall be such that no compacted layer will be allowed to lose either the moisture or density specified. In case work on any partially completed embankment or backfill is suspended, the top 6 inches shall be brought to the moisture and density specified for subgrade, before placing the next layer of embankment or backfill. After each layer of earth embankment or select material is completed, tests as necessary will be made. See Section 1E7 of the Special Conditions. If the material fails to meet the density specified, it shall be reworked as necessary to obtain that density. The moisture content and density shall be maintained so as to pass the above compaction test until the base material is placed.



## **DIVISION 2 - SITE WORK**

### **SECTION 2C - PILING**

#### **2C1<sup>[2]</sup> PILE DRIVING**

**2C1.1**     SCOPE:

This specification shall govern for equipment required and the methods to be utilized for driving piling. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**2C1.2**     TOLERANCE FOR DRIVING:

**2C1.2.1**   General:

Piles shall be driven to the required vertical alignment. Allowable variations from plan alignment shall not exceed the following:

- a) The top of the piling shall not be more than two (2) inches from the position shown on the plans.

**2C12.2**     Pilings shall be cut of reasonably square at the elevation shown on the plans. Any piling raised when driving adjacent piling shall be redriven. Broken, split, or displaced piling shall be withdrawn and properly replaced, or corrected as directed by the Engineer based on a design analysis.

**2C1.3**     PROTECTION OF PILE HEADS:

The Contractor is responsible for providing protection to the pile heads during driving.

**2C1.4**     PENETRATION:

Except as noted herein, the piling lengths shown on the plans are the lengths estimated to give required bearing and are for estimating purposes also.

Piles may be jetted to an embedment of 10 ft. the remaining 5 ft. of embedment must be driven with at minimum 2000 lb. impact pile driver. Jetting can be used to assist the pile driving for the final 5 ft. of embedment if unusually hard conditions are met. Once 15 ft. embedment has been reached jetting operations must cease and piles must be proofed to verify pile loading has been reached. Proofing the pile consists of using a minimum 2000 lb. impact pile driver for 300 blows resulting in less than 1 inch of penetration.

**2C1.5**     LENGTH DETERMINATION:

Piling length shall be determined by the following method:

**2C1.5.1**     Plan lengths. The plan lengths for piling are determined based on soils tests. Where test piling or test loads are not required, the approved lengths of piling shall be those shown on the plans. The final in-place lengths of piling shall be in accordance with Article 2C1.4.

**2C1.5.2**     Measurement and Payment:

The work performed and all transport labor, tools, equipment and incidentals necessary to complete the work under this item will be measured and paid per bid item.

- 2H2.4.3**    Mixers:  
Equipment used for mixing base material and Portland cement shall be either a single pass or multiple pass traveling mixing plant designed specifically for that purpose. **Mixing with a motor grader or similar equipment will not be allowed.**
- 2H2.4.4**    Blade Graders:  
Blade graders shall have a wheel base of not less than 15 feet and a blade of not less than 10 feet and shall be self-propelled.
- 2H2.4.5**    Tamping Rollers:  
Tamping Rollers, sheepfoot type, shall consist of one or more units. Each unit shall consist of a watertight cylindrical drum not less than 60-inches in lengths, surrounded by metal studs with tamping feet projecting not less than 7-inches from the surface of the drum and spaced not less than 6-inches nor more than 10-inches apart, measured diagonally from center to center. The tamping feet shall be an approved type suitable for compacting flexible base courses. Each unit shall be equipped with a suitable device for cleaning the tamping feet. The rolling units of multiple-type tamping rollers shall be pivoted on the main frame in a manner that will permit the units to adapt themselves to uneven ground surface and to rotate independently. When fully loaded, the rollers shall produce a pressure of at least 750 pounds per square inch on the combined areas of the tamping feet in contact with the ground.
- 2H2.4.6**    Three-Wheel General Purpose Rollers:  
Shall be self-propelled, weighing not less than 10 tons and having a minimum compression of 300 pounds per inch width of rear wheel. The wheels of the rollers shall be equipped with adjustable scrapers.
- 2H2.4.7**    Pneumatic-Tired Rollers:  
Shall be single or double axle vibrating or non-vibrating type, equipped with tires of equal size and diameter, uniformly inflated, so that the air pressure of the several tires shall not vary more than 5 pounds per square inch. The self-propelled roller, or the power unit and towed roller shall be considered a pneumatic-tired roller unit.
- a. Light Pneumatic-Tired Rollers shall have two axles on which are mounted not less than 9 pneumatic-tired wheels in such a manner that the rear group of tires will not follow in the tracks of the forward group. The axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. The roller shall develop a compression of not less than 225 pounds per inch width of the tire tread and shall be capable of being loaded to provide loads up to 300 pounds per inch of normal tire width. The rollers shall be weighed as directed.
  - b. Heavy Pneumatic-Tired Rollers shall be of the vibratory or non-vibratory type with a minimum loading of 25,000 lbs. per tire. The tires shall be suitable for inflation to not less than 90 p.s.i. The loading shall be distributed equally to all wheels.
- 2H2.5**        CONSTRUCTION METHODS:
- 2H2.5.1**    General:  
The primary requirement of this specification is to secure a complete course of soil containing a uniform Portland cement mixture, free from loose or segregated areas, of uniform density and moisture content, well bound and compacted for its full depth with a smooth surface suitable for placing surface courses.
- 2H2.5.2**    Preparation:  
The existing base and surface shall be scarified and pulverized for its full width and depth and then bladed and shaped to conform to the purposed lines and grades. All bituminous material shall be broken into particles that will pass a 2" sieve and incorporated uniformly with the existing base material. Unsuitable soil material shall be removed and replaced with acceptable material. The subgrade shall be firm and able to support without displacement the construction equipment and the

compaction hereinafter specified. Soft or yielding subgrade shall be stabilized before construction proceeds.

**2H2.5.3**    Pulverization:

Before cement is applied the base material shall be pulverized so that at the completion of moist-mixing, when all non-slaking aggregate retained on the No. 4 sieve are removed, the remaining material shall meet the following requirements (when tested from the roadway in the roadway condition by Test Method Tex-101-E [part III]).

**Minimum passing 1-inch sieve. . . . . 100% by dry weight**

**Minimum passing a No. 4 sieve . . . . . 80% by dry weight**

(Exclusive of gravel stone or bituminous material retained on these sieves.)

The Contractor shall insure that existing bituminous material is uniformly distributed in the cement soil base.

**2H2.5.4**    Cement Application, Mixing and Spreading:

a.    General:

Mixing of the soil material, cement and water shall be accomplished by the mixed-in-place method (using either a single pass or multiple pass traveling mixing plant). No cement or soil-cement mixture shall be spread when the soil or subgrade is frozen or when the air temperature is less than 40°F in the shade. The percent of moisture in the soil material, at the time of cement application, shall not exceed the quantity that will permit uniform and intimate mixture of soil and cement during dry mixing operations. It shall not exceed the specified optimum moisture content for the soil-cement mixture. The operations of cement application, water application, mixing, hauling, spreading, compacting, and finishing shall be continuous and completed in daylight. The total elapsed time between the addition of water to the soil-cement mixture and the completion of finishing shall not exceed 4 hours. Any soil-and-cement mixture that has not been compacted and finished shall not remain undisturbed for more than 30 minutes.

b.    Application of Cement:

Portland cement shall be spread uniformly on the soil at the rate specified herein and as approved by the Engineer. If a bulk cement spreader is used, it shall be positioned by stringlines or other approved methods during spreading to insure a uniform distribution of cement. No equipment, except that used in spreading and mixing, will be allowed to pass over the freshly spread cement until it is mixed with the soil.

c.    Single-Pass Traveling Mixing Plant Method:

After the cement has been applied it shall be sufficiently dry-mixed with the soil to prevent the formation of cement balls when water is applied. Unpulverized soil lumps in the soil cement mixture immediately behind the mixer that are dry will not be allowed. Should this condition prevail, the Contractor shall "pre-wet" the raw soil as necessary to correct this condition. The mixer shall be provided with means for visibly and accurately gauging the water application. The water shall be applied uniformly through a pressure spray bar. After cement is spread, mixing operations shall proceed as follows:

The mixer shall in one continuous operation mix the air-dry soil and cement full depth, and the required moisture uniformly, thoroughly moist mix the soil, cement and water, spread the completed soil cement mixture evenly over the machine processed width of the subgrade and leave it in a loose condition ready for immediate compaction.

d.    Multiple-Pass Traveling Mixing Plant:

After the cement has been applied it shall be dry-mixed with the soil. Mixing shall continue until the cement has been sufficiently blended with the soil to prevent the formation of cement balls when water is applied. Immediately after the dry mixing of soil and cement is complete, water as necessary shall be uniformly applied and incorporated into the mixture. Pressurized equipment and supply provided shall be adequate to insure continuous application of the required amount of water to sections being processed within 3 hours of application of the cement. Proper care shall be

exercised to insure proper moisture distribution at all times. After the last increment of water has been added, mixing shall continue until a thorough and uniform mix has been obtained.

**2H2.5.5**    Unsatisfactory Methods:

When using either type mixing plant (see 2H2.5.4.c or 2H2.5.4.d above) if any of the operation after the initial application of water to the soil-cement mixture is interrupted for more than thirty (30) minutes for any reason, or when the uncompacted soil-cement mixture is wetted by rain so that the average moisture content exceeds the tolerance given below at the time of final compaction, the entire section shall be reconstructed in accordance with this specification at the contractor's own expense. All material along longitudinal or transverse construction joints, not properly compacted, shall be removed and replaced with properly moistened and mixed soil-cement which shall be compacted to specified density.

**2H2.5.6**    Compaction:

At the start of compaction, the percentage of moisture in the mixture and in unpulverized soil lumps shall not be below or more than two percentage points above the specified optimum moisture content, and shall be less than that quantity which will cause the soil-cement mixture to become unstable during compaction and finishing. The specified optimum moisture content and density shall be determined in the field by a moisture-density test, AASHTO T134 or ASTM D558, on representative samples of soil-cement mixture obtained from the area being processed at the time compaction begins. Prior to compaction, the mixture shall be in a loose condition for its full depth. The compactive effort shall be applied to the full depth. The loose mixtures shall then be compacted uniformly to the specified density. During compaction operations, initial shaping may be required to obtain uniform compaction and required grade and cross section. All places inaccessible to rollers and/or finishing equipment, the mixture shall be thoroughly compacted by hand tamping and shaped and finished by hand methods. The Contractor shall schedule his work and provide equipment that will insure that the base course is completed before the Portland cement can take its initial set. At the end of the day, or in case of unavoidable interruption of operations that would form a joint in the base course, a transverse header shall be placed in such manner that the end of the base course can be satisfactorily compacted and shaped. On resuming operations, the header shall be removed and if the exposed edge of the base course is not approximately vertical, or if necessary to secure a satisfactory riding surface at the joint, the edge of the base course shall be cut back to leave a vertical face or as necessary to secure a satisfactory riding surface. All base course material removed shall be replaced by the Contractor at his own expense.

**2H2.5.7**    Finishing:

When initial compaction is nearing completion, the surface of the soil-cement shall be shaped to the required lines, grades, and cross section. The moisture content of the surface material shall be maintained at not less than its specified optimum moisture content during finishing operations. If necessary, the surface shall be lightly scarified to remove any tire imprints or smooth surfaces left by equipment. Compaction shall then be continued until uniform and adequate density is obtained. Rolling shall be supplemented by broom- dragging if required. The soil cement shall be uniformly compacted to a minimum of **96% of maximum density**. Compaction and finishing shall be done in such a manner as to produce, in not longer than 2 hours, a smooth, dense surface free of compaction planes, cracks, ridges or loose material.

**2H2.5.8**    Curing, Protection and Cover:

After the base course has been finished as specified herein, it shall be immediately protected against rapid drying by applying an asphaltic prime coat (See Subsection 2H6) at the rate of 0.20 gal/per square yard, or as necessary, in the opinion of the Engineer, to completely seal the surface and fill all voids. Immediately prior to application of the asphaltic material, the base course shall be wetted, by the use of water distributors, so that all voids in the soil-cement mixture are filled with water but without free water standing on the surface. The asphaltic material shall be applied while the surface of the soil-cement base is wet so that undue asphaltic penetration will be avoided. It shall be the responsibility of the contractor to protect this asphaltic curing coat against picking up under traffic by

sanding the surface. The bituminous curing coat shall remain in place for the proposed additional asphalt surface treatment, unless otherwise directed by the Engineer. Any finished portion of the soil-cement base adjacent to construction, which is traveled by equipment used in constructing an adjoining section, shall be covered with at least six (6) inches of earth to prevent equipment from marring the surface of the completed work.

**2H2.5.9**    Maintenance:

The contractor shall be required to maintain at his own expense the entire pavement area within the limits of his contract in good condition satisfactory to the Engineer from the time he first starts work until all work shall have been completed. Maintenance shall include immediate repairs of any defect that may occur in the base course after the cement has been applied, which work shall be done by the contractor at his own expense and repeated as often as may be necessary to keep the area continuously intact. Repairs are to be made in a manner to insure restoration of a uniform surface and durability of the part repaired. Faulty work shall be replaced for the full depth of treatment. Any low area shall be remedied by replacing the material for the full depth of treatment, rather than adding a thin layer of soil-cement on the completed work.

## DIVISION 2 - SITE WORK

### SECTION 2H - ROADS AND WALKS

#### **2H2<sup>[2]</sup> SOIL-CEMENT BASE COURSE (EXISTING BASE COURSE AND PORTLAND CEMENT)**

**2H2.1**     SCOPE:

This specification shall govern for all work necessary to scarify and pulverize existing asphalt wearing surface and base course to a depth as required to provide (when conforming to the purposed grades) a 6" thick soil cement (Portland Cement) base course as required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions" Art. SC-1 Definitions.

