CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS
FOR

CITY OF PORT ARANSAS HIGH PRESSURE GAS MAIN REPLACEMENT

OWNER: City of Port Aransas
710 West Ave A
Port Aransas, Texas 78373

STATE OF TEXAS
WILLIAM C. CAUSEY, JR.
87662
LICENSED
PROFESSIONAL ENGINEER

9/9/20

Job No. 6100.B9.01
September, 2020

URBAN ENGINEERING

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 for Bids
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 – CONTRACT

1B2[1] - Agreement

SECTION 1C – BONDS

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

SECTION 1D – GENERAL CONDITIONS

1D1.1 Standard General Conditions of the Construction Contract (Engineers Joint Contract Documents Committee)
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 Site
Art. 9 – Owners' Responsibilities
Art. 10 – Engineer's Status during Constructions
Art. 11 – Amending the Contract Documents; Changes in Work
Art. 12 – Claims
Art. 13 – Cost of 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 - Measurement and Payment
1E9[1] - State Sales Tax
1E10[1] - Wage Rates
1E11[1] - Inspection by Owner
1E12[1] - Construction Requirements within Texas Department of Highways Right-Of-Way
1E14[2] - Water for Construction (Port Aransas)
1E19[1] - Existing Obstructions
1E20[3] - Storm Water Pollution Prevention (PA and over 5 ac)
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
2A5[1] - Clearing and Grubbing
2A6[1] - Utility Easement and R.O.W. Clearing and Restoration
2A7[1] - Demolition and Site Clean Up

SECTION 2B - EARTHWORK
2B11[3] - Boring Roadways
2B12[3] - Open Cutting

SECTION 2G - SITE UTILITIES
2G26[1 - Gas Piping
2G27[1] - Existing of Utilities

SECTION 2H - ROADS AND WALKS
2H2[1] - Soil-Cement Base Course
2H4[1] - Hot Plant Mixed Asphalt Stabilized Base
2H5[1] - Planning Asphaltic Concrete Surface
2H6[2] - Prime and Tack Coat
2H11[3] - Hot Mix Hot Laid Asphaltic Concrete Pavement
2H14[1] - Concrete Curb & Gutter and Concrete Valley Gutter
2H16[1] - Concrete Sidewalk and Concrete Driveways
2H22[1] - Pavement Marking

APPENDIX A

- City of Port Aransas General Permit Application

APPENDIX B

- City of Port Aransas Gas Department Installation Specifications

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1A - BID DOCUMENTS

1A1[2] 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 W. Ave. A, Port Aransas, Texas 78373 until October 22, 2020 @ 2:00 P.M., at which time they will be publicly opened and read.

Proposals will be for constructing City of Port Aransas High Pressure Gas Main Replacement.

The project consists of: Installation of approximately 9.9 miles of 4" diameter high pressure natural gas main and twelve pressure reducing station. Existing system is to be abandoned below ground.

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.

2. The Manufacturer 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 previous Friday. 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.

3. Contractor is required to hold his bid pricing for up to 120 days from the bid opening to award of construction contract.

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 depositing a $50.00 deposit with Urban Engineering, 2725 Swantner, Corpus Christi, Texas 78404-2832. This deposit will be refunded to any general contractor submitting a bid, if the Contract Documents are returned in good condition within 14 days after bid opening. All others will be refunded $25.00, if Contract Documents are returned in good condition within 14 days after bid opening. Copies of Contract Documents will be on file for inspection at the office of the Engineer, 2725 Swantner, Corpus Christi, Texas, the A.G.C. office in Corpus Christi, and at Builder's Exchange in San Antonio, Texas.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1A - BID DOCUMENTS

1A2[2] 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 MINORITY AND WOMEN'S BUSINESS ENTERPRISES:
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.

1A2.3 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.

1A2.4 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.

1A2.5 ALTERNATE BIDS: There shall be no alternate bids allowed.

1A2.6 BIDS:

1A2.6.1 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.

1A2.6.2 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 City of Port Aransas High Pressure Gas Main Replacement, 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. Contractor shall maintain unit prices for 90 days upon awarding of the bid.

1A2.7 BID GUARANTY:

1A2.7.1 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 the 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.

1A2.7.2 Revised Bids:

Revised Bids submitted before the opening of Bids, forwarded by mail, 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.

1A2.8 CORRECTIONS:

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

1A2.9 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.

1A2.10 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.

1A2.11 WITHDRAWAL OF BIDS:

A Bid may be withdrawn on written 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 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.

1A2.12 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.

1A2.13 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.

1A2.14 EXECUTION OF AGREEMENT:

1A2.14.1 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.

1A2.14.2 Bonds:

Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in Paragraph 1A2.14.1 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.

1A2.14.3 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.

1A2.15 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.

1A2.16 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.

1A2.17 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.

Contractor is required to hold his bid pricing for up to 120 from the bid opening to award of construction contract.

1A2.18 RETAINAGE:
See Subsection 1E8 Measurement and Payment of the Special Conditions.

1A2.19 GUARANTEE:
See Article 7.17 of the General Conditions and SC-7.10 of the Supplemental General Conditions.

1A2.20 ACCELERATED IMPLEMENTATION OF DATE OF GUARANTEE:
See Article SC-7.11 of the Supplemental General Conditions.

1A2.21 LACK OF INFORMATION:
See Article SC-3.5 of the Supplemental General Conditions.

1A2.22 STATE SALES TAX:
See Subsection 1E9 – State Sales Tax

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1A - BID DOCUMENTS

1A3[2] PROPOSAL FOR UNIT PRICE BID

TO: City of Port Aransas
710 W. Ave A
Port Aransas, Texas 78373

Date: _____

PROPOSAL FOR THE CONSTRUCTION OF

CITY OF PORT ARANSAS HIGH PRESSURE GAS MAIN REPLACEMENT

GENTLEMEN:

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 ENTIRE PROJECT:**

_____

_____Dollars and _____ cents ($_____).

1A3.2 TABLATION OF BASE BID:

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

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
A.	**HIGH PRESSURE GAS MAIN REPLACEMENT:**				
1.	Install 4" High Pressure Gas Main By Open Cut	53,286	LF	$_____	$_____
2.	Install 4" High Pressure Gas Main By Bore	2,900	LF	$_____	$_____
3.	Type "A" Station	1	EA	$_____	$_____
4.	Type "B (ANSI 300)" Station	1	EA	$_____	$_____
5.	Type "B (ANSI 150)" Station	1	EA	$_____	$_____
6.	Type "C1" Station	2	EA	$_____	$_____
7.	Type "C2" Station	3	EA	$_____	$_____
8.	Type "D" Station	4	EA	$_____	$_____
9.	Water Main Adjustment	5	EA	$_____	$_____

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
10.	Sewer Main Adjustment	5	EA	$_____	$_____
11.	Force Main Adjustment	5	EA	$_____	$_____
12.	Remove and Replace Existing Curb	1,000	LF	$_____	$_____
13.	Manhole Rim Adjustment	24	EA	$_____	$_____
14.	Valve Box Adjustment	10	EA	$_____	$_____
15.	Concrete Driveway Repair	1200	SF	$_____	$_____
16.	Limestone (or Similar) Driveway Repair	1200	SF	$_____	$_____
17.	HMAC Driveway Repair	1200	SF	$_____	$_____
18.	18" Remove and Replace Culverts	300	LF	$_____	$_____
19.	24" Remove and Replace Culverts	300	LF	$_____	$_____
20.	30" Remove and Replace Culverts	300	LF	$_____	$_____
21.	36" Remove and Replace Culverts	300	LF	$_____	$_____

TOTAL BASE BID: $ _____

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.

1A3.2 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.

1A3.3 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.

1A3.4 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 within **300 Calendar Days**. Should we fail to comply with this requirement, we agree to pay liquidated damages in the amount of $ 1,0000 per Working Day until the work is completed.

1A3.5 BIDDER QUALIFICATIONS

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

1A3.6 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

1A3.8 ADDENDUM RECEIPT

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

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

1A3.9 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:

1A3.10 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[1] 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 <u>available for this</u> 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[1] BID BOND

KNOW ALL MEN BY THESE PRESENTS; that we the undersigned, _____as PRINCIPAL, and _____as SURETY, are held and firmly bound unto The City of Port Aransas, Nueces COUNTY, TEXAS hereinafter called OWNER in the penal sum of _____Dollars and _____ Cents, ($_____), 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 _____, 2020, for the construction of:

CITY OF PORT ARANSAS HIGH PRESSURE GAS MAIN REPLACEMENT

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 thirty (30) 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_____, 2020, 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: _____ Affix Corporate Seal
President

_____

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[1] AGREEMENT

STATE OF TEXAS

COUNTY OF NUECES

THIS AGREEMENT made and entered into this the_____day of_____, 2020, by and between City of Port Aransas, of the County of Nueces, State of Texas acting through the 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:

CITY OF PORT ARANSAS HIGH PRESSURE GAS MAIN REPLACEMENT

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 same within **300 Calendar Days** 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

Port Aransas, Nueces County, Texas, the year and day first above written.

Party of the First Part (OWNER)
CITY OF PORT ARANSAS

ATTEST:

_____

By: _____
David Parsons, City Manager

ATTEST:

Party of the Second Part (CONTRACTOR)

_____

By: _____

Title: _____

_____
Address

_____

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1C - BONDS

1C1[1] 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 Port Aransas, Texas hereinafter called Principal and (3_____of _____State of _____, hereinafter called the Surety, are held and firmly bound unto (4) The City of Port Aransas of Nueces County, Texas hereinafter called Owner, in the penal sum of _____ Dollars and _____ Cents, in lawful money of the United States, to be paid in (5) Nueces County 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) The City of Port Aransas the Owner, dated the _____day_____, 2020, a copy of which is hereto attached and made a part hereof for the construction of City of Port Aransas High Pressure Gas Main Replacement (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 _____ 2020.

ATTEST:

_____ Principal (Secretary)

_____ Principal

By:_____

(SEAL)

_____

_____

_____ Address

ATTEST:

_____ Surety (Secretary)

_____ Surety

By: _____

(SEAL)

_____

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[1] 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 _____

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) The City of Port Aransas of Nueces County, Texas 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 and _____ Cents, ($_____) in lawful money of the United States, to be paid in (5) Nueces County 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) _____the Owner, dated the _____day of_____,2020, a copy of which is hereto attached and made a part hereof for the construction of City of Port Aransas High Pressure Gas Main Replacement (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_____, 2020.

ATTEST:

_____ Principal (Secretary)

_____ Principal

By: _____

(SEAL)

_____

_____

_____ Address

ATTEST:

_____ Surety (Secretary)

_____ Surety

By: _____

(SEAL)

_____

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[1] INSURANCE REQUIREMENTS AND ACKNOWLEDGMENT

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

a. Workmen's Compensation: Statutory including Employer's Liability.

b. Public Liability: $1,000,000.00 Umbrella Liability policy with Public Liability as required by the Umbrella Liability policy. Coverage for the hazard of Explosion, Collapse, Underground, Completed Operations, Personal Injury and Contractual Liability shall be included.

c. Vehicular Liability: $500,000 - Combined Single Limit. This coverage is to include all cars and trucks owned, rented, hired or leased, and others of non-ownership nature used by employees in and around or in connection with the particular contract.