**2H2.2**     GENERAL:

This section includes furnishing of all equipment, plant, materials, labor and the performance of all operations required to complete a base course composed of a combination of pulverized asphalt, soil (sand) and Portland cement uniformly mixed, moistened, compacted and cured in accordance with this specification. The base course shall be shaped to conform to sections, lines and grades as shown on the drawings. It is the intent of this specification that that all damaged areas (in areas designated to receive overlay) be repaired using either 6" of base conforming to this specification or Hot Mix-Hot Laid Asphaltic Concrete (conforming to subsection 2H11) as approved by the Engineer.

**2H2.3**     MATERIAL:

**2H2.3.1**   Portland Cement:

Portland cement shall comply with the latest specifications for Portland cement (ASTM C150, Type 1, CSA Standard A5, or AASHTO M85) or blended hydraulic cements (ASTM C595 or AASHTO M240, excluding slag cement Types S and SA) for the type specified.

**2H2.3.2**   Water: Water shall be free from substances deleterious to the hardening of the soil-cement.

**2H2.3.3**   Base Material:

Base material shall consist of a combination of scarified and pulverized asphalt, existing base material and soil (sand). The soil and existing base material shall be free from vegetation or other objectionable material. The Contractor shall add or remove material as required to conform to the proposed lines and grades.

**2H2.3.4**   Soil Cement Mixture:

Both the base material and Portland cement shall be of such quality that when properly proportioned and mixed, a satisfactory base mixture will be produced. The base material and cement shall be properly proportioned such that the finished base mixture contains **11% Portland cement by weight**.

**2H2.4**     EQUIPMENT:

**2H2.4.1**   General:

Any combination of equipment may be used that will produce a uniform cement stabilized mixture, free from loose or segregated areas and of uniform density and moisture. All equipment is subject to the approval of the Engineer.

**2H2.4.2**   Scarifiers/Pulverizers:

Scarifier/Pulverizer shall be a self-propelled unit designed specifically for the purpose of scarify and pulverizing existing asphalt wearing surface and base course in place.

- 2H2.4.3**    Mixers:  
Equipment used for mixing base material and Portland cement shall be either a single pass or multiple pass traveling mixing plant designed specifically for that purpose. **Mixing with a motor grader or similar equipment will not be allowed.**
- 2H2.4.4**    Blade Graders:  
Blade graders shall have a wheel base of not less than 15 feet and a blade of not less than 10 feet and shall be self-propelled.
- 2H2.4.5**    Tamping Rollers:  
Tamping Rollers, sheepsfoot type, shall consist of one or more units. Each unit shall consist of a watertight cylindrical drum not less than 60-inches in lengths, surrounded by metal studs with tamping feet projecting not less than 7-inches from the surface of the drum and spaced not less than 6-inches nor more than 10-inches apart, measured diagonally from center to center. The tamping feet shall be an approved type suitable for compacting flexible base courses. Each unit shall be equipped with a suitable device for cleaning the tamping feet. The rolling units of multiple-type tamping rollers shall be pivoted on the main frame in a manner that will permit the units to adapt themselves to uneven ground surface and to rotate independently. When fully loaded, the rollers shall produce a pressure of at least 750 pounds per square inch on the combined areas of the tamping feet in contact with the ground.
- 2H2.4.6**    Three-Wheel General Purpose Rollers:  
Shall be self-propelled, weighing not less than 10 tons and having a minimum compression of 300 pounds per inch width of rear wheel. The wheels of the rollers shall be equipped with adjustable scrapers.
- 2H2.4.7**    Pneumatic-Tired Rollers:  
Shall be single or double axle vibrating or non-vibrating type, equipped with tires of equal size and diameter, uniformly inflated, so that the air pressure of the several tires shall not vary more than 5 pounds per square inch. The self-propelled roller, or the power unit and towed roller shall be considered a pneumatic-tired roller unit.
- a. Light Pneumatic-Tired Rollers shall have two axles on which are mounted not less than 9 pneumatic-tired wheels in such a manner that the rear group of tires will not follow in the tracks of the forward group. The axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. The roller shall develop a compression of not less than 225 pounds per inch width of the tire tread and shall be capable of being loaded to provide loads up to 300 pounds per inch of normal tire width. The rollers shall be weighed as directed.
  - b. Heavy Pneumatic-Tired Rollers shall be of the vibratory or non-vibratory type with a minimum loading of 25,000 lbs. per tire. The tires shall be suitable for inflation to not less than 90 p.s.i. The loading shall be distributed equally to all wheels.
- 2H2.5**        CONSTRUCTION METHODS:
- 2H2.5.1**    General:  
The primary requirement of this specification is to secure a complete course of soil containing a uniform Portland cement mixture, free from loose or segregated areas, of uniform density and moisture content, well bound and compacted for its full depth with a smooth surface suitable for placing surface courses.
- 2H2.5.2**    Preparation:  
The existing base and surface shall be scarified and pulverized for its full width and depth and then bladed and shaped to conform to the purposed lines and grades. All bituminous material shall be broken into particles that will pass a 2" sieve and incorporated uniformly with the existing base material. Unsuitable soil material shall be removed and replaced with acceptable material. The subgrade shall be firm and able to support without displacement the construction equipment and the

compaction hereinafter specified. Soft or yielding subgrade shall be stabilized before construction proceeds.

**2H2.5.3** Pulverization:

Before cement is applied the base material shall be pulverized so that at the completion of moist-mixing, when all non-slaking aggregate retained on the No. 4 sieve are removed, the remaining material shall meet the following requirements (when tested from the roadway in the roadway condition by Test Method Tex-101-E [part III]).

**Minimum passing 1-inch sieve. . . . . 100% by dry weight**

**Minimum passing a No. 4 sieve . . . . . 80% by dry weight**

(Exclusive of gravel stone or bituminous material retained on these sieves.)

The Contractor shall insure that existing bituminous material is uniformly distributed in the cement soil base.

**2H2.5.4** Cement Application, Mixing and Spreading:

a. General:

Mixing of the soil material, cement and water shall be accomplished by the mixed-in-place method (using either a single pass or multiple pass traveling mixing plant). No cement or soil-cement mixture shall be spread when the soil or subgrade is frozen or when the air temperature is less than 40°F in the shade. The percent of moisture in the soil material, at the time of cement application, shall not exceed the quantity that will permit uniform and intimate mixture of soil and cement during dry mixing operations. It shall not exceed the specified optimum moisture content for the soil-cement mixture. The operations of cement application, water application, mixing, hauling, spreading, compacting, and finishing shall be continuous and completed in daylight. The total elapsed time between the addition of water to the soil-cement mixture and the completion of finishing shall not exceed 4 hours. Any soil-and-cement mixture that has not been compacted and finished shall not remain undisturbed for more than 30 minutes.

b. Application of Cement:

Portland cement shall be spread uniformly on the soil at the rate specified herein and as approved by the Engineer. If a bulk cement spreader is used, it shall be positioned by stringlines or other approved methods during spreading to insure a uniform distribution of cement. No equipment, except that used in spreading and mixing, will be allowed to pass over the freshly spread cement until it is mixed with the soil.

c. Single-Pass Traveling Mixing Plant Method:

After the cement has been applied it shall be sufficiently dry-mixed with the soil to prevent the formation of cement balls when water is applied. Unpulverized soil lumps in the soil cement mixture immediately behind the mixer that are dry will not be allowed. Should this condition prevail, the Contractor shall "pre-wet" the raw soil as necessary to correct this condition. The mixer shall be provided with means for visibly and accurately gauging the water application. The water shall be applied uniformly through a pressure spray bar. After cement is spread, mixing operations shall proceed as follows:

The mixer shall in one continuous operation mix the air-dry soil and cement full depth, and the required moisture uniformly, thoroughly moist mix the soil, cement and water, spread the completed soil cement mixture evenly over the machine processed width of the subgrade and leave it in a loose condition ready for immediate compaction.

d. Multiple-Pass Traveling Mixing Plant:

After the cement has been applied it shall be dry-mixed with the soil. Mixing shall continue until the cement has been sufficiently blended with the soil to prevent the formation of cement balls when water is applied. Immediately after the dry mixing of soil and cement is complete, water as necessary shall be uniformly applied and incorporated into the mixture. Pressurized equipment and supply provided shall be adequate to insure continuous application of the required amount of water to sections being processed within 3 hours of application of the cement. Proper care shall be



exercised to insure proper moisture distribution at all times. After the last increment of water has been added, mixing shall continue until a thorough and uniform mix has been obtained.

**2H2.5.5**    Unsatisfactory Methods:

When using either type mixing plant (see 2H2.5.4.c or 2H2.5.4.d above) if any of the operation after the initial application of water to the soil-cement mixture is interrupted for more than thirty (30) minutes for any reason, or when the uncompacted soil-cement mixture is wetted by rain so that the average moisture content exceeds the tolerance given below at the time of final compaction, the entire section shall be reconstructed in accordance with this specification at the contractor's own expense. All material along longitudinal or transverse construction joints, not properly compacted, shall be removed and replaced with properly moistened and mixed soil-cement which shall be compacted to specified density.

**2H2.5.6**    Compaction:

At the start of compaction, the percentage of moisture in the mixture and in unpulverized soil lumps shall not be below or more than two percentage points above the specified optimum moisture content, and shall be less than that quantity which will cause the soil-cement mixture to become unstable during compaction and finishing. The specified optimum moisture content and density shall be determined in the field by a moisture-density test, AASHTO T134 or ASTM D558, on representative samples of soil-cement mixture obtained from the area being processed at the time compaction begins. Prior to compaction, the mixture shall be in a loose condition for its full depth. The compactive effort shall be applied to the full depth. The loose mixtures shall then be compacted uniformly to the specified density. During compaction operations, initial shaping may be required to obtain uniform compaction and required grade and cross section. All places inaccessible to rollers and/or finishing equipment, the mixture shall be thoroughly compacted by hand tamping and shaped and finished by hand methods. The Contractor shall schedule his work and provide equipment that will insure that the base course is completed before the Portland cement can take its initial set. At the end of the day, or in case of unavoidable interruption of operations that would form a joint in the base course, a transverse header shall be placed in such manner that the end of the base course can be satisfactorily compacted and shaped. On resuming operations, the header shall be removed and if the exposed edge of the base course is not approximately vertical, or if necessary to secure a satisfactory riding surface at the joint, the edge of the base course shall be cut back to leave a vertical face or as necessary to secure a satisfactory riding surface. All base course material removed shall be replaced by the Contractor at his own expense.

**2H2.5.7**    Finishing:

When initial compaction is nearing completion, the surface of the soil-cement shall be shaped to the required lines, grades, and cross section. The moisture content of the surface material shall be maintained at not less than its specified optimum moisture content during finishing operations. If necessary, the surface shall be lightly scarified to remove any tire imprints or smooth surfaces left by equipment. Compaction shall then be continued until uniform and adequate density is obtained. Rolling shall be supplemented by broom- dragging if required. The soil cement shall be uniformly compacted to a minimum of **96% of maximum density**. Compaction and finishing shall be done in such a manner as to produce, in not longer than 2 hours, a smooth, dense surface free of compaction planes, cracks, ridges or loose material.

**2H2.5.8**    Curing, Protection and Cover:

After the base course has been finished as specified herein, it shall be immediately protected against rapid drying by applying an asphaltic prime coat (See Subsection 2H6) at the rate of 0.20 gal/per square yard, or as necessary, in the opinion of the Engineer, to completely seal the surface and fill all voids. Immediately prior to application of the asphaltic material, the base course shall be wetted, by the use of water distributors, so that all voids in the soil-cement mixture are filled with water but without free water standing on the surface. The asphaltic material shall be applied while the surface of the soil-cement base is wet so that undue asphaltic penetration will be avoided. It shall be the responsibility of the contractor to protect this asphaltic curing coat against picking up under traffic by

sanding the surface. The bituminous curing coat shall remain in place for the proposed additional asphalt surface treatment, unless otherwise directed by the Engineer. Any finished portion of the soil-cement base adjacent to construction, which is traveled by equipment used in constructing an adjoining section, shall be covered with at least six (6) inches of earth to prevent equipment from marring the surface of the completed work.

**2H2.5.9**    Maintenance:

The contractor shall be required to maintain at his own expense the entire pavement area within the limits of his contract in good condition satisfactory to the Engineer from the time he first starts work until all work shall have been completed. Maintenance shall include immediate repairs of any defect that may occur in the base course after the cement has been applied, which work shall be done by the contractor at his own expense and repeated as often as may be necessary to keep the area continuously intact. Repairs are to be made in a manner to insure restoration of a uniform surface and durability of the part repaired. Faulty work shall be replaced for the full depth of treatment. Any low area shall be remedied by replacing the material for the full depth of treatment, rather than adding a thin layer of soil-cement on the completed work.

## DIVISION 2 - SITE WORK

### SECTION 2H - ROADS AND WALKS

#### 2H11<sup>[3]</sup> HOT MIX-HOT LAID ASPHALTIC CONCRETE PAVEMENT

##### 2H11.1 SCOPE:

This specification shall govern for all work necessary to complete a leveling-up course, a base course, a surface course or any combination of these courses as shown on the drawings, each to be composed of a compacted mixture of mineral aggregate and asphaltic material. The pavement shall be constructed on the previously completed and approved base or the existing pavement. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions" Art. SC-1 Definitions.

##### 2H11.2 GENERAL:

This specification shall govern for furnishing the following type of Hot Mix-Hot Laid Asphaltic Concrete.

##### 2H11.2.1 Fine Graded Surface Course:

- a. Type "D"
- b. Stability" 35% minimum

##### 2H11.3 MATERIALS:

##### 2H11.3.1 Mineral Aggregate:

The mineral aggregate shall be composed of a coarse aggregate, a fine aggregate, and if required, a mineral filler. Combined mineral aggregate, after final processing by the mixing plant and prior to addition of asphalt and mineral filler, shall have a sand equivalent value of not less than 45, when tested in accordance with Test Method Tex-203-F. Mineral aggregate from each source will meet the quality tests specified hereafter.

##### a. Coarse Aggregate:

Coarse aggregate shall be that part of the aggregate retained on the No. 10 sieve; shall consist of clean, tough, durable fragments of stone, crushed gravel, crushed limestone or combination thereof meeting the requirements of this specification. When the coarse aggregate is tested in accordance with Test Method Tex-217-F, Part I and Part II; the amount of organic matter, clay, loam or particles coated therewith or other undesirable materials shall not exceed 2% and when the remaining part of the sample is further tested in accordance with Test Method Tex-217-F, Part II; the amount of material removed shall not exceed 1%. When it is required that coarse aggregate be sampled during delivery to the plant, from the stockpile, or from the cold bin, the material removed, when tested in accordance Test Method Tex-217-F Part II shall not exceed 2%. The coarse aggregate (each coarse aggregate when a combination of materials is used) shall have an abrasion of not more than 40% loss by weight when subjected to the Los Angeles Abrasion Test, Test Method Tex-410-A and 45% for the binder and base courses. Polish value shall not be less than 30 for aggregate used in the surface course in accordance with Tex-438-A.

##### b. Fine Aggregate:

The fine aggregate shall be that part of the aggregate passing the No. 10 sieve and shall consist of sand and/or screenings. Fine aggregate shall consist of durable particles, free from injurious foreign matter that passes the Los Angeles abrasion requirements per above. Screenings may be blended with a maximum of 15% uncrushed aggregate or field sand. Grading of fine aggregate shall be as follows:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
No. 10	100
No. 200	0-15

- c. Mineral Filler:  
Mineral filler shall consist of thoroughly dry stone dust, Portland cement, fly ash or other mineral dust approved by the Engineer. The material filler shall be free from foreign and other injurious matter. When tested by Test Method Tex-200-F, (Parts I and II) it shall meet the following grading requirements.

<u>Percent By Weight</u>	
Passing a No. 30 Sieve	95 to 100
Passing a No. 80 Sieve, not less than	75
Passing a No. 200 Sieve, not less than	55

**2H11.3.2** Asphaltic Materials:

- a. Paving Mixture:  
Asphalt for the paving mixture shall be PG64-22 asphalt cement and shall conform to Item 300 "Asphalt, Oil and Emulsions" of the Standard Specifications for Construction of Highways, Streets and Bridges, current edition; of the Texas Department of Transportation. The Contractor shall notify the Engineer of the source of his asphaltic material prior to design or production of the asphaltic mixture and this source shall not be changed during the course of the project except on written permission of the Engineer.
- b. Tack Coat:  
The asphaltic material for tack coat shall meet the requirements for SS-1H. Asphaltic materials shall meet the requirements of the aforementioned Item 300.

**2H11.4** PAVING MIXTURES:

**2H11.4.1** General:

The paving mixtures shall be designed in accordance with TxDOT Bulletin C-14 and Tex-204-F and shall consist of a uniform mixture of coarse aggregate, fine aggregate, asphaltic material and mineral filler, if required. The grading of each constituent of mineral aggregate shall be such as to produce, when properly proportioned, a mixture which, when tested in accordance with Test Method Tex-200-F, will conform to the limitations for master grading for the types of asphaltic concrete as set out hereinafter.

**2H11.4.2** Types of Asphaltic Concrete:

- a. Type "D" - Fine Graded Surface Course:

<u>Sieve Size</u>	<u>Percent Passing By Weight or Volume</u>
Passing 1/2" sieve .....	98 to 100
Passing 3/8" sieve .....	85 to 100
Passing No. 4 sieve .....	50 to 70
Passing No. 8 sieve .....	35 to 46
Passing No. 30 sieve .....	15 to 29
Passing No. 50 sieve .....	7 to 20
Passing No. 200 sieve .....	2 to 7
Minimum % voids = 15	

The asphaltic material shall form from 4.0 to 8.0 percent of the mixture by weight or 9% to 19% of the mixture by volume unless specified otherwise on the drawings.

- b. Type "B" - Fine Graded Base Course & Leveling Up Course:

<u>Sieve Size</u>	<u>Percent Passing</u> <u>By Weight or Volume</u>
Passing 1" sieve.....	100
Passing 7/8" sieve.....	95 to 100
Passing 5/8" sieve.....	75 to 95
Passing 3/8" sieve.....	60 to 80
Passing No. 4 sieve.....	40 to 60
Passing No. 10 sieve.....	27 to 40
Passing No. 40 sieve.....	10 to 25
Passing No. 80 sieve.....	3 to 13
Passing No. 200 sieve.....	1 to 6 *
Minimum % voids = 12	

\* 2-8 when Test Method Tex-200-F Part II (washed sieve analysis) is used.

The asphaltic material shall form from 3.5 to 7.0 percent of the mixture by weight or 8% to 16% of the mixture by volume unless specified otherwise on the drawings.

#### 2H11.4.3 Tolerances:

A reputable testing laboratory shall be retained to designate the exact grading of the aggregate content, within the above limits, to be used in the mixture produced should not vary from the designated grading and asphalt content by more than the tolerances allowed herein; however, the mixture produced shall conform to the limitations for master grading specified above.

	<u>Percent By Weight</u>
Passing 7/8" sieve - retained on 3/8" sieve.....	Plus or minus 5
Passing 5/8" sieve - retained on 3/8" sieve.....	Plus or minus 5
Passing 3/8" sieve - retained on No. 4 sieve.....	Plus or minus 5
Passing No. 4 sieve - retained on No. 10 sieve.....	Plus or minus 5
Total retained on No. 8 sieve.....	Plus or minus 5
Passing No. 8 sieve - retained on No. 30 sieve.....	Plus or minus 3
Passing No. 30 sieve - retained on No. 50 sieve.....	Plus or minus 3
Passing No. 50 sieve - retained on No. 200 sieve.....	Plus or minus 3
Passing No. 200 sieve.....	Plus or minus 3
Asphalt Volume.....	Plus or minus 1.2
Asphalt Weight .....	Plus or minus 0.5

Should the paving mixture produced vary from the designated grading and asphalt content by more than the above tolerances, proper changes are to be made until it is within these tolerances.

#### 2H11.4.4 Mix Properties:

The mixture shall have a minimum Hveem stability of 35 per Tex-208-F at **an optimum density of 97% (plus or minus 1%)** of theoretical maximum per Tex-227-F and Tex-207-F.

#### 2H11.4.5 Extraction Test:

Samples of the mixture when tested in accordance with Test Method Tex-210-F shall not vary from the grading proportions of the aggregate and the asphalt content designated, by more than the respective tolerances specified above and shall be within the limits specified for master grading. When limestone rock asphalt screenings are used, the extraction requirements relative to asphalt content are waived.

#### 2H11.4.6 Sampling and Testing:

It is the intent of this specification to produce a mixture which when designed and tested in accordance with these specifications and methods outlined in TxDot Bulletin C-14, will have the following laboratory density and stability.

<u>Density (Percent)</u>			<u>Stability (Percent)</u>
<u>Minimum</u>	<u>Maximum</u>	<u>Optimum</u>	
<u>96</u>	98	97	See paragraph 2H11.2

Stability and density are control tests. If the laboratory stability and/or density of the mixture produced has a value lower than that specified, and in the opinion of the Engineer is not due to change in source or quality of materials, production may proceed, and the mix shall be changed until the laboratory stability and density falls within the specified limits and as near the optimum value as is practicable. If there is, in the opinion of the Engineer, a fundamental change in any material from that used in the design mixtures, production will be discontinued until a new design mixture is determined by trial mixes. It is the intent of this specification that the mixture will be designed to produce a mixture of optimum density.

## **2H11.5** EQUIPMENT:

### **2H11.5.1** Mixing Plants:

Mixing plants that will not continuously produce a mixture meeting all of the requirements of this specification will be condemned. Mixing plants may be either the weight-batching type or the continuous mixing type. Both types of plants shall be equipped with satisfactory conveyors; power units; aggregate handling equipment; hot aggregate screens and bins; dust collectors; and shall be equipped with automatic proportioning and recording devices. Mixing plants shall conform to Item 340.4 "Equipment" of the Standard Specifications for Construction of Highways, Streets and Bridges, current edition, of the Texas Department of Transportation.

### **2H11.5.2** Paving Equipment:

#### a. Spreading and Finishing Machine:

The spreading and finishing machine shall be of the screening and troweling type or of a type approved by the Engineer and shall be capable of producing a surface that will meet the requirements of the typical cross-section and the surface test.

#### b. Maintainer:

The maintainer, if used, shall be a self-propelled power maintainer; it shall be equipped with pneumatic-tired wheels; shall have a blade length of not less than 12 feet; shall have a wheel base of not less than 16 feet; and shall be tight and in good operating condition and approved by the Engineer.

#### c. Pneumatic-Tired Roller:

The pneumatic-tired roller shall consist of not less than 9 pneumatic-tired wheels, running on axles in such manner that the rear group of tires will not follow in the tracks of the forward group, and mounted in a rigid frame and provided with a loading platform or body suitable for ballast loading. The wheel base of the roller (the distance between the front and rear axles) shall not be less than 5 feet nor more than 10 feet. The front axle shall be attached to the frame in such manner that the roller may be turned within a minimum circle. The pneumatic-tired roller, under working conditions, shall have an effective rolling width of approximately 60 inches and shall be so designed that by ballast loading, the load may be varied uniformly from 100 pounds to 325 pounds per inch of width of tire tread. The pressure in the tires and the compression to be provided at any time shall be as directed by the Engineer. The roller, under working conditions, shall provide a uniform compression under all wheels. The total combined width of effective tire tread shall be not less than 85 percent of the effective rolling width. The pneumatic-tired roller shall be drawn either by a suitable pneumatic-tired tractor or a truck of adequate tractive effort.

#### d. Tandem Roller:

This roller shall be an acceptable power-driven tandem roller weighing not less than 8 tons.

- e. Three-Wheel Roller:  
This roller shall be an acceptable power-driven three-wheel roller weighing not less than 10 tons.
  - f. Straight Edges:  
The Contractor shall provide acceptable 16 foot straight edge for surface testing. Satisfactory templates shall be provided as required by the Engineer.
- 2H11.6** STOCKPILE, STORAGE, PROPORTIONING AND MIXING:  
Stockpiling, storage, proportioning and mixing shall conform to the requirements of Item 340.5, 1993 Edition.
- 2H11.7** CONSTRUCTION METHODS:
- 2H11.7.1** General:  
The asphaltic mixture or tack coat shall be placed only when the weather conditions, in the opinion of the Engineer, are suitable. The mixture shall not be placed when the air temperature is below 45°F.
- 2H11.7.2** Tack Coat:  
Tack coat will be applied as directed by the engineer, but in no case shall it be applied in excess of 0.05 gal./s.y. Before the asphaltic mixture is laid, the surface upon which it is to be placed shall be cleaned thoroughly to the satisfaction of the Engineer. All contact surfaces of curbs and structures and all joints shall be painted with a thin uniform coat of tack coat material.
- 2H11.7.3** Transporting Asphaltic Concrete:  
The asphaltic mixture, prepared as specified above, shall be hauled to the work in tight vehicles previously cleaned of all foreign material. The dispatching of the vehicles shall be arranged so that all material delivered may be placed and shall have received its initial rolling in daylight. The inside of the truck body may be given a light coating of oil, if necessary, to prevent mixture from adhering to body.
- 2H11.7.4** Placing:
- a. General:  
The asphaltic mixture shall be dumped and spread on the approved prepared surface with the specified spreading and finishing machine in such a manner that when properly compacted, the finished pavement will be smooth, of uniform density and will meet the requirements of the typical cross-section and the surface tests.
  - b. Small Areas:  
When the asphaltic mixture is placed in a narrow strip along the edge of an existing pavement or used to level up small areas of an existing pavement or placed in small irregular areas where the use of a finishing machine is not practical, the finishing machine may be eliminated when authorized by the Engineer provided a satisfactory surface can be obtained by other approved methods.
  - c. Flush Structures:  
Adjacent to flush curbs, gutter liners and structures, the surface shall be finished uniformly high so that when compacted, it will be slightly above the edge of the curb and flush structures.
- 2H11.7.5** Compacting:  
Rolling with the 3 wheel and tandem rollers shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheels. Alternate trips of the roller shall be slightly different in length. On super-elevated curves, rolling shall begin at the low side and progress toward the high side. Rolling with the pneumatic roller shall be done as directed by the Engineer. Rolling shall be continued until no further compression can be obtained or the specified density is obtained and all roller marks are eliminated. One tandem roller and at least one 3-wheel roller as above specified shall be provided if needed. Rolling with pneumatic

rollers will be required where satisfactory compaction cannot be secured with flat wheel rollers. The motion of the roller shall be slow enough at all time to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and of fresh mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. Necessary precautions shall be taken to prevent the dropping of gasoline, oil, grease, cinders, or other foreign matter on the pavement, either when the rollers are in operation or when standing. **Compacting with the use of vibratory measures will not be allowed.**

**2H11.7.6** In Place Density:

In-place density control is required for all mixtures except for thin, irregular level-up courses. Material should be compacted to between 96% and 92% of maximum theoretical density or between 4% and 8% air voids. Average density shall be greater than 92% and no individual determination shall be lower than 90%. Testing shall be in accordance with Tex-207-F and Tex-227-F. Pavement specimens, which shall be either cores or sections of the compacted mixture, will be tested as required to determine the percent air voids. Other methods, such as nuclear determination of in-place density, which correlate satisfactorily with actual project specimens may be used when approved by the Engineer.

**2H11.8** TESTING:

**2H11.8.1** General:

This paragraph sets out a list of tests that may be required. See Section 1E7 of the Special Conditions for those required tests. Section 1E7 will also set out who shall bear the cost of the required testing.