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

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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EJCDC® C-700, Standard General Conditions of the Construction Contract.
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National Society of Professional Engineers

1420 King Street, Alexandria, VA 22314-2794

(703) 684-2882

www.nspe.org

American Council of Engineering Companies

1015 15th Street N.W., Washington, DC 20005

(202) 347-7474

www.acec.org

American Society of Civil Engineers

1801 Alexander Bell Drive, Reston, VA 20191-4400

(800) 548-2723

www.asce.org

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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

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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
6.05 Property Insurance 23
~~6.06 Waiver of Rights~~ 25
~~6.07 Receipt and Application of Property Insurance Proceeds~~ 26
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

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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

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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

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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

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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

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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.

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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

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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.

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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.

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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

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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

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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,

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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

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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.

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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.

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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

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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.

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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,

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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

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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.

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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

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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.

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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

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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).

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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

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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.

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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

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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

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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.~~

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~~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

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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

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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

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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.

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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.

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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

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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;

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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

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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

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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.

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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.

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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,

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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.

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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.

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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.

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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

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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.

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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

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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

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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

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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

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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

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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,

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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

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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, expediters, 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.

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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

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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.

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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.

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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.

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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.

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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;

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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;

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l. 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.

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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

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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,

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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).

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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.

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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

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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.

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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.

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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 Consulting Engineers, 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.

~~***Working Day*** (as related to contract time of completion as stipulated in the Contract Documents) - A working day is defined as a calendar day, not including Sundays or legal holidays, in which the weather or other conditions affecting the site, not under the control of the Contractor, will in the judgment of the Engineer permit the performance of some substantial unit of work for a substantially continuous period of time of not less than seven hours between 7 a.m. and 6 p.m., or during such other hours of the day as the Contractor does in fact work with the permission of the Engineer.~~

~~Each calendar day, not including Sundays or legal holidays, in which the Contractor carries on work on some unit of the contract for a period of more than seven hours shall be charged as one (1) working day, regardless of the number of hours worked in excess of the seven hour minimum. Saturday will not be charged as a working day, unless work is in fact carried on.~~

~~On Sundays and legal holidays, on which by previous written permission of the Engineer, the Contractor works as much as four hours on some unit of the contract, two working days shall be charged. If under such permission work is commenced but proceeds less than four hours, one working day shall be charged. In the determination of the hours above, no deduction shall be made for lunchtime taken.~~

ARTICLE SC-2 PRELIMINARY MATTERS

2.1 Progress Schedule:

Paragraphs 2.03, 2.05 and 4.04 of the 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 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:
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

11.1 Change of Contract Price:

Contractor's Fee for cost incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 10 percent.

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 **$ 1,000.00** 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[1] NAME AND LOCATION OF PROJECT

1E1.1 NAME OF PROJECT: City of Port Aransas High Pressure Gas Main Replacement

1E1.2 LOCATION OF PROJECT: The project is located within the City of Port Aransas, Texas.

1E2 OWNER

1E2.1 NAME: The City of Port Aransas

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

1E3 CONTRACT DRAWINGS

SHEET NO.	TITLE
1.	SHEET INDEX
2.	LEGEND AND NOTES
3.	KEY MAP AND SURVEY CONTROL
4.	PLAN AND PROFILE BASELINE STA. 10+00 THRU 20+50
5.	PLAN AND PROFILE BASELINE STA. 20+50 THRU 31+50
6.	PLAN AND PROFILE BASELINE STA. 31+50 THRU 42+50
7.	PLAN AND PROFILE BASELINE STA. 42+50 THRU 53+50
8.	PLAN AND PROFILE BASELINE STA. 53+50 THRU 64+50
9.	PLAN AND PROFILE BASELINE STA. 64+50 THRU 75+50
10.	PLAN AND PROFILE BASELINE STA. 75+50 THRU 86+50
11.	PLAN AND PROFILE BASELINE STA. 86+50 THRU 97+50
12.	PLAN AND PROFILE BASELINE STA. 97+50 THRU 108+50
13.	PLAN AND PROFILE BASELINE STA. 108+50 THRU 119+50
14.	PLAN AND PROFILE BASELINE STA. 119+50 THRU 130+50
15.	PLAN AND PROFILE BASELINE STA. 130+50 THRU 141+50
16.	PLAN AND PROFILE BASELINE STA. 141+50 THRU 152+50
17.	PLAN AND PROFILE BASELINE STA. 152+50 THRU 163+50
18.	PLAN AND PROFILE BASELINE STA. 163+50 THRU 174+50
19.	PLAN AND PROFILE BASELINE STA. 174+50 THRU 185+50
20.	PLAN AND PROFILE BASELINE STA. 185+50 THRU 196+50
21.	PLAN AND PROFILE BASELINE STA. 196+50 THRU 207+50
22.	PLAN AND PROFILE BASELINE STA. 207+50 THRU 218+50
23.	PLAN AND PROFILE BASELINE STA. 218+50 THRU 229+50
24.	PLAN AND PROFILE BASELINE STA. 229+50 THRU 240+50
25.	PLAN AND PROFILE BASELINE STA. 240+50 THRU 251+50

26. PLAN AND PROFILE BASELINE STA. 251+50 THRU 262+50
27. PLAN AND PROFILE BASELINE STA. 262+50 THRU 273+50
28. PLAN AND PROFILE BASELINE STA. 273+50 THRU 284+50
29. PLAN AND PROFILE BASELINE STA. 284+50 THRU 295+50
30. PLAN AND PROFILE BASELINE STA. 295+50 THRU 306+50
31. PLAN AND PROFILE BASELINE STA. 306+50 THRU 317+50
32. PLAN AND PROFILE BASELINE STA. 317+50 THRU 328+50
33. PLAN AND PROFILE BASELINE STA. 328+50 THRU 339+50
34. PLAN AND PROFILE BASELINE STA. 339+50 THRU 350+50
35. PLAN AND PROFILE BASELINE STA. 350+50 THRU 361+50
36. PLAN AND PROFILE BASELINE STA. 361+50 THRU 372+50
37. PLAN AND PROFILE BASELINE STA. 372+50 THRU 383+50
38. PLAN AND PROFILE BASELINE STA. 383+50 THRU 394+50
39. PLAN AND PROFILE BASELINE STA. 394+50 THRU 405+50
40. PLAN AND PROFILE BASELINE STA. 405+50 THRU 416+50
41. PLAN AND PROFILE BASELINE STA. 416+50 THRU 427+50
42. PLAN AND PROFILE BASELINE STA. 427+50 THRU 438+50
43. PLAN AND PROFILE BASELINE STA. 438+50 THRU 449+50
44. PLAN AND PROFILE BASELINE STA. 449+50 THRU 460+50
45. PLAN AND PROFILE BASELINE STA. 460+50 THRU 471+50
46. PLAN AND PROFILE BASELINE STA. 471+50 THRU 482+50
47. PLAN AND PROFILE BASELINE STA. 482+50 THRU 493+50
48. PLAN AND PROFILE BASELINE STA. 493+50 THRU 504+50
49. PLAN AND PROFILE BASELINE STA. 504+50 THRU 515+50
50. PLAN AND PROFILE BASELINE STA. 515+50 THRU END
51. LATERAL PLAN AND PROFILES (1)
52. LATERAL PLAN AND PROFILES (2)
53. LATERAL PLAN AND PROFILES (3)
54. LATERAL PLAN AND PROFILES (4)
55. FISH PASS CG SITE LAYOUT
56. FISH PASS CG TIE-IN DETAIL
57. TYPE A FISH PASS CG
58. TYPE B AREA 51 DRS
58A. AREA 51 & NEW PORT DRS SITE LAYOUT
59. TYPE B AVENUE J DRS (NOT USED)
60. TYPE C1-150 NEWPORT DRS
61. TYPE C1-300 CINNAMON SHORE NORTH DRS
61A. TYPE C1-300 CINNAMON SHORE NORTH DRS SITE LAYOUT
62. TYPE C2 DRS
62A. TYPE C2 DRS SITE LAYOUT
63. TYPE D STATION
63A. TYPE D STATION SITE LAYOUT
64. STATIONS DETAILS SHEET 1 OF 4
65. STATIONS DETAILS SHEET 2 OF 4
66. STATIONS DETAILS SHEET 3 OF 4
67. STATIONS DETAILS SHEET 4 OF 4
68. GENERAL NOTES - PIPING
69A. STANDARD DETAILS (1)
69B. STANDARD DETAILS (2)
69C. STANDARD DETAILS (3)
69D. STANDARD DETAILS (4)

70. POLLUTION PREVENTION PLAN DETAILS
71. TRAFFIC CONTROL PLAN

1E4 COMPLETION DATE

1E4.1 GENERAL: The work is to be substantially complete within **300** **Calendar Days**. 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 $ 1,000.00 per Working Day until the work is complete.

1E5 HORIZONTAL AND VERTICAL CONTROL

1E5.1 HORIZONTAL CONTROL:
Owner will provide two (2) Horizontal Control Point on the Project Site.

1E5.2 VERTICAL CONTROL:
Owner will provide two (2) Vertical Control Point on the site.

1E5.3 LINES AND GRADES:
The Contractor shall lay out all work. All work upon completion shall conform to the lines, elevations and grades shown on the drawings. The Engineer reserves the right (but is not obligated) to periodically check completed work and require removal of all unsatisfactory work. The cost of line and grade stakes will not be paid for separately but is subsidiary to the bid items shown in the Proposal.

1E5.4 NOTIFICATION:
The Contractor shall give the Engineer 48-hour advance notice of when control points are needed.

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:

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. The sequence shall meet all requirements of the Contract Documents and shall not conflict with any provision of the Contract Documents.

The sequence of construction shall be structured to meet all requirements of Section 1E4 Completion Date of the Special Conditions. The Contractor shall provide a construction schedule at the pre-construction meeting to be scheduled after the bid opening.

1E6.3.1 Work by Other: When the Owner is having 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.

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 CONTRACTOR.

1E7.1.2 Contractor Testing:

When "Contractor Testing" is required under this section, it shall be performed by the Contractor (or the manufacturer of material or equipment) under the supervision of the Engineer and at no expense to the Owner.