**2H11.8.2** Mix Design:

A mix design shall be prepared by a reputable testing laboratory. The mix design does not have to be prepared specifically for this project but must apply to the materials being furnished and meet the requirements of these specifications.

**2H11.8.3** Mix Control:

A reputable testing laboratory shall control the proportioning and mixing of materials used in the asphaltic concrete to assure the mix design is being followed.

**2H11.8.4** Extraction Tests:

A reputable testing laboratory shall take samples of the mixture during construction. These samples when tested in accordance with Texas Highway Department Test Method Tex-210-F shall not vary from the grading proportions of the aggregate and the asphalt content of the approved mix design.

**2H11.8.5** Stability and Laboratory Density Tests:

A reputable testing laboratory shall take samples of the mixture during construction. These samples when tested in accordance with TxDot Bulletin C-14 will have the required stability and laboratory density.

**2H11.8.6** Field Density:

A reputable testing laboratory shall be retained to determine the in place density of the asphaltic concrete. The method used to determine in place density is subject to the approval of the Engineer.

**2H11.8.7** Thickness Tests:

The thickness of the compacted wearing surface shall be determined by depth cores taken at interval in such a manner that each test shall represent no more than 1000 square yards. When the wearing surface deficiency averages more than 1/8 inch but less than 3/8 inch the payment per square yard will be reduced proportionately. When the wearing surface deficiency averages 3/8 inch or more the Contractor shall overlay the entire surface with at least 1/2 inch of additional asphaltic concrete as required to meet the required thickness. The Contractor shall neatly repair all areas where thickness cores were taken. These thickness tests shall be made by the Contractor under the supervision of the Engineer.

**2H11.8.8** Surface Tests:



The surface of the pavement, after compression, shall be smooth and true to the established line, grade and cross-section; and when tested with a 16' straight-edge placed parallel to the center of the roadway, it shall have no deviation in excess of 1/16" per foot from the nearest point of contact. The maximum coordinate measured from the face of the straight-edge shall not exceed 1/4" at any point. Any point in the surface not meeting these requirements shall be immediately corrected. These surface tests shall be made by the Contractor under the supervision of the Engineer.

## DIVISION 2 - SITE WORK

### SECTION 2H - ROADS AND WALKS

#### 2H17<sup>[1]</sup> REMOVING AND REPLACING PAVEMENTS, CURB AND GUTTER, DRIVEWAYS AND SIDEWALK

##### 2H17.1 SCOPE:

This specification shall govern for all work necessary to complete the removing and replacing of all types of pavements, curb and gutter, driveways and sidewalks as required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

##### 2H17.2 METHOD OF CUTTING:

The outline of the trench shall be marked on the surface to be cut. The cut shall be made as nearly vertical as possible. The excavated pavement or concrete shall be removed from the site and disposed of by the Contractor.

##### 2H17.3 REPLACING PAVEMENT:

###### 2H17.3.1 Concrete Pavement:

Replace with 8-inch thick 2500 p.s.i. concrete slab, reinforced with No. 3 bars on 12-inch centers both ways. Tamp and float to finish flush with surface of pavement cut. Repair to be wider than ditch excavation. Concrete slab and reinforcement to rest on at least 9-inches of undisturbed soil on each side of ditch.

###### 2H17.3.2 Asphalt Pavement:

###### a. Base Course:

Replace with 8-inches of cement stabilized flexible base (limestone) compacted to 95% Standard Proctor Density in accordance with A.A.S.H.O. Standard Method T-99. Base material shall be obtained from approved sources. Material shall consist of argillaceous limestone, calcareous clay particles with or without stone, conglomerate, gravel or sand free of vegetation and other foreign materials. All the acceptable material shall be screened and the oversize shall be crushed and returned to the screened material in such a manner that a uniform product will be produced. The quality of the caliche shall be controlled by a recognized commercial testing laboratory and shall meet the following requirements:

- |   |             |
|---|-------------|
| (1) Gradation (ASTM D-422)                      |             |
| Passing 2-1/2" screen .....                     | 100%        |
| Passing 2" screen .....                         | 95% to 100% |
| Passing 1" screen .....                         | 65% to 90%  |
| Passing 3/4" screen .....                       | 60% to 80%  |
| Passing 40 mesh screen.....                     | 15% to 40%  |
| (2) Liquid Limit (ASTM D-423).....              | 45 max.     |
| (3) Plasticity Index .....                      | 5 - 16      |
| (4) Linear Shrinkage (ASTM D-427).....          | 7.5 max.    |
| (5) Los Angeles Abrasion Loss (ASTM C-131)..... | 55% max.    |

All material with a Plasticity Index (P.I.) between 9 and 16 must be stabilized with lime admixture using that amount of lime, as determined by laboratory tests, required to lower the P.I. to 7 or less.

###### b. Prime Coat:

Apply prime coat at the rate of 0.15 gal./s.y. Prime coat shall conform to Item 300 "Asphalt, Oil and Emulsions, of the Standard Specification for Construction of Highways, Streets and Bridges, 1982; of the Texas Department of Highways and Public Transportation, Type MC-70.

- c. Asphaltic Concrete:  
Apply hot mix-hot laid asphaltic concrete applied at the rate of 165 lb./s.y. compacted to 1-1/2 inch thickness. Hot mix shall conform to Item 340 "Hot Mix Asphaltic Concrete Pavement" of the Standard Specifications for Construction of Highways, Streets and Bridges, 1982; of the Texas Department of Highways and Public Transportation, Type D. Repair to be wider than ditch excavation. Flexible base shall rest on at least 9-inches of undisturbed soil on each side of the ditch.
- 2H17.3.3** Caliche or Shell Streets and Shoulders:  
Replace with 9-inches of flexible base (limestone) compacted to 90% Standard Proctor Density in accordance with A.A.S.H.O. Standard Method T-99. Repair to be larger than ditch excavation. Flexible base shall rest on at least 9-inches of undisturbed soil on each side of ditch.
- 2H17.4** REPLACING CONCRETE DRIVEWAYS: (None anticipated this project)  
Replace with 2500 p.s.i. concrete, 6" thick, reinforced with 6 x 6 #6-#6 wire mesh. Finish replaced section same as that appearing on old driveway. Use an epoxy bonding agent, in conformance with the manufacturer's recommendations, when bonding new concrete to old concrete.
- 2H17.5** REPLACING CONCRETE SIDEWALKS: (None anticipated this project)  
Replace with 2500 p.s.i. concrete, 6" thick, reinforced with #4 FRP reinforcement @ 18" O.C.E.W. Finish replaced section same as that appearing on old sidewalk. Use an epoxy bonding agent, in conformance with the manufacturer's recommendations, when bonding new concrete to old concrete.

## **DIVISION 3 - CONCRETE**

### **SECTION 3A - CONCRETE FORM WORK**

#### **3A1<sup>[1]</sup> SCOPE**

##### **3A1.1 SCOPE:**

This specification shall govern for all work necessary for designing, providing and installing concrete forms for any concrete structure (including curb and gutter, inlets, sidewalk and driveways) required to complete the project. With the exception of slabs, flatwork, and curb and gutter, concrete form work systems shall be designed for a minimum rate of concrete placement in the forms of ten (10) vertical feet per hour. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

#### **3A2 MATERIAL**

##### **3A2.1 WOOD FORMS:**

Form lumber shall be seasoned, of good quality, free from loose or unsound knots, knot holes, twists, shakes, decay or other imperfections which would affect its strength or impair the finished surface of the concrete. Lumber used for facing or sheathing shall be surfaced on at least one side and two edges. All exposed concrete edges shall be chamfered. Molding used for chamfer strips shall be of redwood, cypress or pine of quality that will not split when nailed and which can be maintained to true lines. Chamfer strips to predetermined elevations just prior to placing final lift.

##### **3A2.2 STEEL FORMS:**

Metal forms shall provide a smooth straight surface and shall line up properly. Rivets and bolt heads in contact with concrete will be countersunk, level with surrounding surface. Metal surfaces in contact with concrete will be free from rust, paint or other foreign material that will disfigure or discolor concrete. Mount chamfer strip by Engineer approved methods and maintain as to grade and alignment.

##### **3A2.3 FORM LINING:**

Surfaces to be given a rubbed finish are to have form surfaces or form lining surfaces free of irregularities. Lining is to be of plywood made with waterproof adhesive, of 1/4 inch minimum thickness, preferably oiled at the mill and then re-oiled or lacquered on the job before using. An alternate to the plywood lining is tempered Masonite concrete form presswood having a minimum 3/16 inch thickness. Keep presswood moist at least 12 hours before applying to sheathing. Use smooth hard face as concrete contact surface. Facing may be constructed of 3/4 inch plywood made with waterproof adhesive, backed by adequate studs and wales; and, in this case, form lining will not be required. Carefully align edges and faces of adjacent panels.

##### **3A2.4 FORM TIES:**

Form ties shall be threaded rod or coil tie type designed and of such length to provide a cone shaped formed "setback" of 3/4" on each wall face. Wire type form ties with breakback and cone may also be used (such as Symons S-Panel with washer). After removal of forms, the cone shaped void shall be grouted. All form ties shall incorporate a waterstop manufactured as an integral feature of the tie. Form ties shall be part of the form system design and shall be adequate for all aspects of said system including a minimum rate of concrete placement in the forms of ten (10) vertical feet per hour. The use of "snap ties" or similar products will not be permitted, except that Engineer will consider Contractor proposals to utilize such products on a case by case basis. Temporary form spreaders will be removed as concrete is placed. Engineer will consider details of permanent form spreaders that Contractor may propose to use.

##### **A. Void Forms:**

Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete mix until initial set, 6 inches thick and void form cover sheets.

### 3A3 CONSTRUCTION METHODS

**3A3.1**      FALSEWORK:

Falsework shall be of rigid construction to prevent excessive settlement or deformation under imposed loading and to insure the safety of the workmen and the structure. Only sound timber shall be used for falsework. Falsework shall be designed using 150 pounds per square foot of horizontal surface of form.

**3A3.2**      FORMS - GENERAL:

Forms are to be constructed and placed in such a manner as to insure mortar tightness, rigidity to prevent excessive settlement or deformation under imposed loading and to insure the safety of the workmen and the structure. Forms shall be constructed in such a manner as to allow cleanout before placing of concrete; adequate access by tremies and vibrators; and removal without damage to concrete. Adequate cleanout openings shall be provided as directed by the Engineer. If excessive settlement or deformation occur, remove the concrete and steel, reset forms, replace the steel and pour fresh concrete. If existing steel is to be reused, Section 3B2.6 must be met.

**3A3.3**      FORMS - CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS:

Form shall be straight durable and have a depth equal to the required concrete depth; they shall be securely staked to line and grade in such manner that there will be no movement when the concrete is placed.

**3A3.4**      FORMS - DESIGN:

Forms shall be designed for a fluid pressure of 150 pounds per cubic foot and a live load of 50 pounds per square foot on horizontal surfaces with maximum unit stress of 125% of allowable stresses.

**3A3.5**      OILING FORMS:

All surfaces of forms that will be in contact with concrete will be treated with an approved form oil before concrete is placed. The Contractor shall apply form oil in such a manner so as to insure that no excess oil accumulates on the reinforcing or previously placed concrete. Immediately prior to placing concrete, the Contractor shall wet forms which will come in contact with concrete.

**3A3.6**      REMOVAL OF FORMS FROM SURFACES TO BE RUBBED:

Forms shall be removed when concrete has attained adequate strength to prevent damage and only as rapidly as rubbing operation progresses. Forms left in place longer than 24 hours will be rewet to keep moist.

**3A3.7**      REMOVAL OF FORMS AND FALSEWORK FROM SURFACES NOT TO BE RUBBED:

Forms and falsework shall be removed after concrete has aged the following number of curing days.

- a. Slabs, Beams, or Girders - 7 curing days.
- b. Walls, Columns and Piers - 2 curing days.

**3A3.8**      SETTING FORMS OR FALSEWORK ON SUBSTRUCTURES:

Forms or falsework shall not be erected on a concrete structure until the concrete in the substructure has cured at least four curing days.

**3A3.9**      SETTING FORMS OR FALSEWORK ON FOOTINGS:

Forms or falsework shall not be erected on a concrete footing until the concrete in the footing has cured at least 3 curing days.

**3A3.10**      CURING DAY:

A curing day is any calendar day on which the temperature near the structure is above 50°F for at least 19 hours.

## **DIVISION 3 - CONCRETE**

### **SECTION 3B - CONCRETE REINFORCEMENT**

#### **3B1<sup>[1]</sup> SCOPE**

##### **3B1.1 SCOPE:**

This specifications shall govern for all work necessary for furnishing reinforcing steel, bar supports, welding, tools, supplies, equipment and services, and placing of concrete reinforcement of the shape and dimensions shown on the contract drawings, and as called for by these specifications required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

#### **3B2 MATERIAL**

##### **3B2.1 REINFORCING STEEL:**

All reinforcing bars shall be deformed as defined in ASTM Specifications. All reinforcing bars, unless noted on the structural drawings, shall be Grade 60 as defined by the American Society for Testing and Materials "Specifications for Steel Bars for Concrete Reinforcement" (A615, A616 or A617). Spiral reinforcing steel shall be fabricated from cold drawn wire with (ASTM A82) or hot rolled plain or deformed bars conforming to ASTM A625, Grade 60. Welded smooth wire fabric shall conform to ASTM A185 "Welded Steel Wire Fabric for Concrete Reinforcement" (ACI 318-71 limits the wire spacing to 12 inches maximum). Welded deformed wire fabric shall conform to ASTM A497 "Welded Deformed Steel Wire Fabric for Concrete Reinforcement" (ACI 318-71 limits the wire spacing to 16 inches max.).