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) 250 Ea.
   (2) In-Place Density Tests 500 Ea.
b. Contractor Testing: None Required

1E7.2.2 Base Course: (See Subsection 2H2)

a. Laboratory Testing:
   (1) Moisture-Density Relationship (Proctor Curve) 250 Ea.
   (2) In-Place Density Tests 500 Ea.
   (3) Crushed Concrete Gradation:
   See Paragraph 2H2.3.4 1 Every 2,000 SY
   (4) Existing Base and Surface Pulverized Bituminous
   Material Sieve Test: See Paragraph 2H2.5.2 1 Every 2,000 SY
   (5) Base Material Sieve Test: See Paragraph 2.H2.5.3 1 Every 2,000 SY

b. Contractor Testing:
   (1) Surface Test: See Paragraph 2H2.5.9a
   (2) Thickness Test: See Paragraph 2H2.5.9b

1E7.2.2 HP Steel Piping: (See Plan Sheet 68 General Notes - Piping)

1E8 MEASUREMENT AND PAYMENT

1E8.1.1 General: This is a Unit Price contract but contain some lump sum bid items. See the "Measurement" paragraph of Art SC-15 of the Supplemental Conditions – Part I for detailed information.

1E8.1.2 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.

1E8.1.3 Install 4" High Pressure Gas Main by Open Cut: This item shall be measured by the linear foot of pipe installed by open cut or boring for Contractor's convenience. This items includes but is not limited to the following work:

a. Furnishing, storing, placing and installing gas piping
b. Joint welding and testing
c. Installation and operation of dewatering well point systems
d. Hydroexcavation
e. Installation of trench protection
f. Trench excavation, installation and compaction of pipe bedding, embedment and backfill
g. Pipeline nitrogen pressure testing
h. Removal of existing and installation of new Cathodic Protection System
i. Installation and maintenance of Traffic Control
j. Installation and maintenance of Stormwater Pollution Prevention Plan
Abandon High Pressure Gas Main below grade and remove all above ground appurtenances

1E8.1.4 Install 4" High Pressure Gas Main by Boring: This item shall be measured by the linear foot of pipe installed by boring as shown on the plans. This items includes but is not limited to the following work:

a. Furnishing, storing, placing and installing gas piping by boring
b. Joint welding and testing
c. Installation and operation of dewatering well point systems
d. Hydroexcavation
e. Installation of trench protection
f. Bore pit and receiving pit excavation, shoring, and backfill
g. Pipeline nitrogen pressure testing
h. Removal of existing and installation of new Cathodic Protection System
i. Installation and maintenance of Traffic Control
j. Installation and maintenance of Stormwater Pollution Prevention Plan
k. Abandon High Pressure Gas Main below grade and remove all above ground appurtenances

1E8.1.5 Type "A, B, C1, C2, and D" Stations: This item shall be measured by each station installed by as shown on the plans. This items includes but is not limited to the following work:

a. Furnishing, storing and installing each station complete in place
b. Welding and testing
c. Installation and operation of dewatering well point systems
d. Hydroexcavation

e. Installation of trench protection
f. Pipe supports
g. Sitework, fencing and rock installation
h. Nitrogen pressure testing
i. Removal of existing and installation of new Cathodic Protection System
j. Installation and maintenance of Traffic Control
k. Installation and maintenance of Stormwater Pollution Prevention Plan
l. Abandon High Pressure Gas Main below grade and remove all above ground appurtenances

1E8.1.6 HMAC Paving Repair: This item shall pertain to any existing asphalt pavement that is cut when necessary to construct this project. This item will be measured by the square yard of pavement repaired; however, the Contract Documents show the maximum width of repaired pavement other than those areas shown to be repaired. If the contractor disturbs an area greater than what is depicted on the plans, he shall be responsible for repairing the entire area. However, the additional area will not be measured for payment. This item includes but is not limited to the following work:

a. Furnishing, placing and compacting base course
b. Furnishing and applying prime coat
c. Placing and compacting asphaltic concrete
d. Removing and off-site disposal of HMAC pavement and base

1E8.1.7 2" HMAC Including Prime or Tack Coat: This item shall pertain to any existing asphalt pavement that is cut when necessary to construct this project. This item will be measured by the square yard of pavement repaired; however, the Contract Documents show the maximum width of repaired pavement other than those areas shown to be repaired. If the contractor disturbs an area greater than what is depicted on the plans, he shall be responsible for repairing the entire area. However, the additional area will not be measured for payment. This item includes but is not limited to the following work:

a. Furnishing and applying prime or tack coat
b. Placing and compacting asphaltic concrete

1E8.1.8 8" Cement Stabilized Base w/2" Crushed Concrete: This item shall pertain to any existing base material that is cut or excavated when necessary to construct this project. This item will be measured by the square yard of base repaired; however, the Contract Documents show the maximum width of repaired base other than those areas shown to be repaired. If the contractor disturbs an area greater than what is depicted on the plans, he shall be responsible for repairing the entire area. However, the additional area will not be measured for payment. This item includes but is not limited to the following work, furnishing, placing and compacting base course.

1E8.1.9 Remove Existing Curb: This item will be measured by the linear foot of removed curb per the plans and specifications. All removed curb and materials shall be disposed of offsite.

1E8.1.10 Install New Curb: This item shall be measured by the linear foot of installed concrete curb in accordance with the plans. This shall include all materials necessary to complete the installation of the curb. New curb shall be flush and level with existing curb.

1E8.1.11 10" HMAC Type "B" Base: This item shall pertain to any existing base material that is cut or excavated when necessary to construct this project. This item will be measured by the square yard of base repaired; however, the Contract Documents show the maximum width of repaired base other than those areas shown to be repaired. If the contractor disturbs an area greater than what is depicted on the plans, he shall be responsible for repairing the entire area. However, the additional area will not be measured for payment. This item includes but is not limited to the following work, furnishing, placing and compacting base course.

1E8.1.12 Manhole Rim/Valve Box Adjustment: This item shall be measured by each manhole rim or valve box adjusted to match grades proposed as shown on the plans or finished.

1E8.1.13 Driveway Repair: This item will be measured by the square yard. This item includes but is not limited to the following work:

a. Excavation including removing all material encountered.
b. Compacting the subgrade to the required thickness, grades and density.
   Furnishing and installing forms, concrete, reinforcing steel and any other items required to complete the pavement.
c. Furnishing and installing HMAC, base, limestone or gravel and any other items required to complete the pavement
d. Saw cutting existing concrete pavement.
e. Removal and disposal of existing concrete pavement.
f. Doweling into existing concrete pavement.
g. Furnishing and installing all required material as shown on the plans.
h. Re-striping parking areas to preconstruction condition.
i. Installing new RCP or RCB culverts to match existing drainage conditions.

Limits of Measurement: The Contractor shall replace any pavement removed during construction. Only the pavement removed by the trenching operation will be measured for payment. The maximum width of repair is shown on the set of plans.

1E8.1.14 Remove and Replace Culverts: This item will be measured by the linear foot. This item includes but is not limited to the following work:

a. Removal of RCP or RCB
b. Installation of bedding material, backfill, HMAC, concrete pavement, and RCP or RCB to match existing
c. Safety end treatment to match existing

1E8.2 PAYMENTS:

1E8.2.1 Cost Breakdown:

The Contract shall provide the Cost Breakdown (Schedule of Values) as required in Article SC-15, paragraph 15.2 of the Supplemental General Conditions for Lump Sum bid items.

1E8.2.2 Partial Payments and Retainage:

On or before the 5th day of each month, the Contractor shall submit to the Engineer for approval a statement, on a form furnished by the Engineer, showing as completely as practicable the total value of the work done by the Contractor up to and including the value of all sound materials delivered on the site of the work that are to be fabricated into the work. The Owner shall then pay the Contractor on or before the 25th day of the same month the total amount of the Contractor's Statement, less 10% of the amount thereof, which 10% shall be retained until final payment (if contract amount is under $400,000. If contract amount is $400,000 or more, retainage amount will be 5%), and further less all previous payments and all further sums that may be retained by the Owner under the terms of the Agreement.

1E8.2.3 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**.**

1E9[1] 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.

1E10[1] WAGE RATES

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

"General Decision Number: TX20200021 01/03/2020

Superseded General Decision Number: TX20190021

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: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 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, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 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 calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020

* 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

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

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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 www.dol.gov/whd/govcontracts.

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)).

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.

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 Regional Office for the area in which the survey was conducted because those Regional Offices have 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.

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END OF GENERAL DECISION
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1E11[5] 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.

1E12[1] CONSTRUCTION REQUIREMENTS WITHIN TEXAS DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY

1E12.1 SCOPE:
This specification shall govern for all work accomplished in Texas Department of Transportation (TxDOT) Right-of-Way.

1E12.2 CONFLICTS:
In the event of a conflict between this subsection and any other part of the Contract Documents, this subsection shall govern when working in TxDOT Right-of-Way.

1E12.3 TRAFFIC CONTROL PLAN:
The Contractor shall submit a Traffic Control Plan (TCP) to TxDOT and the City or appropriate governing entity whose jurisdiction is involved for review prior to commencing work.

1E12.4 GOVERNING POLICY AND REQUIREMENTS:

a. The requirements set out in this Section were obtained from TxDOT They have been included in these Contract Documents as an aid to the Contractor, but their completeness and accuracy are not guaranteed. In any event, installation shall be in accordance with "Utility Accommodation Policy," dated May 29, 1989, and local TxDOT interpretation thereof.
b. Contractor shall comply with all T.M.U.T.C.D. requirements.

1E12.5 PERMITS:
Permits for construction in TxDOT Right-of-Way have been prepared by the Engineer and submitted to the TxDOT District Office. The Contractor shall be responsible for determining the status of these permits. The Contractor shall notify TxDOT at least 48 hours in advance of moving any equipment or material onto their Right-of-Way. The Contractor must keep one copy of each permit on the project site at all times.

1E12.6 BORING AND CASING INTERSTATE HIGHWAYS:
Length of bore shall be as shown on the approved permit. There shall be no peepholes in the median between the main traffic lanes. No equipment will be allowed to cross over the main traffic lanes. See **1E12**.14 for Road Bore Specifications.

1E12.7 CONSTRUCTION AREA:

a. Maximum 1000' construction area will be maintained during construction.
b. Pipe stringing will be permitted 1/2 mile in open road and 1000' in urban and city areas. Pipe shall be laid next to Right-of-Way line and not to interfere with driveway or intersections.
c. Stockpiling of excess excavated material during construction may be permitted only at sites approved by TxDOT.
d. It is the intent of these specifications that the cleanup operation shall follow the pipe laying operation as closely as possible. In no event shall the cleanup operation be more than 1,000 feet behind the pipe laying operation.

1E12.8 EXCAVATION, BACKFILL AND SLOPE PROTECTION:

a. Excavation of caliche slopes will be by benching method and suitable material will be used to backfill and renew slopes. Seeding of these areas will be required.
b. Sloped terrain leading into and out of drainage areas will require a check system for the width of the excavation to retard erosion until reestablishment of surface growth. This may be accomplished by using a sack of cement bladed into the top 4" of the completed backfill. Distance between these is generally 10' to 20', depending on slope of ditch.
c. Backfill shall be compacted to densities equal to that of the surrounding soil. In caliche areas, density shall equal to the closest soil test available.
d. The Contractor will be responsible for any filling or settlement that may occur for a period of one year after completion of the project.