##### **3B2.2 TIE WIRE:** The tie wire used shall be black annealed wire, 16 gauge or heavier.

##### **3B2.3 REINFORCING BAR SUPPORTS:**

Bar supports shall conform to the "Bar Supports Specifications" contained in "Manual of Standard Practice", as published by the Concrete Reinforcing Steel Institute and the Western Concrete Reinforcing Steel Institute. The Contractor shall provide such accessories as plastic spacers, plastic bar supports (chairs), and other approved devices necessary for proper assembly, spacing and supporting the reinforcing steel. Chairs with feet that will be exposed shall be rubber encapsulated.

##### **3B2.4 REINFORCEMENT ACCESSORIES:**

All accessories for reinforcement spacing and support shall be the size and type to accurately conform to the required spacing and concrete clear cover as shown on Construction Drawings.

##### **3B2.5 MILL CERTIFICATES:**

Two certified copies of mill tests on each grade of reinforcing steel delivered showing physical and chemical analysis shall be provided, upon request, at the time of shipment.

##### **3B2.6 SURFACE CONDITION:**

Metal reinforcement at the time concrete is placed shall be free from mud, oil, or other non-metallic coatings that adversely affect bonding capacity. Metal reinforcement, except prestressing steel, with rust, mill scale, or a combination of both shall be considered as satisfactory, provided the minimum dimensions, including height of deformations and weight of a hand wire brushed test specimen, are not less than the applicable ASTM specification requirements.

##### **3B2.7 REINFORCING STEEL OF FOREIGN MANUFACTURER:**

No reinforcing steel of foreign manufacture shall be allowed on the project site. Any foreign steel accidentally delivered to the project site must be removed immediately.

### **3B3 CONSTRUCTION METHODS**

**3B3.1**      STORAGE:

The Contractor shall store all reinforcement above the surface of the ground on platforms, skids or other suitable supports.

**3B3.2**      PROTECTION:

The Contractor shall protect all reinforcement from mechanical injury, from surface deterioration caused by exposure to conditions producing rust, and from non-metallic coatings that adversely affect bonding capacity.

**3B3.3**      STANDARD PRACTICE:

All requirements of concrete reinforcement not covered in these specifications or on the structural drawings shall be in accordance with "Manual of Standard Practice", as published by the Concrete Reinforcing Steel Institute and the Western Concrete Reinforcing Steel Institute unless noted otherwise on the drawings. All hooks shall conform to bend dimensions defined as "ACI Standard Hooks" in "Manual of Standard Practice", as published by the Concrete Reinforcing Steel Institute and the Western Concrete Reinforcing Steel Institute, unless otherwise shown on the structural drawings. All reinforcing bars shall be bent cold. Reinforcing bars shall not be bent or straightened in a manner that will injure the material. Reinforcing bars shall conform accurately to the dimensions shown on the structural drawings and within the fabricating tolerances shown in "Manual of Standard Practice", as published by the Concrete Reinforcing Steel Institute and the Western Concrete Reinforcing Steel Institute.

**3B3.4**      PLACING REINFORCING STEEL:

The placement of bars should conform to the recommended practices in "Placing Reinforcing Bars", as published by the Concrete Reinforcing Steel Institute. Bars should be securely tied to prevent displacement during the concreting operation and all dowels must be wired in place before depositing concrete. All splicing of bars, concrete cover, placing tolerances and bar spacing shall conform to "Building Code Requirements for Reinforced Concrete" (ACI 318), as published by the American Concrete Institute, and to recommended practices in "Reinforcing Bar Splices" by the Concrete Reinforcing Steel Institute. All reinforcing steel splices shall be Class B – ACI 318-98, unless shown otherwise on the drawings.

**3B3.5**      SHOP DRAWINGS:

The Contractor shall furnish 6 copies of the placing drawings and bar lists in accordance with the latest revision of "Manual of Standard Practice for Detailing Concrete Structures" (ACI 315), as published by the American Concrete Institute. Reinforcing steel shall not be fabricated until shop drawings have been approved by the Engineer.

## DIVISION 3 - CONCRETE

### SECTION 3B - CONCRETE REINFORCEMENT

#### 3B4 FIBER REINFORCED POLYMER (FRP) FOR CONCRETE REINFORCEMENT

**3B4.1**     SCOPE:

This specification shall govern for all work necessary for furnishing and placing fiber reinforced polymer (FRP) reinforcement as shown on the contract drawings, and as called for by these specifications required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**3B4.2**     MATERIALS:

Furnish FRP reinforcement that meet the following material specifications and requirements and are fabricated in accordance with the details on the plans. The size of FRP bars shall be consistent with typical standard sizes of steel reinforcing bars.

**3B4.2.1**   Fibers:

Use fibers in the form of unidirectional rovings of given size and weight with fiber sizing and coupling agents that are compatible with the resin system used to impregnate them. The FRP reinforcement must contain 70 percent minimum, by weight of glass fiber.

**3B4.2.2**   Resin Matrix:

Use commercial grades of epoxy resin. Ensure the base polymer in the resin system does not contain any polyester. Polyester based resin will not be permitted in the manufacturing process of the bar. Ensure the glass transition temperature ( $T_g$ ) of the resin is not less than 212 degrees Fahrenheit (F). The glass transition temperature of the resin does not represent a service level maximum temperature, but a quality assurance tool used by the manufacturer. Test the resin matrix in accordance with the Differential Scanning Calorimetry (DSC) method as described in *ASTM E 1356*.

**3B4.2.3**   Fillers:

Inorganic fillers and secondary fibers may be used, but their quantity shall not exceed 20% by weight of the base polymer resin specified. Commercial grade additives and process aids such as release agents, low profile shrink additives, initiators, promoters, hardeners, catalysts, pigments, fire-retardants, and ultra violet inhibitors are permitted and depend on the process method. If used, limit shrink additives to less than 20% by weight of the polymer resin.

**3B4.2.4**   Mechanical Properties:

Furnish FRP with the following minimum requirements.

- a.   Tensile Strength: this property varies with bar size. The minimum tensile strength of FRP reinforcement is listed in Table 1. Testing shall be in accordance to ASTM D7205.

***Table 1. Minimum Tensile Strength Requirements***

Bar Size	Minimum Tensile Strength (ksi)
3	140

- b.   Tensile Modulus: The nominal tensile modulus of elasticity shall average 5,700 ksi according to ASTM D7205.
- c.   Transverse Shear: Transverse shear is tested according to ASTM D7617. The minimum transverse shear for all bars shall be 20 ksi.



- d. Moisture Absorption: Moisture absorption tests shall be determined in accordance with ASTM D570. The maximum value of this test shall follow ACI recommendations and be less than 1.0%.
- e. Bond Strength: The guaranteed bond strength for all bars must follow ACI recommendations of ACI 440.6-08, 1.4 ksi. The manufacturer is to disclose the test method used for testing bond strength. A suggested test method is ACI 440.3R test method B3.
- f. Ultimate Tensile Strain: The ultimate tensile strain shall be calculated by dividing the guaranteed tensile strength by the nominal tensile modulus of elasticity. The nominal values obtained by this procedure should at least be 1.4%.

### **3B4.3**

#### **SUBMITTALS:**

Provide (4) four foot long quality assurance samples of each size of FRP bar at the beginning of each project or as determined by the Department.

Submit independent laboratory test reports including the following, for each size of FRP used on the project.

- 1. Results of the tensile test of FRP reinforcement, for each size of reinforcement used, including the following:
  - a. Diameter(s);
  - b. Breaking load;
  - c. Tensile modulus, and
  - d. Strain at ultimate tensile load
- 2. Results of the transverse shear test of FRP reinforcement, including the following:
  - a. Diameter(s)
  - b. Breaking load, and;
  - c. Shear modulus

Provide the Engineer a certification stating the materials furnished meets the specifications as described herein. The certification shall include:

- 1. The basalt fiber and percentage by weight in the reinforcement;
- 2. The resin matrix material, composition percentage of filler material, and resin glass transition temperature ( $T_g$ );
- 3. Guaranteed bond strength, including the test method used, and;
- 4. Results of moisture absorption testing

The FRP reinforcement may not be incorporated into the work until the submittal approval is received by the Engineer. Allow 10 working days for approval.

### **3B4.4**

#### **CONSTRUCTION:**

Before ordering material, submit approved drawings and specifications to manufacturer for quotation. This should include: bar size, length, bent shape and radius of bends, and quantities in linear feet. FRP reinforcement bars shall be uniform in diameter/size and free of defects that would be injurious to the mechanical and durability properties. Defects include: cracks, kinks, and surface pitting. Slight discoloration over time is typical and is not cause for concern.

#### **3B4.4.1**

##### **Field Fabrication:**

No field fabrication is permitted except tying of FRP reinforcing bars, field cutting in accordance with the plans, or both. Field cut FRP reinforcement only when specifically permitted using high speed grinding cutter, fine blade saw, diamond blade, or masonry blade. When FRP bars are cut in the field, shear cutting is not permitted. All surface damage due to cutting shall be inspected by the Engineer and repaired or replaced at the Contractor's expense.

**3B4.4.2**     Handling:

FRP bars can be handled similar to their steel counterparts. If lifting long sections, use two or three pickup points. Minor scratches and chipping are allowed and do not affect performance. More than .04 inch of chipping should be repaired or replaced. When more than 2% of the surface area of the bar is excessively chipped or cracked it must be replaced.

**3B4.4.3**     Storage of FRP reinforcement:

Store reinforcement above the surface of the ground on platforms, skids, pallets, or other supports as close as possible to the point of placement. If stored outdoors for more than two (2) months, the FRP bars shall be covered with a tarp or other protective cover. Protective cover must be at least opaque in color.

**3B4.4.4**     Placing and Fastening:

Place all reinforcement within the tolerances recommended in the CRSI "Manual of Standard Practice" unless otherwise specified. Hold reinforcement firmly during the placing and setting of the concrete. If FRP reinforcement is not adequately supported or tied to resist settlement, floating upward, or movement in any direction during concrete placement, concrete placement shall be halted until corrective measures are taken.

**3B4.4.5**     Ties and Supports:

All accessories for use with the FRP bars such as tie wires, bar chairs, supports or clips can be either steel or plastic variances or other tie specialties. Keep reinforcement properly positioned during placement of concrete according to the following:

- a. Use appropriate ties (plastic or wire) to support the top mat of deck reinforcement
- b. When pre-cast mortar blocks are used provide blocks that have cast-in wires ties
- c. Provide nylon or plastic wire ties (zips), or pneumatically installed injection molded ties (KodiKilps).
- d. Place all reinforcement in designated position and securely hold in position while placing and consolidating concrete
- e. Fasten bars together with ties at all intersections for both top and bottom mats
- f. Do not use pebbles, pieces of broken glass, stone or brick, metal pipe or wooden blocks as bar supports or to separate layers of bars
- g. Provide the same cover clearances for splices that is shown or specified for the reinforcement

**3B4.4.6**     Lap Splices:

Lap splice is the only approved method to tie bars together to make a continuous bar. Mechanical splices are not allowed. Lap length and spacing shall be (40X bar diameter) or as specified on the plans.

## DIVISION 3 - CONCRETE

### SECTION 3C - CAST-IN-PLACE CONCRETE

#### 3C1<sup>[1]</sup> NORMAL WEIGHT AGGREGATE CONCRETE

##### 3C1.1 SCOPE:

This specification shall govern for all work necessary for providing all Portland Cement Concrete with normal weight coarse aggregate required to complete the project. This specification is a performance specification, as defined in Section ID General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

##### 3C1.2 MATERIAL:

###### 3C1.2.1 Portland Cement:

Portland Cement shall conform to ASTM C-150 and shall be Type I. Other types of cement shall be used only when approved by the Engineer.

###### 3C1.2.2 Water:

Water shall be reasonably clean and free from injurious amounts of oils, acid, salt, alkali, organic matter or other deleterious substances. Questionable water shall be tested by a testing laboratory in accordance with ASTM C-94. The cost of testing will be borne by the Contractor. Potable water need not be tested.

###### 3C1.2.3 Fine Aggregate:

Fine Aggregate shall consist of natural sand, or sand prepared from product obtained by crushing stone or gravel. Sampling of fine aggregate shall be in conformance with ASTM D-75. Sieve analysis shall be in accordance with ASTM C-136.

Fine aggregate shall conform to the following grading requirements:

Retained on 3/8" screen .....	0.0%
Retained on 1/4" screen .....	0 to 5.0%
Retained on 20 mesh sieve .....	15 to 50.0%
Retained on 100 mesh sieve .....	85 to 100.0%

Deleterious substances shall not be present in excess of following percentage by weight.

Material removed by decantation .....	3.0%
Clay Lumps .....	0.5%
Other substances such as coal, shale and friable particles .....	2.0%

Fine aggregate shall be of such quality that when made into mortar and tested in accordance with ASTM C-87 the mortar shall develop a compressive strength at 7 days and 28 days of not less than 95 percent of that developed by the mortar specified as the basis for comparison. Sand shall not contain organic impurities in amounts that, when the sand is tested in accordance with ASTM C-40, would cause it to show a color darker than the standard color. Fine aggregate shall have a fineness modulus conforming to the following:

All strength concrete .....	not less than 2.0
2,000 psi concrete and less .....	not more than 3.25
2,500 psi concrete and greater .....	not more than 3.50

The fineness modulus shall be determined by adding total percentages retained on the following U.S. Standard sieves and dividing by 100:

3 in., 1-1/2 in., No. 4, No. 8, No. 16, No. 30, No. 50 and No. 100.

**3C1.2.4 Normal Weight Coarse Aggregate:**

Coarse aggregate shall consist of crushed stone or gravel. Sampling of coarse aggregate shall be in conformance with ASTM D-75. Sieve analysis shall be in accordance with ASTM C-136. Coarse aggregate shall conform to the following grading requirements:

Retained on 2" screen.....	0.0%
Retained on 1-1/2" screen.....	0 to 5.0%
Retained on 3/4" screen .....	25 to 60.0%
Retained on 1/4" screen .....	95 to 100.0%
Deleterious substances shall not be present in excess of following percentages by weight:	
Material removed by decantation .....	1.00%
Shale or slate .....	1.00%
Clay lumps .....	0.25%
Soft fragments .....	3.00%

Sum of all deleterious ingredients, exclusive of material removed by decantation, shall not exceed 4% by weight.