1E12.9 BRUSH AND TREES IN CONFLICT WITH CONSTRUCTION:

a. Brush:
Brush is defined as any bush or tree other than Oak trees, Pecan trees, Mesquite trees, Hackberry trees or other trees designated by TxDOT to be saved. Any brush that conflicts with the construction operation shall be removed from the project site by the Contractor.
b. Trees:
Unless specifically identified that they may be removed, all trees shall be protected. If trees conflict with the pipe alignment the pipe shall be installed by boring (casing is not required).

1E12.10 GENERAL SPECIFICATIONS:

a. Limitations on Work by the Contractor:
(1) No work shall be accomplished by the Contractor after a rainfall if doing so would cause damage (TxDOT Inspector to govern).
(2) No work permitted on Sunday or Holidays.
b. Minimum Cover on Pipe:
(1) Depth of cover shall be 60" below natural ground except at drainage structures.
(2) At drainage structure depth of cover shall be 48" below structure flow line. Actual construction grade should be checked to be sure fill in has not occurred.
(3) Clearances between underground utilities and storm sewers shall be a minimum of 24" if the installation can take place without disturbing the storm sewer installation; otherwise, minimum clearance will be 24".
c. Marker Poles: Marker poles shall not exceed the height of 6 feet. Utility name and phone number will be placed on each marker pole.
d. Coordination of Work: The Contractor shall coordinate all work within highway Right-of-Way with TxDOT.

1E12.11 STANDARD SPECIFICATIONS FOR PLACING PIPELINE PARALLEL TO A HIGHWAY:

a. That it is expressly agreed that the said company will provide, at their own expense all repairs of leaks that develop without delay.
b. That the top of the pipeline and all appurtenances (valves, thrust block, etc.) shall be placed a minimum of 36" below the existing surface.
c. That the pipe will be so placed as to have full bearing on the bottom of the trench and after the pipe has been laid the trench shall be properly backfilled for its entire width and length to a density equal to that of the surrounding soil. Any excess excavation material

not required to provide the necessary backfill shall be removed from the highway Right-of-Way and disposed of by said company.

d. If it is necessary to revise the existing roadway section adjacent to the Right-of-Way line to permit the installation of this pipeline, that subsequent to completion of the pipeline and all backfill, the original roadway section will be restored to its original section.
e. That in modifying the existing roadway section to permit the construction of this pipeline, at no time will existing roadway ditch be blocked to prevent drainage.
f. That ingress and egress at all private drives and county road approaches will be provided at all times.
g. That any private or county roadside structures that are removed to permit the installation of this pipeline shall be restored, or replaced, in a condition comparable to the condition existing prior to their removal.
h. That necessary barricades and warning signs will be provided prior to and during the construction to safeguard and direct traffic on the highway, and at all private drives and county road intersections.
i. That parking of cars and trucks belonging to employees on both sides of the pavement will be prohibited and that all vehicles shall be parked on one side of the road and in no instance closer than a minimum of 8 feet from the edge of the pavement.
j. That no construction equipment or materials that would be hazardous to the traveling public will be left on the shoulders of the highway during the night.
k. That the company will provide for filling any settlement that may occur in this trench over a period of 12 months from the date the pipeline and all backfill is completed.
l. The Contractor shall have a copy of the permit on the job site at all times.
m. All above ground appurtenances shall be located at the Right-of-Way line.
n. Uniform alignment shall be maintained 5 feet (See Permit) from right- of-way line.
o. Readily Identifiable and suitable Markers shall be placed at Right-of Way Line every 700 feet.
p. Non-metallic pipe shall have metal wire concurrently installed or other means shall be provided for detection purposes (#12 Copper Coated W.P.).
q. If trees are encountered, the facilities shall be installed by boring 36" under tree a minimum of 12" off center of tree. Bore shall be 10' from either side of tree.

1E12.12 STANDARD SPECIFICATIONS FOR CROSSING STATE HIGHWAY WITH BURIED TELEPHONE AND POWER CABLES, WATER LINES AND FORCE SEWER LINES:

a. That your line shall be placed through hole bored beneath the highway.
b. That your line if placed through steel casing shall extend 10 feet (See Permit) past edge of pavement.
c. That all boring on paved highway shall extend for the full width of the paving and 10 feet (See Permit) on each side thereof or for the full width of the roadbed as the case may be. For gravel or earth roads, the borings shall extend for the full width of the roadbed in all cases.
d. That casing shall be of approximately the same diameter as the bored hole.
e. That the top of the casing or pipe shall be placed a minimum of: 48" for power, 24" for telephone, water or sewer, 24” below the existing ditch grade.
f. That all backfill of trenches shall be thoroughly compacted to a density equal to that of surrounding soil, excess dirt disposed of, and Right-of-Way reshaped to its original condition including fertilizing, seeding or sodding where existing grass has been disturbed.
g. The Contractor shall have a copy of the permit on the job site at all times.
h. All above ground appurtenances shall be located at the Right-of-Way line. All below ground appurtenances have a 36" cover.

i. Readily identifiable and suitable markers shall be placed at each Right-of-Way Line so that the location is accurately known. If casing is omitted it is agreed that the pavement will not be cut for repairs to the facility at any time in the future.
j. Caution should be exercised in making bore "pilot". No more than 3 pilot holes will be permitted. If bore matching is detrimental to the highways, a different type of machine will be used.
k. The Contractor shall place a readily identifiable and suitable marker at each Right-of Way line where it is crossed.
l. The annular void between the drilled hole and the line or casing will be filled with satisfactory material to prevent settlement.

1E12.13 MANHOLE SPECIFICATIONS FOR SANITARY SEWER LINES:

a. Manholes serving sewer lines up to 12 inches shall have a maximum ID of 4 feet. For any increase in line size greater than 12 inches, the manhole ID may be increased a like amount. Manholes for large interceptor sewers should be specially designed keeping the overall dimensions to a minimum The outside diameter of the manhole chimney at ground level shall not exceed 36 inches.
b. Top of roof should be 5 feet below ground level and the outside diameter of 36 inches for the manhole chimney maintained from that point to natural ground or proposed finished grade.
c. All manhole covers shall be installed flush with the ground and/or pavement surface, whichever is applicable. Manhole covers must be designed for HS-20 loading. All manhole covers placed anywhere within State Right-of-Way must weigh at least 175 pounds.

1E12.14 STANDARD ROAD BORE SPECIFICATIONS:

The specifications listed below are a general guideline for a bore under a highway. Additional requirements, as needed, will be as directed by the TxDOT inspector on the job.

a. Set Up Barricades:
Prior to commencing work, the Contractor will install barricades, with flashers, 2 Utility Construction Ahead, 2 End Construction, and necessary barricades or cones as required to safely protect the workers and the traveling public. The Type III barricades will be placed at the 10-ft. or 30 ft. location as noted in the permit. All vehicles, equipment, material and excavated material shall be kept back of this line at all times. All equipment is to be off loaded beyond the edge of pavement or next road intersection but NEVER on the main lanes or shoulders. If the Contractor has tracked equipment, he shall have on the job site sufficient tires and flag persons to safely cross the main lanes without causing damage to the roadway or creating a hazard to the traveling public. All of the above will be complied with prior to starting any work. The City/County the permit is issued to will be responsible for full compliance.
b. Bore Depth:
The bore depth will be figured from existing grade in the lowest point of ditch or proposed finish grade to top of pipe, casing or cable. Minimum of 36" cover for all lines except electrical fiber optic, and uncased gas lines. Recommend an additional few inches of cover due to variance of bore machine. Pilot hole shall be measured on both sides of highway prior to reaming operation. All mud or material dropped on the shoulder or main lanes will be removed immediately during the operation and specially at the end of each workday.

c. Use of Drilling Mud or Aqua Gel:

Use of aqua gel is recommended 5 to 6 sacks per 500 gal. tank properly mixed will help in areas of high sand content.

The aqua gel should be mixed the previous day to allow proper thickening of the mixture. If a lesser time is necessary, hot water may be used to speed up this process. After the bore is complete, all liquid shall be removed prior to commencing backfill operation. Drilling mud may be used only when approved by TxDOT inspector.

d. Size of Bored Hole:
Size of bored hole will be generally the same size as the pipe, casing. A tolerance of 1" may be allowed for reamer. If the annular area between the bored hole and pipe, or casing is greater than 1", sand and cement grout will be required.

e. Pulling Plug:
Plug plates will not exceed pipe or casing size. Plug will not be pulled until the pipe or casing is ready for immediate placement in open hole. It will never be delayed until the next day. In areas of sand, the pipe or casing will be pulled in without pulling plug first.

f. Well Points:
Well points may be used in areas of water sand. Location of well points will be determined based on location and safety. Contact by utility prior to installation will be required.

g. Location of Peepholes or Inspection Holes:
Peepholes or inspection holes will not be allowed on usual 2-lane highways. In no case will these be allowed on 4-lane divided, expressway type roadways without prior approval from the District Maintenance Office. They will be considered for protection of the highway and traveling public.

1E12.15 STANDARD SPECIFICATIONS FOR CONTRACTOR'S EQUIPMENT, INGRESS AND EGRESS:

a. Any excess excavation material shall be removed from the highway Right-of-Way and disposed of by said company.
b. That ingress and egress at all private drives and county roads will be provided at all times.
c. That necessary barricades and warning signs will be provided during the construction to safeguard and direct traffic on the highway, and at all private drives and county road intersections.
d. That parking of cars and trucks belonging to employees on both sides of the pavement will be prohibited and that all such vehicles shall be parked on one side of the road and in no instance closer than a minimum of 8 feet from the edge of the pavement. (Contractor shall barricade area used for parking.)
e. That no construction equipment or materials, which would be hazardous to the traveling public, will be left on the shoulders of the highway during the night.
f. The person making the installation shall have a copy of the permit on the job.
g. All poles and guys to be within the first 3 feet of the Right-of-Way.

1E12.16 CONFLICTS WITH EXISTING UTILITIES:

In the event of conflicts in the location of existing utilities it shall be the responsibility of the Contractor to work out an equitable solution with said utility company.

1E14[2] WATER FOR CONSTRUCTION

1E14.1 POTABLE WATER:

Where the Contractor desires or is required to use City (potable) water in connection with any construction work, he shall make complete and satisfactory arrangements with the Nueces County Water Control & Improvements District No. 4 and make all necessary connections at his own expense.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1E - SPECIAL CONDITIONS

1E19[1] EXISTING OBSTRUCTIONS

1E19.1 GENERAL:

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 or electrical lines 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 is such as to necessitate 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.

1E19.2 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. No claim for additional compensation for extra work will be considered for this.

1E19.3 SERVICE LINES:

When an un-shown 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.

1E19.4 TRENCHING AHEAD:

1E19.4.1 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 un-shown buried lines are discovered which may cause conflict, Contractor shall stop pipe-laying operations and notify Engineer of discovery.

1E19.4.2 Grade Alignment of Pipes in Pressure Service:

("Pressure Service" is defined as any system subject to a hydrodynamic or hydrostatic head of 1 foot or greater induced by pumping or a reservoir of fluid.) If a 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 is significantly different will be considered for extra compensation on an individual basis.

1E19.4.3 Avoidable Conflicts:
Conflicts occurring because of the Contractor's failure to comply with 1E19.4.1 and which could have been avoided by grade adjustment in accordance with 1E19.4.2 will not be considered for extra compensation.

1E19.5 EXTRA WORK:
No work for which extra compensation is to be received shall be performed until approved by the Engineer and the Owner.

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 1E – SPECIAL CONDITIONS

1E20[3] STORM WATER POLLUTION PREVENTION

1E20.1 SCOPE:

This specification shall govern for all work under the contract related to storm water pollution prevention. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

1E20.2 REQUIREMENTS:

1E20.2.1 General:

The Texas Commission on Environmental Quality (TCEQ) require construction activity for sites over one acre to meet Texas Pollutant Discharge Elimination System (TPDES) requirements for storm water discharges. The TPDES requirements include the submission of a "Notice Of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity Under the TPDES General Permit" to seek coverage under the TCEQ General Permit and the use of Best Management Practices for construction activities as outlined in the Pollution Prevention Plan. The intent of the storm water management is to improve water quality by reducing the pollutants in storm water discharges. Storm water means storm water runoff and surface runoff and drainage. Any person who violates the TCEQ General Permit may be subject to fines and/or imprisonment. Attached to and a part of this specification are the following items:

a. Storm Water Pollution Prevention Plan (SWPPP)

The Contractor will find the following required forms on the TECQ website www.tceq.state.tx.us.

a. Notice of Intent (NOI)

b. Notice of Termination (NOT)

1E20.2.2 Notice Of Intent (NOI):

A "Notice Of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity under the TPDES General Permit" TCEQ Form 20022 (02/03) must be completed and retained on-site by the operator of the construction site. The operator is defined as the party or parties that have operational control over the site specifications, the Owner, and the party or parties that have day-to-day operational control of those activities at the site necessary to ensure compliance with the pollution prevention plan requirements and permit conditions, the Contractor. The Contractor will be required to complete and sign the NOI after the project has been awarded and prior to beginning any construction activity. For signatory requirements refer to the back instructions of the NOI form. The Contractor's NOI shall be submitted to the Owner's Representative and will be submitted to the TCEQ with the Owner's NOI. A copy of the Owner's and Contractor's NOI must be retained on-site at all times. If at any time the Contractor is changed then a NOI must be submitted at least two days prior to when the new Contractor commences work at the site. The construction is covered under the TCEQ General Permit two days after the date that the submitted NOI is postmarked. A copy of the NOI is included with this specification.

1E20.2.3 Notice Of Termination (NOT):

A "Notice of Termination (NOT) Of Coverage Under the TPDES General Permit for Storm Water Discharges Associated with Industrial Activity" TCEQ Form 20023 (02/03) must be submitted to the TCEQ after final stabilization of the site and storm water run-off from construction activities are eliminated, or when the construction Contractor changes. Final stabilization is when all soil disturbing activities at the site have been completed and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures, such as the use of rip rap, gabions, or geotextiles, have been employed.

1E20.2.4 Storm Water Pollution Prevention Plan (SWPPP):

a. General:
A SWPPP has been prepared for this project and is included with this specification. The SWPPP identifies potential sources of pollution that may be expected to affect the quality of storm water discharges from the construction site and includes a site description, erosion and sediment controls, storm water management, other controls, maintenance procedures and inspection procedures to ensure compliance with the terms and conditions of the TCEQ General Permit. The Contractor shall sign the SWPPP certification, retain a copy of the NOI and SWPPP on-site and implement, maintain and inspect the control techniques required by the SWPPP.

b. Inspection and Maintenance:
Inspection and maintenance is required for all areas disturbed by construction activity and for all erosion and sediment controls that are used. Inspection shall be performed at least once a week, after each significant rainfall and for as long as a portion of the site is disturbed. The Contractor should select one individual who will be responsible for the inspection and maintenance of the system. The inspector will look at the control measures and determine if they are performing correctly and effectively. A report form is provided in the SWPPP for the inspector to use. Additional information and requirements are detailed in Section 1E20.3.5 - Maintenance/Inspection Procedures of the SWPPP.

c. Certifications:
An Owner and Contractors Certification page is provided in the SWPPP. The Contractor must identify and fill in any Sub-Contractors that are involved in implementation of the SWPPP. All Contractors or Sub-Contractors identified must sign and date a copy of the certification statement.

d. Storm Water Pollution Prevention Plan:
The SWPPP, including the NOI and NOT, are included on the following pages. After award of the project and execution of the NOI and certifications, copies of these documents will be bound together in the executed contract documents. Two copies of the contract documents that contain the SWPPP will be provided to the Contractor and one copy must be kept on-site of the construction activities at all times.

1E20.3 STORM WATER POLLUTION PREVENTION PLAN:

1E20.3.1 Not Used

1E20.3.2 Description of Controls:

a. Stabilization Practices:
(1) Stabilized construction entrances.
(2) Silt fences
(3) Temporary seeding.
(4) Sprinkling for dust control.
(5) Mulching
(6) Sod stabilization
(7) vegetative buffer strips
(8) Protection of trees

b. Structural Practices:
(1) Earth dike
(2) Inlet protection and outlet protection.
(3) Storm sewer and curb and gutter.
(4) Sediment traps
(5) Check dams.

1E20.3.3 Other Controls:

a. Waste Disposal:

(1) Waste Materials:
All waste materials will be collected and stored in a securely lidded metal Dumpster rented from a reputable disposal company licensed for solid waste disposal. The Dumpster will meet all local, State and Federal solid waste management regulations. All trash and construction debris from the site will be disposed in the Dumpster. The Dumpster will be emptied as necessary and the trash hauled to a permitted waste disposal site. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. The Pollution Prevention Plan will be posted in the office trailer and the Construction Superintendent will be responsible for seeing that these procedures are followed.

(2) Hazardous Waste:
All hazardous waste materials will be disposed of in the manner as required by City, State or Federal regulations or by the materials manufacturer. All personnel will be instructed regarding the correct procedure for handling hazardous waste and the Construction Superintendent will be responsible for seeing that these procedures are followed.

(3) Sanitary Waste:
All sanitary waste will be collected from portable units as necessary and/or required by governing regulations. Collection will be by a licensed or permitted Disposal Company and the waste properly disposed of.

b. Offsite Vehicle Tracking:
Stabilized construction entrances will be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept daily to remove any excess mud, dirt or rock tracked from the site.

1E20.3.4 Demonstration of Compliance with Federal, State and Local Regulations:
This plan follows the outline provided to meet the requirements of Federal regulations concerning storm water management.

1E20.3.5 Maintenance/Inspection Procedures:

a. Erosion and Sediment Control Maintenance and Inspection Practices.

(1) Temporary seeding.
(2) Permanent seeding
(3) Sprinkling for dust control.
(4) Mulching
(5) Sod stabilization
(6) Vegetative buffer strips
(7) Protection of trees
(8) Silt fence.
(9) Inlet protection and outlet protection
(10) Culverts
(11) Earth dike
(12) Storm sewer and curb and gutter
(13) Stabilized construction entrances
(14) Sediment traps
(15) Check dams

b. Erosion and Sediment Control Inspection and Maintenance Practices:
These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls.

(1) Where possible, the site work will be performed in phases leaving certain areas undisturbed as the work progresses.

(2) All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
(3) All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.
(4) Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
(5) Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
(6) Earthen dikes, sediment traps and check dams will be inspected to verify they are functioning as originally constructed.
(7) Temporary and permanent seeding, planting, mulching, sod stabilization and vegetative buffer strips will be inspected for bare spots, washouts and healthy growth.
(8) A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is shown at the back of this Subsection.
(9) The Construction Superintendent will select one individual who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.
(10) Personnel selected for inspection and maintenance responsibilities will receive training from the Construction Superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on site in good working order.
(11) Inspection report with certification for compliance should be retained for at least three years.

1E20.3.6 Inventory For Pollution Prevention Plan:

The materials or substances listed below are expected to be present onsite during construction:

a. Lumber
b. PVC pipe
c. Ductile iron Pipe
d. Steel pipe and products
e. Aluminum products
f. Fiberglass products
g. Concrete and masonry materials
h. Vinyl flooring material
i. Mineral fiber ceiling material
j. Polyethylene products
k. Petroleum and asphalt products
l. Paint
m. Fertilizer
n. Herbicides

1E20.3.7 Management Practice To Prevent Spills:

a. General Material Management Practices:

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. The following good housekeeping practices will be followed onsite during the construction project.

(1) An effort will be made to store only enough product required to do the job.
(2) All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
(3) Products will be kept in their original containers with the original manufacturer's label.
(4) Substances will not be mixed with one another unless recommended by the manufacturer.
(5) Whenever possible, all of a product will be used up before disposing of the container.
(6) Manufacturers' recommendations for proper use and disposal will be followed.
(7) The site superintendent will inspect daily to ensure proper use and disposal of materials onsite.

b. Hazardous Products Management Practices:
These practices are used to reduce the risks associated with hazardous materials.
(1) Products will be kept in original containers unless they are not resealable.
(2) Original labels and material safety data will be retained; they contain important product information.
(3) If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal would be followed.

c. Product Specific Practices
The following product specific practices will be followed onsite.
(1) Petroleum Product:
All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.
(2) Fertilizers:
Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
(3) Herbicides:
Herbicides used will be applied only in the minimum amounts recommended by the manufacturer. Applications shall be accomplished only at times when wind will not cause over spray. Storage will be in a covered shed. Partially used containers of herbicides will be tightly resealed.
(4) Paints:
All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or State and local regulations.
(5) Concrete Trucks:
Concrete trucks will wash out or discharge surplus concrete or drum wash water only in specific areas selected and maintained by the Contractor. The Contractor will remove this waste material at the completion of the project.

1E20.3.8 Spill Prevention And Cleanup:
In addition to the management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

a. Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and location of the information and cleanup supplies.

b. Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

c. All spills will be cleaned up immediately after discovery.

d. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

e. Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.

f. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

g. The Construction Superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least one other site personnel who will receive spill prevention and cleanup training; this individual will become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

_____

_____

_____

_____

_____

REASONS FOR CHANGES:

_____

_____

_____

_____

_____

INSPECTORS SIGNATURE:_____

DATE:_____

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____

Date: _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

SIGNATURE:	COMPANY	ACTIVITY RESPONSIBLE FOR:
Date: _____		
Date: _____		
Date: _____		
Date: _____		
Date: _____		
Date: _____		

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT

STRUCTURAL CONTROLS

DATE: _____ INSPECTORS INITIALS: _____

SILT FENCE:

IS THE BOTTOM OF THE FABRIC STILL BURIED?	IS THE FABRIC TORN OR SAGGING?	ARE THE POSTS TIPPED OVER?	HOW DEEP IS THE SEDIMENT?