Coarse aggregate shall not exceed the following:

Soundness test (Sodium sulfate) weighted average loss at 5 cycles .....	15.0%
Absorption test .....	3.0%

Coarse aggregate shall not have a wear equivalent of more than 40 when tested for abrasion in conformance with ASTM C-131.

**3C1.2.5 Retarder-Densifier:**

When a retarder-densifier is required it shall be Sika's "Plastiment", Sonneborn's "Sonotar" or an approved equal. Mixing shall be done in strict conformance with manufacturer's recommendations.

**3C1.2.6 Air-Entrainment Agent:**

The use of air-entrainment admixture is required for all concrete. Air-entrainment shall be at least 3% but shall not exceed 5% of the volume of concrete. Mixing shall be done in strict conformance with manufacturer's recommendation. ASTM C-138, C-173 or C-231 shall govern.

**3C1.2.7 Water Reducing Admixture:**

A high range water reducing admixture shall be used on all vertical concrete pours (such as walls) and a mid-range reducing admixture shall be used for all horizontal flatwork. The high range water reducing admixture shall meet the requirements of ASTM C494, Type G – Water Reducing, High Range & Retarding. Water reducing dosage rates shall be in accordance with manufacturers recommendations. Maximum slump prior to addition of the high range water reducer shall be 2". Slump after addition of the high range water reducer will be 4" minimum to 8" maximum. Approved high range water reducing admixtures include Daracem 100 manufactured by W. R. Grace or Rheobuild 1000 manufactured by Masterbuilders. Mid-range water reducing admixtures shall also be manufactured by W. R. Grace, Sika Corporation, Masterbuilders or approved equivalent.

**3C1.2.8 Fly Ash:**

Fly ash may be used if the following criteria are met:

- Meets the requirements of ASTM C618, Class F.
- Provide a Certificate of Compliance for the fly ash.
- Mix design shall not contain more than 20% by mass of the cementitious material

### 3C1.3 PROPORTIONING OF CONCRETE:

It is the intent of this specification to obtain concrete of a homogeneous structure that will be of such consistency and composition that it can be worked readily into corners and angles of forms and around the reinforcement without permitting materials to segregate or free water to collect on the surface. The concrete when it hardens will have a resistance to weathering and the required compressive strength. The general requirements for different compressive strength concrete are as follows:

<b><u>Min. 28-day Compressive Strength</u></b>	<b><u>Max. Allowable Water-Cement Content Gal. per sack of Cement</u></b>	<b><u>Min. Cement Content-Sacks per Cubic Yard</u></b>	<b><u>Slump Range</u></b>
1500 psi (Class E)	10.5	3.0	2"-6"
Seal Slab (Class D)		4.0	6"-8"
2000 psi (Class C)	7.5	4.0	2"-5"
2500 psi (Class B)	6.75	4.5	2"-5"
3000 psi (Class A)	6.25	5.25	2"-5"
4000 psi (Class 2-A)	5.0	6.5	2"-5"
5000 psi (Class 3-A)	4.0	7.0	2"-5"

Maximum water/cement ratio for watertight structures shall be less than or equal to 0.35. For non-watertight structures, the maximum water/cement ratio shall be less than or equal to 0.45. Maximum allowable net water content will be the amount added at the mixer, plus free water in the aggregate and minus absorption of the aggregate based on the thirty minute absorption period. No allowances will be made for evaporation of water after batching.

### 3C1.4 MIX DESIGN:

#### 3C1.4.1 General:

It is the intent of these specifications that the Contractor is responsible for providing a mix design that will produce a concrete meeting the requirements of this specification.

#### 3C1.4.2 Mix Design Report:

The Contractor shall submit to the Engineer for approval six (6) copies of a mix design prepared by a reputable testing laboratory. The cost of the mix design shall be as set out in 1E7 - Testing. The mix design shall include mix proportions, water cement ratio, slump and workability characteristics required to produce the specified compressive strength concrete. The mix design shall be established by making, curing and testing a minimum of 5 standard size test cylinders for each strength concrete. Cylinders shall be made, cured and tested in conformance with ASTM C-192 and C-39. The mix design does not have to be prepared especially for this project, but it must apply to the materials being furnished. The mix design must be delivered to the Engineer a minimum of four (4) days prior to the first pour. The Contractor shall have written notice from the Engineer approving the mix design before placing any concrete. If, during progress of the work, it is found impossible to secure concrete of required workability and strength with material being furnished by Contractor, the Engineer may order such changes as may be necessary to secure desired properties, subject to limiting requirements shown in Paragraph 3C1.3. Any changes so ordered shall be made at the Contractor's expense, and no extra compensation will be allowed by reason of such change.

### 3C1.5 CONSISTENCY:

#### 3C1.5.1 General:

The quantity of water to be used shall be determined by the Engineer and shall be such as to give a mixture containing the minimum of water consistent with the required workability. The quantity of water shall be varied only by the Engineer. The Contractor shall provide a concrete that has a consistency that conforms to the following:

- The mortar will cling to the coarse aggregate.
- The concrete is not sufficiently fluid to segregate to the place of deposit.
- The concrete, when dropped directly from the discharge chute of the mixer, will flatten out at the center of the pile, but the edged of the pile will stand up and not flow.

- d. The mortar will show no free water when removed from the mixer.
- e. The concrete will settle into place when deposited in the forms; and when transported in metal chutes at an angle of 30 degrees with the horizontal, it will slide and not flow into place.
- f. The surface of the finished concrete will be free from laitance or a surface film of free water.

**3C1.5.2** Concrete Failing To Meet Consistency Requirements:

Any concrete mix failing to meet the above outlined consistency requirements, although meeting the slump requirements, will be considered unsatisfactory; and the mix shall be changed to correct such unsatisfactory conditions. The slump test will be made by the Engineer in accordance with the methods outlined in ASTM C-143.

**3C1.6** MIXING:

**3C1.6.1** General:

The Contractor shall procure concrete from a "transit-mixed" concrete plant. Aggregates shall be proportioned by weight unless a satisfactory volumetric method of measurement is approved by the Engineer. The use of fractional sacks of cement will not be permitted unless the cement is proportioned by weight. Water shall be measured by an accurate measuring device which can be adjusted to compensate for variations in the free moisture content of the aggregate. The concrete shall be mixed in quantities required for immediate use, and any concrete which is not in place within one hour after start to mixing shall not be used unless otherwise authorized by the Engineer. In threatening weather, which in the opinion of the Engineer may result in conditions that will adversely affect the quality of the concrete to be placed, the Engineer may order postponement of the work. Where work has been started and changes in weather conditions require protective measures to be used, the Contractor shall furnish adequate shelter to protect the concrete against damage from rainfall or damage due to freezing temperatures. In case it is necessary to continue mixing operations during rainfall, the Contractor shall provide protective covering for the material stockpiles as well as for the concrete being placed. The covering for aggregate stockpiles will be required only to the extent as may be necessary to control the moisture conditions in the aggregate so that adequate control of the consistency of the concrete mix may be maintained. No concrete shall be mixed without the approval of the Engineer when the air temperature is at or below 40°F. (taken in the shade away from artificial heat) and falling. If authorized for concrete placement during cold weather, the concrete will be placed in accordance with the PCA "Design and Control of Concrete Mixtures". The maximum temperature of cast-in-place concrete (Type I, Portland Cement and Type K, Shrinkage Compensating Cement) shall not exceed 98°F. If adjustments of the mixture for temperature control are required, then the procedure for hot-weather mixing, placing and curing shall be in accordance with ACI 305 Recommended Practice for Hot Weather Concreting.

**3C1.6.2** "Transit-Mixed" Concrete:

The mixing and the transporting operations shall conform with ASTM C-94. Mixing water shall not be added after a truck has left the plant except by permission of the Engineer or his representative. No concrete shall be used in the work which has been held longer than 1 hour in a mixer truck, unless approved by the Engineer. If dry batched to the job site, the batching plant operations shall conform with ASTM C-94. Transportation of the dry materials shall be performed in such a manner as to prevent loss, segregation or contamination of ingredients.

**3C1.7** LABORATORY TESTING OF CONCRETE:

Moisture content check will be made at sufficient intervals to maintain accurate batching and proportioning. All sampling will be done in accordance with ASTM sampling and testing procedures. See Section 1E7 Testing for test cylinder requirements. A set of test cylinders shall consist of 3 test cylinders. One cylinder shall be tested for strength at the age of 7 days, one cylinder at the age of 28 days, and one cylinder shall be held in reserve to be tested for strength when directed by the Engineer. The cylinders shall be made and cured in conformance with ASTM C-192. Curing facilities shall be provided in accordance with ASTM C-31. Cylinders shall be tested in conformance with ASTM C-39. Air content shall be tested in accordance with ASTM C173. Slump shall be tested in accordance with ASTM C143.

**3C1.8**    **FAILURES TO MEET STRENGTH REQUIREMENTS:**

Should the strength shown by the test specimens made and tested fall below the values required, the Engineer shall have the right to require changes in proportions, or to require additional curing on those portions of the structure represented by the test specimens which failed. If additional curing does not give the strength required, the Contractor will be responsible for removal and replacement of those portions which fail to develop required strength. Specimens will be considered to have failed when average strength for any period of placing is less than values indicated in the following table:

<b>No. Days Consecutive Placing of Any One Class Of Concrete</b>	<b>Percent of Strength Specified</b>
1 .....	85
2 .....	95
3 .....	95
5 or more .....	100

When additional curing of portions of the structure is ordered by the Engineer, it shall be done at Contractor's expense and no claim for extra compensation for such additional curing shall be allowed. In no case shall the Contractor be required to provide such additional curing beyond a total of 21 days, except where average strengths of specimens, representing concrete placed on any three consecutive days, fall below 80% of the value specified in Paragraph 3C1.3. In this case, curing shall be maintained until cores drilled from portions of the structure involved show an average strength equal to that specified in Paragraph 3C1.3. Cores shall have diameter of approximately three times the maximum size of aggregate and shall be tested in accordance with ASTM C-42.

**3C1.9**    **STORAGE OF MATERIALS:**

Cement shall be stored off the ground in a well-ventilated, weatherproof building. Aggregate shall be stored in a manner that will prevent the mixing of foreign materials and in a manner to prevent segregation of the aggregate.

**3C1.10**    **MEASUREMENT OF MATERIALS:**

The measurement of materials, except water, used in the batches of concrete shall be by weight. The different grades of aggregate shall be weighed separately. Cement may be measured by the bag. Water may be measured by volume. Allowance will be made for water content where moist aggregates are used.

## DIVISION 3 - CONCRETE

### SECTION 3C - CAST-IN-PLACE CONCRETE

#### 3C4<sup>[1]</sup> CONCRETE STRUCTURES

##### 3C4.1 SCOPE:

This specification shall govern for all work necessary to construct all structures required to complete the project. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

##### 3C4.2 MATERIAL:

###### 3C4.2.1 Concrete:

Concrete shall have a minimum compressive strength of 3000 psi at 28 days (unless specifically specified otherwise) and shall be in accordance with Section 3C1 "Normal Weight Aggregate Concrete".

###### 3C4.2.2 Reinforcing Steel: See Section 3B "Concrete Reinforcement".

###### 3C4.2.3 Premolded Expansion Joint Filler:

Premolded expansion joint filler shall conform to ASTM Specification D-544, Type I.

###### 3C4.2.4 Non-Shrinkage Grout:

Shall be "Embeco 636" or "Masterflow 713" as manufactured by Master Builders Company, or "Ferrolith G" as manufactured by Sonneborn-Contech or approved equal.

###### 3C4.2.5 Waterstops:

- a. Horizontal Joints (floor to wall): Waterstops for horizontal joints shall be either pre-molded polyvinyl chloride (PVC) or non-swelling pre-formed joint sealant.
  - (1) PVC waterstops shall be "Durajoint" No. 5 as manufactured by Electrovert, Inc., or "Sealtight" No. 6380 as manufactured by W.R. Meadows or approved equivalent.
  - (2) Pre-molded waterstops shall be "Synko-Flex" plastic (Bitumen) continuous waterstop or approved equivalent, unless otherwise designated on plans. The "Synko-Flex" type water stop shall be used only in horizontal construction joints in slabs. Following manuf.'s recommended installation, including:
    1. Concrete that waterstop is being used on should cure 24 hours prior to priming.
    2. Ensure that concrete surfaces are free from form oils, release agents, curing compounds, laitance and other dirt or debris. Use a wire brush or stiff bristle brush to clean surface prior to priming.
    3. Apply primer to the cured surface and allow to dry, usually 2 to 3 hours, before applying waterstop.
    4. Place the waterstop strip onto the primed surface pressing firmly along the entire length of the strip. The strip should be depressed to approximately 5/8 inch in thickness forcing it to widen to approximately 1-1/2 inches. Splice strips together with a 1-inch overlap or side lap.
- b. Vertical Joints: Waterstops for vertical joints shall only be pre-molded polyvinyl chloride. PVC waterstops shall be "Durajoint" No. 5 as manufactured by Electrovert, Inc., or "Sealtight" No. 6380 as manufactured by W.R. Meadows or approved equivalent.

###### 3C4.2.6 Membrane Curing Compound:

Membrane curing compound shall be a resin base compound in accordance with ASTM Specification C-309, Type I, with light red tint of fugitive dye.

###### 3C4.2.7 Cotton Mats for Curing:

Cotton mats for curing shall be mats which uniformly contain a minimum of 3/4 pound of cotton per square yard, with Osnaburg covering cloth being a weight of not less than 6 ounces per square yard. The mats shall be a size which may be easily handled and having 6 inch wide flap for overlaps.