MAINTENANCE REQUIRED FOR SILT FENCE:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

Note: Inspections and reports to be performed at least once each week and following any storm event of ½ inch or greater.

STORM WATER POLLUTION PREVENTION PLAN
SEE DRAWINGS

Attachment 4

LARGE CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

"PRIMARY OPERATOR" NOTICE

This notice applies to construction sites operating under Part II.E.3. of the TPDES General Permit Number TXR150000 for discharges of storm water runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The information on this notice is required in Part III.E.2. of the general permit. This notice shall be posted along with a copy of the signed Notice of Intent (NOI), as applicable. Additional information regarding the TCEQ storm water permit program may be found on the internet at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html

Site-Specific TPDES Authorization Number:	
Operator Name:	
Contact Name and Phone Number:	
Project Description: *Physical address or description of the site's location, and estimated start date and projected end date, or date that disturbed soils will be stabilized.*	
Location of Storm Water Pollution Prevention Plan:	

Attachment 3

LARGE CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

"SECONDARY OPERATOR" NOTICE

This notice applies to secondary operators of construction sites operating under Part II.E.3. of the TPDES General Permit Number TXR150000 for discharges of storm water runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The information on this notice is required in Part III.E.2. of the general permit. Additional information regarding the TCEQ storm water permit program may be found on the internet at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html

Site-Specific TPDES Authorization Number:	
Operator Name:	
Contact Name and Phone Number:	
Project Description: *Physical address or description of the site's location, and estimated start date and projected end date, or date that disturbed soils will be stabilized.*	
Location of Storm Water Pollution Prevention Plan (SWP3):	

For Large Construction Activities Authorized Under Part II.E.3. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.E.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title_____ Date _____

_____*Date Notice Removed*
____*MS4 operator notified per Part II.F.3.*

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 1E - SPECIAL CONDITIONS

1E25[1] 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 of Port Aransas's goal is to have at least a 20% M/WBE participation with all procurement processes. It is The City of Port Aransas'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 of Port Aransas, 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.

DIVISION 2 - SITE WORK

SECTION 2A - CLEARING OF SITE

2A2[1] 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 or electrical lines 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[1] 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 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).

DIVISION 2 - SITE WORK

SECTION 2A - CLEARING OF SITE

2A5[1] CLEARING AND GRUBBING

2A5.1 SCOPE:
This specification shall govern for all work necessary to accomplish the stripping as required to complete the project. The work shall include removing and disposing of all trees, stumps, brush, roots, logs, vegetation, rubbish and any other objectionable matter from the project site. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

2A5.2 MATERIAL:
All material removed under this specification shall become the property of the Contractor and shall be removed from the site.

2A5.3 CONSTRUCTION METHODS:

2A5.3.1 General:
The Contractor shall clear all stumps, brush, roots, logs, rubbish and other objectionable matter from the project site. The Contractor shall clear only trees and shrubs that are in the way of new construction or are specifically designated to be removed on the drawings.

2A5.3.2 Grubbing:
The Contractor shall remove all stumps and roots to at least 30 inches below natural ground except those less than 3 inches in diameter which shall be removed to at least 12 inches below natural ground. The Contractor shall remove all roots so that no part shall extend nearer than 18 inches of the finished subgrade, slope, shoulder or structure.

2A5.3.3 Stripping:
The Contractor shall remove all humus, vegetation or other unsuitable materials encountered within the top 6 inches of soil in all areas underlying compacted fill and/or areas designated on the drawings to be stripped.

2A5.3.4 Burning:
The Contractor shall not be allowed to burn material removed under this specification.

DIVISION 2 - SITE WORK

SECTION 2A - CLEARING OF SITE

2A6[2] UTILITY EASEMENT AND R.O.W. CLEARING AND RESTORATION

2A6.1 SCOPE:
This specification shall govern for all work necessary to clear and restore the utility easement and R.O.W. for the installation of offsite force main and collection lines as required to complete the project. In the event of any conflict between this subsection and subsection 1E12, then 1E12 shall govern. This specification is a performance specification as defined in Section 1D General Conditions", Art. SC-1 Definitions.

2A6.2 BRUSH AND TREES IN CONFLICT WITH CONSTRUCTION:

2A6.2.1 Brush:
Brush is defined as any bush or tree other than oak trees, pecan trees, mesquite trees or hackberry trees. The Contractor shall remove brush as is necessary for him to install the pipe line. All brush removed shall be disposed of as required by the City of Rockport. When working in Texas Highway Rights-of-Way, methods of removal are subject to the approval of that agency.

2A6.2.2 Trees:
Unless specifically identified on the drawings that they may be removed, trees shall be protected. Any trimming of trees is subject to the approval of the Texas Department of Highways and the Engineer.

2A6.2.3 Scheduling and Coordination of Brush and Tree Limb Disposal: Coordinate with the City of Rockport.

2A6.3 INTERSECTING STREETS AND DRIVEWAYS:

2A6.3.1 General:
When the proposed pipe line crosses streets and driveways that intersect the parallel road, the Contractor shall proceed as follows:

a. Specific Instructions:
   Follow any specific requirements set out on the drawings, specifications or permits.
b. Private Driveways on Texas Highway Rights-of-Way:
   Install pipe by open cut methods.

2A6.4 RESTORATION OF TEXAS DEPARTMENT OF HIGHWAYS RIGHTS-OF-WAY:
It is the intent of this specification that the Texas Department of Highways Rights-of-Way be restored (area disturbed by the Contractor's operation) to at least a condition equal to what it was before construction began. In addition, all requirements of 1E12 shall be complied with. The Texas Department of Highways' Inspectors will be monitoring all work in their rights-of-way and they will have final authority.

DIVISION 2 - SITE WORK

SECTION 2A – CLEARING OF SITE

2A7[1] DEMOLITION AND SITE CLEAN UP

2A7.1 SCOPE:
This specification shall govern for all work necessary for driving pile 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.

2A7.2 METHOD OF REMOVAL:

2A7.2.1 Timber Structures:
All timber material beyond bent 25 shall be removed with as little damage to the structure as possible. New bent caps shall be installed on opposite sides of the timber piles from the existing caps and shall be fastened to the new sister piles.

2A7.2.2 Timber Piling:
As indicated by site inspection, the Contractor shall remove all "severely damaged pile estimated 50-90% loss of section", any leaning pile, piles disconnected from framing and remnants lying on bottom. Timber piles shall be either pulled or broken off at mudline.

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.

2A7.4 MEASUREMENT AND PAYMENT:
This item will be measured and paid for by the "Lump Sum", as the work progresses.

DIVISION 2 - SITE WORK

SECTION 2B - EARTHWORK

2B11[3] BORING (NO CASING) ROADWAYS

2B11.1 SCOPE:

This specification shall govern for all work necessary to complete the boring of concrete or asphalt roadways and driveways in this project and installation of PVC SDR 26 gravity sewer or force main 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.

2B11.2 PERMITS AND NOTIFICATIONS:

2B11.2.1 General:

The Contractor shall be responsible for obtaining all permits and giving sufficient notification prior to construction to the agency whose right-of-way is being crossed. In no case will notifications be given less than 48 hours prior to construction.

2B11.3 MATERIALS:

2B11.3.1 Steel HP Gas Pipe and Fittings: See Plans

2B11.3.2 Grout: Shall be a sand-cement mixture having the following:

a. Sand:
Sand shall be clean, sharp and suitable for masonry mortar and shall meet the requirements as specified for concrete sand, screened so as to exclude any materials larger than those passing a No. 10 screen.

b. Cement: Cement shall be Type I - Portland Cement.

2B11.4 CONSTRUCTION METHODS:

2B11.4.1 General:

Sections of pressure pipe shall be installed under existing railroads by means of standard boring methods and/or jacking methods at the Contractor's option. The structural integrity of the pipe and fittings shall be maintained.

2B11.4.2 Wet Bores:

Wet bores are allowable in cohesive soils unless prohibited on the plans or elsewhere in these specifications in the event that a wet bore is used and excessive voids occur between the casing and the bored hole, pressure grouting of the voids will be required at no additional cost to the Owner. The representative of the agency or the Engineer whose right-of-way is being crossed will judge when voids are excessive.

2B11.4.3 Grouting:

When necessary, the entire length of tunnel shall be pressure grouted using a sand-cement grout to fill any void between the PVC pipe and natural ground. All grouting shall be done under pressure by the use of direct action pressure pumps capable of placing grout at the pressure necessary to completely fill all voids. The pumps should operate in a manner so that the grout will be delivered uniformly and steadily. Grouting will be considered complete when no more grout of the required mix and consistency can be forced in under pressure.

2B11.4.4 Jacking: Pipe shall be progressively pushed by jacks through the bored hole on grade.

2B11.4.5 Traffic:

All working operations of the Contractor must be subordinate to the free and unobstructed use of the right-of-way for the passage of traffic without delay or danger of life, equipment or property. The Contractor shall conduct his operations in a manner such that all work will be performed below street level and without obstructions on the streets.

2B11.4.6 Barricades and Warning Signs:

See General Conditions and permit requirements of the agency involved.

2B11.5 MEASUREMENT AND PAYMENT:

Installation pipe by boring with no casing will be measured by the lineal feet of pipe installed by boring (by depth classification). There shall be no additional payment in excess of the length shown on the plans and there shall be no additional payment for grouting, multiple pilot holes, etc.

DIVISION 2 - SITE WORK

SECTION 2B - EARTHWORK

2B12[3] OPEN CUTTING (No Casing)

2B12.1 SCOPE:
This specification shall govern for all work necessary to complete the open cutting 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.

2B12.2 PERMITS AND NOTIFICATION:
The Contractor shall be responsible for obtaining all permits and giving sufficient notification prior to construction to the agency whose right-of-way is being crossed. In no case will notifications be given less than 48 hours prior to construction.

2B12.3 CONSTRUCTION METHODS:

2B12.3.1 Traffic:
Reroute traffic or construct adequate all weather detour and maintain until crossing has been completed.

2B12.3.2 Excavation:
Excavate ditch as shown on plans, remove all excess material from right-of-way and finish flush with existing ground.

2B12.3.3 Backfill:
Backfill with specified material and tamp to thoroughly compact backfill material.

DIVISION 2 - SITE WORK

SECTION 2G - SITE UTILITIES

2G26[1] GAS PIPING

2G26.1 SCOPE:
This specification shall govern for all work necessary to complete the site work gas piping 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.

2G26.2 MATERIAL:
Refer to Plan Sheet 68 General Notes – Piping and Appendix B City of Port Aransas Gas Department Installation Specifications

2G26.3 INSTALLATION:
Refer to Plan Sheet 68 General Notes – Piping and Appendix B City of Port Aransas Gas Department Installation Specifications

DIVISION 2 - SITE WORK

SECTION 2G - SITE UTILITIES

2G27[3] EXISTING UTILITIES

2G27.1 SCOPE:

This specification shall govern for all work necessary to work around existing water lines, sewer lines and other utilities. In addition it shall govern for connecting to the existing water distribution system and the sanitary collection system. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-Definitions.

2G27.2 LOCATION OF EXISTING UTILITIES:

The location of existing water lines, sewer lines and other utilities shown on the drawings is based on as-built information from construction drawings, on the ground survey and other information provided by the owners of those facilities. Depiction of the locations on the drawings is intended as a guide to the Contractor but is not guaranteed. Failure to show existing lines and structures will not be considered sufficient basis for claims for additional compensation for extra work, unless the obstruction encountered is such as to necessitate 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. The Contractor shall be responsible for locating and protecting all existing utility lines from damage during construction. The Contractor shall notify the appropriate utility company at least 24 hours before beginning any construction. Adjustment of conflicting water lines, sewer lines and other utilities shall be the responsibility of the Contractor. Adjustment of conflicting utility shall be coordinated with the utility affected. When the adjustment is accomplished by the Contractor, it shall be done in the presence of a representative of the utility affected. There shall be no separate payment for adjustment of utilities unless a bid item is provided on the proposal. The Contractor shall be responsible for scheduling the work so that there is no delay in the completion of the entire project. Should the Contractor damage any utility line, the Contractor shall repair said damage (or pay the utility company for repair) to the satisfaction of the utility company at no cost to the Utility Company, the "District" or the Owner.

2G27.3 WATER DISTRIBUTION AND SANITARY SEWER COLLECTION SYSTEMS:

2G27.3.1 General:

The existing water distribution system and sanitary collection system is owned and operated by the Nueces Co. Water Control & Improvement District No. 4 which is herein referred to as the "District".

2G27.3.2 Contact:

The "District" may be contacted at their office which is located adjacent to the elevated storage tank in Port Aransas. Their telephone is number is 749-5201.

2G27.3.3 Standards, Ordinances And Regulations:

All water distribution system and sanitary sewer collection system improvement shall comply with the standard specifications of the "District", City Of Port Aransas Ordinances, Texas Department Of Health Regulations and Texas Water Commission Regulations.

2G27.3.4 Notification and Connection to Existing Sanitary Sewer System:

The Contractor shall notify the "District" at least 24 hours prior to excavating within 20 feet of any existing water or sewer line. It shall be the Contractor's responsibility to keep the "District's" Office informed at least once each day of his activities while working within said 20 feet. The actual connection to the existing water or sewer system must be observed by a representative of the "District".

2G27.3.5 Failure to Notify and Inform:

If the Contractor does not notify the "District" as stated above and/or does not operate in strict conformance with the contract documents and the existing line is found to be damaged (for any

reason) the Contractor shall make repairs to the satisfaction of the "District" at no cost to the "District".

2G27.3.6 Sterilization of Water Lines:
Contractor shall sterilize all water lines in accordance with Texas Department Of Health regulations. Also see Subsection 2G11.

2G27.3.7 Testing Of Water And Sewer Lines:
a. Contractor shall test all Water Lines as set out in Subsection 2G12.
b. Contractor shall test all Sewer Lines as set out in Subsection 2G15

2G27.4 DEVIATIONS OCCASIONED BY EXISTING OBSTRUCTIONS:
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.

2G27.5 TRENCHING AHEAD:
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 buried lines are discovered which may cause conflict, Contractor shall stop pipe laying operations and notify Engineer of discovery.

2G27.6 GRADE/ALIGNMENT OF WATER LINES:
If a conflict can be avoided by adjusting grades of water lines by maximum of one foot in any direction and no additional fittings are required, no claim for additional compensation for extra work will be considered. Water lines requiring adjustments greater than 1 foot will be considered for extra compensation on an individual basis based on unit cost for water line adjustment.

2G27.7 GRADE/ALIGNMENT OF SANITARY SEWER LINES:
The grade and/or alignment of sanitary sewer lines shall not be changed unless approved by the Engineer. If the Engineer does allow a grade and/or alignment change extra compensation will be considered on an individual basis provided the change requires an adjustment greater than 1 foot.

2G27.8 ABANDONED LINES:
When a line is uncovered that is not in use and is no longer needed, the line shall be cut and plugged. No claim for additional compensation for extra work will be considered for this.

2G27.9 AVOIDABLE CONFLICTS:
Conflicts occurring because of the Contractor's failure to trench ahead and which could have been avoided by grade or alignment will not be considered for extra compensation.

2G27.10 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 2H - ROADS AND WALKS

2H2[1] SOIL-CEMENT BASE COURSE (SAND AND PORTLAND CEMENT)

2H2.1 SCOPE:
This specification shall govern for all work necessary to complete the soil-cement base course using Portland cement 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 soil (sand) and Portland cement uniformly mixed, moistened, compacted and cured in accordance with this specification, and shaped to conform to sections, lines and grades as shown on the drawings.

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 be soil (sand). Soil material shall consist of the material existing in the area to be paved, or approved borrow material, or a combination of these materials proportioned as directed. The soil shall be free from vegetation or other objectionable material.

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 (to be varied in the field as the situation dictates and as directed by the Engineer).

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 material 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:

Before other construction operations are begun, the area to be paved shall be graded and shaped as required to construct the soil-cement in conformance with grades, lines, thicknesses, and typical cross section shown on the drawings. 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.)

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 con- tent 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 competed 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

2H4[1] HOT PLANT MIXED ASPHALT STABILIZED BASE (Black Base)

2H4.1 SCOPE:

This specification shall govern for all work necessary to complete an asphalt stabilized base course on the previously completed subgrade or subbase. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

2H4.2 MATERIALS:

2H4.2.1 Asphaltic Material:

a. Mixture:

Asphalt for the mixture shall be AC-10 asphalt cement and shall conform to Item 300 "Asphalt, Oil and Emulsions" of the Standard Specifications for Construction of Highways, Streets and Bridges, 1982 Edition; of the Texas Department of Highways and Public 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 emulsified asphalt EA-11M, cut-back asphalt RC-250, or shall be cut-back asphalt made by combining 50 to 70 percent by volume of AC-10 with 30 to 50 percent by volume of gasoline and/or kerosene. If RC-250 cut-back asphalt is used, it may, upon instructions from the Engineer, be diluted by the addition of an approved grade of gasoline and/or kerosene, not to exceed 15 percent by volume. Asphaltic materials shall meet the requirements of the aforementioned Item 300.

2H4.2.2 Mineral Aggregate:

a. General:

The material shall be crushed or uncrushed and screened as necessary to meet the requirements hereinafter specified and shall consist of durable coarse aggregate particles mixed with approved binding materials.

b. Gradation:

Sieve Size	Percent by Weight Retained
2"	0
1-3/4"	0-5
No. 4	45-75
No. 40	60-85

c. Physical Requirements:

Wet Ball Mill	50 Maximum
P. I. 15	Maximum
L. L.	55 Maximum
Sand equivalent value shall not be less than:	40

d. Testing of Mineral Aggregate:

Testing of the mineral aggregate shall be in accordance with the following Texas Department of Highways and Public Transportation Standard Laboratory Test procedures:

Preparation of Soil Constants and Sieve Analysis TEX-101-E

Liquid Limit TEX-104-E
Plastic Limit TEX-105-E
Plasticity Index TEX-106-E
Sieve Analysis TEX-110-E
Wet Ball Mill TEX-116-E
Sand Equivalent TEX-203-E

Samples for testing the material shall be taken prior to the mixing operations. Where more than one material is used, tests will be on the combined material.

e. Material Sources:
The material shall be obtained from sources secured by the Contractor and approved by the Engineer. Should the Contractor elect to produce the specified material from local pits, the material shall be secured from the available sources or approved by the Engineer. The material shall be crushed or uncrushed and screened as necessary to meet the requirements hereinafter specified and shall consist of durable particles of stone mixed with approved binding materials. These pits as utilized shall be opened up in such manner as to immediately expose the vertical faces of all the various strata of acceptable material and, the material shall be secured in successive vertical cuts extending through all of the exposed strata in order that a uniformly mixed material will be secured. One or more types of material aggregate or binder may be used to produce the specified mixture.

2H4.3 MIXTURE:

2H4.3.1 General:
The mixture shall consist of a uniform mixture of coarse aggregate, soil binder and asphaltic material.

2H4.3.2 Soil Binder: Soil binder shall form from 15% to 40% of the mixture by weight.

2H4.3.3 Asphaltic Material: The asphaltic material shall form from 4.0% to 9.0% of the mixture by weight.

2H4.3.4 Stability:
The laboratory stability of the mixture (with the plus 7/8" material removed) shall be not less than 35%.

2H4.3.5 Tolerances:
A reputable testing laboratory shall be retained to designate the exact grading of the aggregate and asphalt content, within the above limits, to be used in the mixture. The paving 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.

a. Grading: Plus or Minus 10%

b. Asphalt: 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.

2H4.3.6 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.

2H4.3.7 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 the THD Bulletin C-14, will have the following laboratory density and stability:

Density (Percent)			Stability (Percent)
Minimum	**Maximum**	**Optimum**	
95	**99**	**97**	**See Para. 2H4.3.4**

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 of 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.

2H4.4 EQUIPMENT:

2H4.4.1 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 292.4 "Equipment" of the Standard Specifications for Construction of Highways, Streets and Bridges, 1982 Edition; of the Texas Department of Highways and Public Transportation.

2H4.4.2 Paving Equipment:

a. Spreading and Finishing Machine:
The spreading and finishing machine shall be of the screeding 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 efforts.

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 and Templates:
The Contractor shall provide acceptable 16 foot straight edge for surface testing. Satisfactory templates shall be provided as required by the Engineer.

2H4.5 STOCKPILING, STORAGE, PROPORTIONING AND MIXING:
Stockpiling, storage, proportioning and mixing shall conform to the requirements of Item 292.5, 1982 Edition; of the Texas Department of Highways and Public Transportation.

2H4.6 CONSTRUCTION METHODS:

2H4.6.1 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.

2H4.6.2 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.

2H4.6.3 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.

2H4.6.4 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 base course will be smooth, of uniform density and will meet the requirements of the typical cross-section and the surface tests. The sequence of compacting shall be such that undue displacement of the edge of the course does not occur. On deep lifts, the edge of the course may be rolled with a motor grader wheel or similar equipment.

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.