**3C4.2.8 Floor Hardener:**

Where drawings specify a floor hardener, liquid floor hardener shall be "Lapidoloth" as manufactured by Sonneborn-Contech, or "Kemplate" metallic surface hardener as manufactured by Chem-Masters Corp., or an approved equal.

**3C4.2.9 Integral Concrete Coloring:**

Where drawings call for integral concrete coloring, "Sonobrite" as manufactured by Sonneborn-Contech, or "Staybrite" as manufactured by A.C. Horn Company, or an approved equal shall be used.

**3C4.3 CONSTRUCTION METHODS:**

**3C4.3.1. Required Approval:**

Prior to starting work, the Engineer may require the Contractor to furnish for approval the following:

- a. Methods of construction.
- b. Drawings for all form and falsework.
- c. Amount and type of equipment to be used on the project.
- d. The concrete placing schedule which take into account concrete shrinkage.
- e. A schedule showing all surfaces to receive a rubbed finish.

The Engineer's approval of the above listed items does not relieve the Contractor of any responsibility for safety or correctness of methods, adequacy of equipment, or for carrying out work in accordance with his contractual obligations.

**3C4.3.2 Time Sequence of Operation:**

- a. All substructure concrete work shall be cured for a minimum of four days before erecting forms or placing structural steel thereon.
- b. All substructure concrete work shall cure for a minimum of 7 days before pouring superstructure concrete thereon.
- c. All wall footings shall cure for a minimum of 3 days before placing wall forms thereon.
- d. All superstructure shall cure for a minimum of 10 days before being used.

**3C4.3.3 Expansion Joints:**

The Contractor shall remove forms as soon as possible to permit free expansion of concrete. Premolded expansion joint fillers shall be anchored to concrete on side of joint by means of copper wire No. 12 B and C gauge or heavier or copper nails of approved size. Concrete sections are to be completely separated by open joint or by joint material.

**The maximum distance between vertical expansion joints in concrete walls shall be 50 feet, unless shown differently on the plans.**

**3C4.3.4 Construction Joints:**

- a. General:  
"Construction Joint" is defined as a contact surface between plastic concrete and concrete that has attained initial set. "Monolithic" means concrete placed without construction joints. Waterstops shall be provided in all construction joints in structures containing liquids up to a point one foot above the maximum water surface elevation and in all construction joints in structures with walls adjacent to soil, below a point one foot above the finished grade. The Contractor shall obtain written authorization of the Engineer to permit construction joints other than those indicated. Where such authorization is obtained, make additional construction joints with details and waterstops equivalent to those shown for similar joints.
- b. Construction:  
The Contractor shall leave surfaces rough with aggregate surface prior to placing of new concrete. Immediately prior to placing concrete on horizontal joint surfaces, slush surface with mortar coating. Mortar is to consist of regular concrete mix less coarse aggregate. On vertical surface, mortar is to be brushed on and worked into irregularities on surface. Keyways are to be formed so as to permit easy removal of forms without damaging the concrete. Waterstops are to extend into both old and new pour an equal distance, or according to manufacturer's recommendations as approved by the Engineer.

**3C4.3.5** Concrete Form Work: See Section 3A - "Concrete Form Work".

**3C4.3.6** Placing Reinforcement: See Section 3B - "Concrete Reinforcement".

**3C4.3.7** Seal Slabs:

Seal slabs shall be placed in all excavations for structures which require reinforcing steel in base slab. Excavate below bottom of structural slab to the thickness shown on the drawings (min. 2 inches) and pour seal slab concrete to structural slab bottom elevation. Rough float finish seal slab. No direct payment will be made for seal slab concrete. Seal slab is not required for building on grade slab and grade beams unless shown otherwise on the drawings.

**3C4.3.8** Authorization to Place Concrete:

The Contractor shall notify the Engineer at least 48 hours in advance of a scheduled concrete placement. The Contractor shall not begin mixing concrete (or place an order for concrete) until the Engineer has inspected the forms, reinforcing steel, and given his approval. Before concrete is placed, all embedded items shall be accurately and securely fastened in place. The Contractor shall not place any concrete until he has at least three (3) mechanical vibrators, of an approved type, on the project site that are in good operating order.

**3C4.3.9** Scheduling of Concrete Placement:

The Contractor shall schedule the concrete placement so as to insure completion during the hours of daylight. If it is necessary to continue pouring during hours of darkness, light the site in such a manner as to insure competent and safe operation. The Engineer can order postponement of placing operations when impending weather conditions threaten to impair the quality of the finished work. Should rainfall occur after placing operations have started, provide covering to protect work. If conditions occur which would be detrimental to placement and setting of concrete, such as pile driving or other vibration, stop the cause of such condition when concrete is being placed and until concrete has aged 12 hours.

**3C4.3.10** Handling and Transporting Concrete:

The Contractor shall use metal or metal lined chutes, troughs, and/or pipes in placing concrete to prevent separation of concrete ingredients. When pouring down steep slopes, chutes shall be equipped with baffles to reverse lateral direction of movement. Downpipe shall be provided at end of chute. A maximum slope of one vertical to two horizontals shall be used. Chutes and troughs shall be kept free from coatings of hardened concrete or other harmful material. Chutes in excess of 35 feet in length may be used by authorization of the Engineer only. Pumping of concrete may be done by authorization of Engineer only.

**3C4.3.11** Placing Concrete:

Free fall of concrete shall be limited to a maximum of 4 feet. The Contractor shall place concrete in walls and other inaccessible places by use of tremies. Concrete shall be placed as close as possible to its final location. Vibrators shall not be used to work concrete along the forms. Concrete, reinforcing steel or forms shall not be jarred, moved, or otherwise disturbed after concrete has taken initial set. **Concrete shall be placed in continuous horizontal layers approximately 12 inches thick.** Each successive layer shall be placed while the layer below is still plastic. If excessive water forms on the surface of the concrete, use concrete to a point approximately 1 foot below finish elevation and allow to settle. To avoid cold joint, resume placement of concrete after partial stiffening. Retempering of concrete or mortar which has partially hardened will not be permitted.

**3C4.3.12** Consolidating Concrete:

Consolidation of concrete shall be done by means of spading implements and mechanical vibrators of approved type. Use of vibrators of the type which operate by attachment to forms shall be by authorization of the Engineer only. Vibration of concrete shall begin immediately after placement and shall go completely through to next layer below to insure mixture of both layers. Vibration shall not be used for flowing concrete laterally.

**3C4.3.13 Placing Concrete on The Ground:**

The Contractor shall prepare the subgrade in accordance with the applicable earthwork specifications. Apply membrane waterproofing if called for on the drawings and/or specified elsewhere. If membrane waterproofing is not required, moisten subgrade just prior to placing concrete, to decrease absorption of moisture from the concrete. If necessary, pump or bail during placing operations from suitable sump located outside of forms. Pumping will be continued until concrete has attained initial set. Side forms may be omitted when authorized by the Engineer.

**3C4.3.14 Placing Concrete in Water:**

The Contractor shall place concrete in water only by specific authorization of the Engineer. Concrete placed in or under water will contain a minimum of 6-1/2 sacks of cement per cubic yard of concrete. The Contractor shall insure that there is no movement or flow of water in which concrete is being placed for at least 36 hours after placement. Do not disturb concrete after placement and maintain approximately horizontal surfaces at all times. Placement will be by use of watertight tremies of a maximum of 10 inches in diameter. When concrete is placed in tremies, raise tremie slightly, but not out of concrete until batch discharges to bottom of hopper. Stop flow by lowering tremie. Placement will be continuous.

**3C4.3.15 Curing Concrete:**

a. General:

The Contractor shall have the option of using curing compound or cotton mats with the exception of the following: Membrane curing compound shall not be used on surfaces to be rubbed, painted or to which waterproofing material or liquid floor hardener is to be applied. Membrane curing compound shall not be used on concrete which will have additional concrete placed on it later. Membrane curing compound shall be used for curing surfaces which cannot be satisfactorily cured with mats. Curing mats shall be kept moist and in contact with concrete for 7 consecutive days. High early strength concrete shall be cured for 3 consecutive curing days.

b. Use of Membrane Curing Compound:

Membrane curing compound shall be delivered on job site in original containers, labeled to show name of compound, manufacturer, and batch number. Compound shall be kept thoroughly mixed and sprayed on the structure using pressure-tank type spraying equipment. The Contractor shall apply curing compound to the concrete immediately upon removing forms at a rate of one gallon per 200 square feet. Apply compound to slabs or other exposed surfaces immediately after finishing or after excess moisture has disappeared. Membrane shall be kept intact and protected from abrasive action for 14 days to obtain equivalent to 7-day moist curing. Protect against traffic and apply protective coating no sooner than 24 hours after application of membrane. Damage to membrane during 14-day period shall be repaired immediately.

**3C4.3.16 Removal of Forms and Falsework:** See Section 3A Concrete Form Work.

**3C4.3.17 Defective Work:**

All work which is deemed by the Engineer to be defective will be repaired immediately by the Contractor in accordance with the Engineer's instructions.

**3C4.3.18 Monolithic Slab Finish:**

Unless otherwise specified, slabs, platforms, and steps shall be finished monolithically. Unless otherwise specified, slabs shall be level. The Contractor shall place screeds accurately and rigidly prior to placement of concrete. Concrete shall be tamped to force coarse aggregate away from surface; then float finish and steel trowel to finish building floors. "Dusting" of floor surfaces with dry materials shall not be permitted. Edges of all expansion joints shall be rounded at all expansion joints with suitable jointing or edging tool.

**3C4.3.19 Concrete Floor Topping and Finish:**

Where specified, concrete floor topping shall be applied by the Contractor to structural slabs after equipment has been set. Topping may be placed without Engineer's authorization. Structural slab will be broomed to expose aggregate when concrete is green. Structural slab will be cleaned and kept moist 12 hours prior to placing topping. Immediately before placing concrete topping, broom in slush coat of

cement and water mixed to consistency of thick paint. Use 1 part Portland Cement, 1 part sand, and 1-1/2 parts pea gravel for concrete topping. Use no more than 5 gallons of water per sack of cement. Add 5 pounds of non-shrinking grout aggregate per sack of cement in mix. Steel trowel finish will be provided. If specified, the Contractor shall apply liquid floor hardener in accordance with manufacturer's recommendations. If specified, the Contractor shall apply integral concrete coloring in accordance with manufacturer's recommendations.

**3C4.3.20 Filling for Tie and Bolt Holes:**

The Contractor shall fill holes solid with cement mortar. Add white cement to mortar so that patches will not appear darker than adjacent concrete surface. Mortar shall be placed into holes as dry as possible. Holes passing entirely through concrete shall be filled from inside of structure with pressure gun or other device that will force mortar through to outside face. Strike off excess mortar flush with surface and finish to make hole as inconspicuous as possible.

**3C4.3.21 Patching:**

Slight honey-comb and other minor defects in concrete surfaces shall be patched with cement mortar mixed 1 part cement to 2 parts fine aggregate. The Contractor shall repair by cutting out unsatisfactory material and replacing it with new concrete, securely keyed and bonded to old concrete and finish so as to make joints as inconspicuous as possible. Mixture shall be as stiff and dry as possible. For hydraulic structures, repair areas in which honeycomb occurs to prohibit leakage through concrete, using mortar to which non-shrinking grout aggregate has been added at the rate of 5 pounds per sack of cement.

**3C4.3.22 Rub-Finish Surfaces:**

a. Extent Required:

Exposed vertical and battered surfaces shall be rub-finished from 6 inches below surface or from below water level to the top, except for small structures which extend 12 inches or less above finished grade.

b. Procedure:

The Contractor shall start the rubbing operations immediately after form removal. Do necessary pointing as forms are removed. Remove forms only as rubbing progresses in No. 16 Carborundum Stone or equal. Rub sufficiently to bring to surface paste and to produce smooth dense surface without irregularities. Add no cement to form surface paste. Spread or brush material which has been ground to paste uniformly over surface and allow to take reset. Do not rub chamfered corners in first surface rubbing. First rubbing shall be completed within 36 hours after completion of concrete placement. In preparation for final finish, rub with No. 30 Carborundum Stone or equal. After rubbing, strip surface with brush and allow mortar on surface to take reset; then wash surface with clean water. Leave structure with clean, neat, and uniform appearing finish.

**3C4.3.23 Rough Finish:**

For concrete having no special finish indicated, remove ties, fill holes, and remove fins and rough edges.

**3C4.3.24 Waterstops:**

Waterstop material will be completely embedded in concrete and shall extend an equal distance into both the old and the new concrete. Waterstops shall be continuous. Splices will be made in accordance with manufacturer's recommendations and approved by the Engineer.

**3C4.3.25 Grouting:**

a. Mixture: The Contractor shall mix grout (proportion by weight) as follows:

- (1) For Setting New Equipment: Where clearance is 1 inch or less in thickness, the Contractor shall use 1 part Portland Cement, 1 part clean sharp sand, 7/10 part non-shrinking grout aggregate. No more than 5-1/2 gallons water per sack of cement. Where clearance is over 1 inch in thickness, the Contractor shall use 1 part Portland Cement, 1 part clean sharp sand, and 1-1/2 parts 1/4 inch pea gravel, 7/10 part non-shrinking grout aggregate. No more than 6 gallons of water per sack of cement.
- (2) Other: For general purpose grouting, the Contractor shall use 1 part Portland Cement and 2 parts sand. When space to be grouted is less than 1 inch, and it is impossible to tamp grout, use 1 to 1 mixture. Use stiff mixture for grout to be tamped. To obtain stiff grout mix mortar

using amount of water required to thoroughly mix ingredients, then continue mixing without additional water until grout is stiff enough to be compacted by tamping when placed. For grouting blockouts for embedded pipes and similar items, use grout to which 5 pounds of non-shrinking grout aggregate per sack of cement has been added.

b. Procedure for Grouting Equipment:

The surfaces of foundations that are to receive grout shall be free of all laitance, grease, oil, organic matter and loose particles. Bolt holes shall be cleaned of all extraneous matter. Concrete shall be chipped in order to obtain a firmer bond as directed by the Engineer. Forms for the grout shall be set true, level, and tight, and shall be well braced. All equipment to be grouted shall be assembled at the grouting site before grouting operations begin. Base plates and items to be embedded shall be cleaned and set in their final positions prior to the start of grouting operations. All equipment shall be so shimmed as to facilitate the removal of the shims. Shims shall be removed only after the grout has attained its full strength. The areas to receive grout shall be kept wet for a minimum of 12 hours prior to grouting. Neat cement mortar slush coat shall be applied with a stiff brush, and shall be scrubbed into the concrete foundation and applied to the sides and bottom of the base plate or other item to be set. The mortar shall be thoroughly mixed and an excess of water in the mixture shall be avoided. The grout shall be continuously worked and rodded while it is being placed in the forms. All grout destroyed in the removal of shims shall be replaced with grout of the exact same composition and consistency. All grout containing non-shrinkage grout aggregate shall be cut off vertically below the outside edge of the base plate or the base of the embedded equipment, and normal cement mortar shall be used to cover the edge of the grout. All exposed surfaces of the grout shall be steel troweled. All exposed areas shall be protected against rapid drying out. Items embedded in grout shall not be stressed. The machinery embedded in the grout shall not be operated for 36 hours.

## **CIVISION 3 - CONCRETE**

### **SECTION 3C - CAST-IN-PLACE CONCRETE**

#### **3C9<sup>[1]</sup> CAST-IN-PLACE CONCRETE BULKHEAD CAP**

**3C9.1**     SCOPE:

This specification shall govern for work necessary for providing cast-in-place concrete bulkhead cap required to complete the project. This specification is a design specification as defined in Section 1D General Conditions Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**3C9.2**     GENERAL:

**3C9.2.1**   Dimensions:

All caps shall be of the shape, size and section in accordance with the strength requirement as shown on the drawings.

**3C9.3**     MATERIAL:

**3C9.3.1**   Concrete:

Concrete shall have a minimum compressive strength of 4000 p.s.i. (unless shown otherwise on the drawings) and shall be in accordance with Section 3C1-"Normal Weight Aggregate Concrete". The concrete shall have low permeability, high durability and have a 0.40 WCR or less. No limestone shall be used.

**3C9.3.2**   Steel:

All mild steel reinforcement shall meet the requirement specified in Section 3B -"Concrete Reinforcement" and 3C9.3.4.

**3C9.3.3**   Admixtures: Admixtures to be used in concrete shall be subjected to prior approval by the Engineer.

**3C9.3.4**   DYWIDAG Threadbars:

All reinforcing steel used in the bulkheading and deadmen system, shall be epoxy coated by the electrostatic spray method. Coating shall be applied in strict accordance with ASTM A 775-81, Standard Specification for Epoxy Coated Reinforcing Bars. The coating material shall be Scotchkote Brand Fusion Bonded Epoxy Coating 213, manufactured by 3M, St. Paul, Minnesota. Coating that is damaged after delivery to the site shall be repaired with Scotchkote 213 PC patching material in accordance with the manufacturer's recommendations. If the coating is damaged during unloading or placing, the Contractor shall make repairs with the patching material. If the possibility of holidays exist, the Engineer may require the Contractor to check the coated rebar with a 97.5 volt D.C. holiday detector and repair any holidays found. The sheared ends of epoxy coated rebar shall be coated after fabrication with epoxy patching compound.

**3C9.4**     CONSTRUCTION METHOD:

**3C9.4.1**   Curing:

The concrete bulkhead caps shall be cured in accordance with standard acceptance practice caps shall not be moved or handled prior to a minimum curing period of 14 days or may be moved in 7 days at Contractor's risk.

**3C9.4.2**   Setting Cap, Deadman, and Tie-Back:

Bulkhead cap shall be formed in place with tie back embedded per the construction drawings. The deadman shall be cast in place or precast per the Contractor's option. Construct concrete deadman anchors as shown on the drawings. Cast side closest to bulkhead and bottom against undisturbed soil. Form backside and top. Backfill and compact as specified. The Contractor shall insure that the tie backs are taut between cap and anchor. The rods shall be encased in 1" inside diameter Polyethylene pipe. Polyethylene pipe must be embedded the full length and must remain undamaged throughout.

**3C9.5**      HANDLING AND DELIVERY:

The method of handling and delivering of all caps shall be in such a manner that it minimizes the danger of fracture by impact or undue bending stresses. Any broken or cracked caps shall be rejected unless approved by an Engineer. Where site storage is necessary, provide level, sound surface prepared in manner to prevent damage or undue strains to piles.

**3C9.6**      EPOXY GROUT CONCRETE REPAIR:

Not less than 30 minutes, nor more than 5 hours prior to application of epoxy grout, completely clean surfaces to be repaired. The Contractor shall thoroughly clean all surfaces with methods subject to the approval of the Engineer. Each crack shall be chipped out using a pneumatic air hammer as manufactured by Chicago Pneumatic No. 9310 or approved equal. Cracks shall be chipped out in a V shaped manner, 1" - 1-1/2" maximum. Brush blast spalled or damaged concrete to remove excess flakes and dust. Clean surface by washing with a 10 percent solution of muriatic acid. The surface shall be rinsed with fresh water and allowed to dry thoroughly before applying the epoxy grout. The Contractor shall use one convenient location for storing and mixing of epoxy grout materials, and keep an approved type fire extinguisher available in this area. The Contractor shall protect all areas where epoxy grout material is stored and shall remove oily rags and waste from buildings at close of each day. Epoxy grouting shall not be accomplished when either the surface or ambient temperatures are less than 50 degrees Fahrenheit; or when temperature drop of 20 degrees, or below 50 degrees Fahrenheit is forecast. Epoxy grouting shall not be accomplished during misty or rainy weather, or on surface that have any frost or moisture. Epoxy grout shall be applied by skilled workmen. Material may applied with trowel, putty knife or similar tool to fill cracks and for resurfacing. Application shall be in accordance with manufacturer's recommendations.

**3C9.7**      EPOXY GROUT MATERIAL:

- a. Fill all cracks with Patch All Special as manufactured by Dewey Supply, Inc., Corpus Christi, Texas. Leave "fitting" openings in epoxy grout every 24" o.c. such that "fitting" for injection can be made into the concrete cracks. Openings shall be such that "fitting" is flush and tight.
- b. Epo Bond as manufactured by Dewey Supply, Inc. shall be injected into the cracks by use of "fitting" through the openings. Application procedure shall be in strict accordance with manufacturer's design recommendations.
- c. If water seepage is present, fill bottom 1/4" V Section with lead wood to prevent seepage, then apply the Patch All Special followed by the Epo Bond injection.
- d. or an approved equal.

**3C9.8**      DRYING TIME:

Allow through drying of each application before succeeding with another. Allow full drying time between applications, as specified by the manufacturer.

**3C9.9**      COVERAGE: Shall be as recommended by the manufacturer.

**3C9.10**      DELIVERY OF EPOXY GROUT MATERIAL:

Contractor shall deliver material to the site in original, unbroken, sealed containers, with manufacturer's label attached.

**3C9.11**      CLEANING:

Upon completion of epoxy grouting operations, the Contractor shall clean off spots, oil and stain from all surfaces and leave entire project in perfect condition as far as epoxy grouting work is concerned. Remove from premises all containers and debris resulting from this operation.

**3C9.12**      TESTING:

Owner shall require one concrete cylinder test per day unless directed otherwise by the Engineer. Contractor will make appropriate notification to testing laboratory. Cost of such testing shall be borne by the Owner. The cost of all retesting due to failure shall be borne by the Contractor.

## **DIVISION 3 - CONCRETE**

### **SECTION 3G - CONCRETE REPAIRS**

#### **3G1<sup>[1]</sup> CONCRETE BULKHEAD CAP REPAIR**

- 3G1.1**     SCOPE:  
This specification shall govern for work necessary to accomplish the repair/replacement of the existing concrete bulkhead cap.
- 3G1.2**     MATERIAL:
- 3G1.2.1**   Concrete: See Section 3G1[1] - Concrete for Bulkhead Repairs for Requirements.
- 3G1.2.2**   Sealer: Thoroseal Waterproofing Membrane or an approved equal.
- 3G1.2.3**   Steel: All mild steel reinforcement shall be grade 60 conforming to ASTM A615.
- 3G1.2.4**   Forms:  
Forms shall be Designed for a fluid pressure of 150 pounds per cubic feet and shall allow concrete placement without spillage into the canals and waterways.
- 3G1.3**     CONSTRUCTION METHODS:
- 3G1.3.1**   Removing Concrete:  
Remove all unsound, disintegrated, and cracked concrete by blasting with a high pressure (2500 psi minimum) water blaster. Remove all concrete that shows evidence of active or potential for corrosion.
- 3G1.3.2**   Soundness Test:  
Test all exposed surfaces of the work area for soundness by hammer-tap sounding. The hammer used shall weigh at least 4 pounds. Remove all concrete found to be cracked, spalled, deteriorated or otherwise showing evidence of structural failure or Disintegration until only sound concrete is exposed.
- 3G1.3.3**   Additional Contaminants:  
Remove all surface contamination such as grease, oil, tar, rust, marine organism, etc. This cleaning can be accomplished by waterblasting, wire brushing or other methods which will yield equivalent results.
- 3G1.3.4**   Protection of Bulkhead System:  
Should repairs of the cap be to such an extent that both outside reinforcing bars are exposed, the Contractor shall excavate and remove material from behind the cap and sheet pile bulkhead to an elevation equivalent to the mudline at the waterside of the cap.
- 3G1.3.5**   Preparation of Existing Steel Reinforcement:  
Clean exposed reinforcing steel to remove all contaminants and rust. If, after removal of unsound concrete, half of the diameter of the reinforcement is exposed, chip out behind the reinforcing steel. The distance chipped behind the reinforcement will be equal to or exceed the minimum placement depth of the patching material. Coat all exposed reinforcement with corrosion inhibiting sealant material. Provide a lap length of a minimum of fifty bar diameters (12.5 inches). Replace deteriorated steel with minimum one half inch Diameter reinforcement per original construction details. Insure connection and embedment of three quarter inch tie-back steel and polyethylene encasement at all tie-back locations. Provide new pre-molded expansion joint material at expansion joints.
- 3G1.3.6**   Inspection: All concrete surfaces shall be inspected prior to the application of patching material.



**3G1.3.7**    Bonding Agent: Apply Portland Cement-sand bonding agent.

**3G1.3.8**    Concrete Placement:  
Construct repaired section to a dimension of 2 to 3 inches deeper than the existing section to allow additional cover on the steel. If the repairs extend to the top of the cap, provide one to two inches of additional material on top of the cap and feather or transition to the existing section in twelve inches.

**3G1.3.9**    Curing:  
A curing compound which meets the requirements ASTM C309 shall be sprayed on the surface of the concrete to prevent evaporation of moisture. This curing compound must be compatible with the specified sealer. Care shall be used when using curing compound to avoid spraying any surface that is to be bonded, including concrete, reinforcing steel, and expansion joints.

**3G1.3.10**   Sealing:  
All new concrete shall be thoroughly sealed by the application of Thoroseal per manufacturers recommendation. Contractor shall overlap water blasting of existing concrete a minimum of 3 feet on all sides and apply sealer on old concrete.

**3G1.3.11**   Precautionary Measures:  
The Contractor shall exercise extreme care to prevent the spillage of curing compound, sealer, concrete or any other items into the canal system and waterways. He shall bear full and sole responsibility for any spills and shall remove any demolished materials that fall into the canal.

## **DIVISION 6 - CARPENTRY**

### **SECTION 6A - ROUGH CARPENTRY**

#### **6A3<sup>[1]</sup> WOOD DOCKS AND PIERS**

**6A3.1**     SCOPE:

This specification shall govern for all work necessary for providing the materials and labor for construction of wood docks or piers required to complete the Project. This specification is a design specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

**6A3.2**     MATERIAL:

**6A3.2.1**   Quality of Materials:

All materials shall be as specified herein. Where no specific grade or size of material is specified for certain miscellaneous items of framing, the Contractor shall furnish a grade suitable for and consistent with the use thereof, and of sufficient size to support safely any loads which it may be called upon to support.

**6A3.2.2**   Piling Lumber:

Pilings shall be of the size and length shown on the drawings and shall be #1 gun barrel cut southern yellow pine. Pilings shall be clean or steam dried before treatment. For timbers in frequent or constant contact with salt water the pilings shall be treated in accordance with AWPA C3 with a level of 2.5 pcf CCA. All pilings shall be marked with the AWPA treatment level and are subject to plant verification.

**6A3.2.3**   Handrails, Deck & Framing Lumber:

All dimensional lumber shall be S45 southern yellow pine treated in accordance with AWPA C3 with a level of 0.6 pcf CCA. All handrails, decks and framing material shall be #1 grade. Lumber shall be marked with the AWPA treatment level and are subject to plant verification.

**6A3.2.4**   Hurricane Ties: Hurricane ties shall be:

- a. 18 gauge or stainless steel as manufactured by the Simpson Company, or
- b. Du-Al-Clips by Teco Company,
- c. or an approved equal.

**6A3.2.5**   Bolts:

Anchor bolts shall be stainless steel.

**6A3.2.6**   Nails:

All nails shall be stainless steel nails of the required size.

**6A3.3**     CONSTRUCTION METHODS:

**6A3.3.1**   General:

The Contractor shall verify all measurements on the drawings. He shall be held responsible to have checked the measurements on the drawings to ascertain if the various items on the job coordinate. Should any discrepancies in figured dimensions be found, the Contractor shall notify the Engineer and shall not begin any of the work until remedial instructions have been received.