2H4.6.5 Compacting:

a. General:
The asphalt stabilized base shall be compressed thoroughly and uniformly with the specified rollers. In lieu of the rolling equipment specified, the Contractor may, upon written permission from the Engineer, operate other compacting equipment that will produce equivalent relative compaction as the specified equipment. If the substituted compaction equipment fails to produce

the desired compaction as would be expected of the specified equipment, as determined by the Engineer, its use shall be discontinued. When directed by the Engineer, the initial compaction shall be accomplished with the pneumatic tire roller.

b. Rolling with the three wheel and tandem rollers shall be done longitudinally, overlapping on successive trips by at least half the width of the rear wheel unless otherwise directed by the Engineer. 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 unless otherwise directed by the Engineer. Rolling with the pneumatic-tired roller shall be done as directed by the Engineer. Rolling shall be continued until no further compression can be obtained (or the required compaction is obtained) and all roller marks are eliminated. One tandem roller, one pneumatic-tired roller and at least one three wheel roller, as specified above shall be provided for each job. If the Contractor elects, he may substitute the three-axle tandem roller for the two-axle tandem roller and/or the three wheel rollers; but three rollers shall be in use on each job. Additional rollers shall be provided if needed. The motion of the rollers shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and fresh mixture where required. The roller shall not be allowed to stand on any portion of the mixture which has not been fully compacted. To prevent adhesion of the mixture to the roller unless otherwise directed by the Engineer, the roller wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dropping of gasoline, oil, grease or other foreign matter on the roadway, either when the rollers are in operation or when standing.

c. Hand Tamping:

In locations not accessible to the roller or in locations where thorough compaction cannot be obtained with the roller, compaction shall be accomplished by the use of lightly oiled tamps.

2H4.6.6 In Place Density:

It is the intent of this specification that the material be placed and compacted to **96% of the laboratory density.**

2H4.7 TESTING:

2H4.7.1 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.

2H4.7.2 Mix Design:

A mix design shall be prepared for the asphalt stabilized base used on this project. This 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.

2H4.7.3 Mix Control:

A reputable testing laboratory shall control the proportioning and mixing of materials used in the asphalt stabilized base to assure the mix design is being followed.

2H4.7.4 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.

2H4.7.5 Stability and Laboratory Density Tests:

A reputable testing laboratory shall take samples of the mixture during construction. These samples when tested in accordance with THD Bulletin C-14 will have the required stability and laboratory density.

2H4.7.6 Field Density:

A reputable testing laboratory shall be retained to determine the in place density of the asphalt stabilized base. The method used to determine the place density is subject to the approval of the Engineer.

2H4.7.7 Thickness Tests:

The thickness of the compacted base course shall be determined by depth cores taken at intervals in such a manner that each test shall represent no more than 1000 square yards. When the wearing surface deficiency averages more than 1/4 inch but less than 3/4 inch the payment per square yard will be reduced proportionately. When the wearing surface deficiency averages 3/4 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.

2H4.7.8 Surface Tests:

The surface of the pavement, after compression, and when 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 1/8" per foot from the nearest point of contact. The maximum ordinate measured from the face of the straight-edge shall not exceed 1/2" 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

2H5[1] PLANING ASPHALTIC CONCRETE SURFACE

2H5.1 SCOPE:

This item includes scarifying and planing the existing asphaltic concrete pavement and asphalt-stabilized base for the depths indicated on the plans and stockpiling of the scarified materials at the designated locations. The planed surface shall provide a smooth riding surface free from gouges continuous longitudinal grooves, ridges, oil film and other imperfections of workmanship and shall have a uniform appearance. This specification is a performance specification as defined in Section 1D General Conditions, Subsection "Supplemental General Conditions", Art. SC-1 Definitions.

2H5.2 MATERIALS:

No materials are expected for use by this subsection.

2H5.3 EQUIPMENT:

The equipment for removing the pavement surface shall be a power operated planing machine or grinder capable of removing, in one pass, asphaltic concrete pavement of a thickness of three (3) inches and any required thickness less than three (3) inches, in a minimum six (6) foot width. The equipment shall be self propelled with sufficient power, traction and stability to maintain accurate depth of cut and slope. The equipment shall be capable of accurately and automatically establishing profile grades along each edge of the machine by referencing from the existing pavement, curb or profile grade established by the Engineering Department and shall have an automatic system for controlling cross slope at any given rate.

The machine shall be equipped with an integral loading and reclaiming means to immediately remove material being cut from the surface of the roadway and discharge the cuttings into a truck in one operation. Adequate back-up equipment such as mechanical street sweepers, loaders, trucks and personnel will also be provided to keep airborne particles to a minimum and to insure that all cuttings are removed from the roadway surface daily. Stockpiling of planed material will not be permitted on the project site unless approved by the Project Representative. The machine shall be equipped with means to control airborne particles created by the cutting action. The machine shall have a manual system providing for uniformly varying the depth of cut while the machine is in motion thereby making it possible to cut flush to all inlets, manholes, or other obstructions within the paved area.

Any machine incapable of meeting these requirements will not be permitted. Various machines may be permitted to make trial runs to demonstrate to the Engineer the capabilities of that machine.

2H5.4 CONSTRUCTION METHODS:

The pavement surface shall be removed to the depth, width, grade and cross section as required.

The pavement planing operation shall be referenced from an independent grade control in areas deemed appropriate by the Engineer. For this operation, the independent grade control shall be established and maintained by the Contractor in an acceptable manner and the final position of same shall be acceptable to the Engineer.

If the entire pavement width or traveled lane width along a section of street has not been planed to a flush surface by the end of a work period resulting in a vertical or near vertical longitudinal face exceeding one and one-fourth (1 ¼) inches in height, this longitudinal face shall be sloped to not create a hazard to traffic. Transverse faces that are present at the end of a working period will be tapered to avoid creating a hazard for traffic.

The cuttings or loose material resulting from the planing operation shall remain the property of the City and the Contractor shall stockpile the material at designated locations. Salvaged material shall be

kept as free as possible from contamination by non-asphaltic materials during its removal, transportation and storage. Placement methods at stockpiles shall be approved by the Project Representative. Salvaged asphaltic paving materials of differing type or quality may require separate stockpiling.

When located with four (4) inches of steep curbs, asphaltic concrete and/or asphalt-stabilized base that cannot be removed by the planing machine shall be removed by other acceptable methods and the pavement and curb surfaces shall be cleaned of all debris and left in a neat and presentable condition.
In planed areas where traffic is permitted, "Grooved Pavement Ahead" signs shall be erected at an appropriate distance ahead of the planed areas and at a maximum spacing of one-half (1/2) mile within the planed area. Signs shall be erected prior to planing in the areas and shall be maintained in place until the planed area is overlaid. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" and "Standard Highway Sign Designs for Texas." After planed areas are overlaid, the Contractor shall remove these signs.

2H5.5 SURFACE:

In areas where traffic is permitted, a texture shall be produced which shall be a grid pattern with uniform discontinuous longitudinal striations, or any other pattern with discontinuous longitudinal striations that provide a satisfactory riding surface.

Unless otherwise directed, the grade reference used by the Contractor may be of any approved type. Control points, when applicable, will be established for the finished grade by the Engineer. These points will be set at intervals not to exceed fifty (50) feet. The Contractor shall set the grade reference for the sensor of the automatic control to follow from the control points established by the Engineer. This grade reference shall have sufficient support so that the maximum deflection shall not exceed one-sixteenth (1/16) inch per twenty-five (25) feet.

The surface of the pavement after planing shall be smooth and true to the established line, grade and cross section. When tested with a ten (10) foot straightedge placed parallel to the centerline of the roadway or tested by other equivalent or acceptable means, the maximum deviation shall not exceed (1/8) inch in ten (10) feet. Any point in the surface not meeting this requirement shall be corrected.

2H5.6 MEASUREMENT:

Work prescribed by this item will be measured by the square yard of surface area for the various depths shown on the plans or as described in the proposal.

Measurement will be based on the depth shown for each bid item, within the limits shown on the plans, regardless of the actual thickness removed or the number of passes required. Only one bid item will be applicable to any one location.

Square yard calculations will be based on the neat dimensions shown on the plans.

Measurement will be made only one time for each depth regardless of the number of passes required to be made by the machine in order to secure the depth desired.

Tapering or sloping of longitudinal or transverse joints (faces) as described under "Construction Methods" will not be measured for payment.

2H5.7 PAYMENT:

The work performed as prescribed by this item, measured as provided under "Measurement" will be paid for at the unit price bid per square yard for "Planing Asphaltic Concrete Surface" of the various depths shown on the plans, which price shall be full compensation for removing all materials to the depth shown, loading, hauling, unloading and satisfactorily stockpiling of the material and for all signs and sign removal, labor, tools, equipment, manipulation and incidentals to complete the work.

No payment will be made for work done by any machine on a trial run to demonstrate its ability to meet this specification unless the work is acceptable.

DIVISION 2 - SITE WORK

SECTION 2H - ROADS AND WALKS

2H6[2] PRIME AND TACK COAT

2H6.1 SCOPE:

This specification shall govern for all work necessary to provide the prime coat as required to complete the project. This is a performance specification as defined in Article TS-1 of the Technical Special Provisions.

2H6.2 MATERIAL:

Asphaltic material 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 Public Transportation. If the type of asphaltic material for prime coat is not shown on the drawings, use MC-30 or MC-70. If the type of asphaltic material for tack coat is not shown on the drawings, use SS-1.

2H6.3 APPLICATION RATE:

When application rates are not shown on the drawings apply prime coat at the rate of **0.25 Gal.** per square yard. Tack coat shall be applied at a diluted rate of 0.18 Gal. per square yard when dilution rate is 1:1.

2H6.4 CONSTRUCTION METHODS:

The Engineer shall approve the previously prepared base before prime coat is applied. The surface to be primed shall be cleaned by sweeping or other approved methods. The asphalt shall be applied uniformly at the specified rate or as modified by the Engineer. Material shall be applied using an approved type of self propelled pressure distributor. Any "holidays" shall be covered using a hand spray. Asphaltic material shall be heated and applied at a temperature between 125°F to 175°F. Attention is called to the fact that asphaltic materials are very flammable. The Contractor shall be responsible for any fires or accidents which may result from heating the asphaltic material. Asphaltic material shall not be applied when air temperature is below 40°F. The Contractor shall be responsible for the maintenance of primed surface until the work is accepted by the Engineer just prior to the application of the next course.

DIVISION 2 - SITE WORK

SECTION 2H - ROADS AND WALKS

2H11[3] 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:

Sieve Size	Percent Passing by Weight
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.

Percent By Weight	
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:

Sieve Size	Percent Passing By Weight or Volume
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:

Sieve Size	Percent Passing By Weight or Volume
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.

	Percent By Weight
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.

Density (Percent)			Stability (Percent)
Minimum	Maximum	Optimum	
96	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. Pnuematic-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

2H14[1] CONCRETE CURB & GUTTER AND CONCRETE VALLEY GUTTER

2H14.1 SCOPE:
This specification shall govern for all work necessary to provide the concrete curb and gutter and/or concrete valley gutter 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.

2H14.2 MATERIALS:

2H14.2.1 Reinforcing Steel and Dowel Bars:
Billet steel, ASTM A615 Grade 60. When not shown on the drawings, provide:
a. Reinforcing Steel 3 - No. 4 bars (deformed bars).

b. Dowels 2 - No 5. bars (smooth bars).

2H14.2.2 Concrete:
Concrete shall be specified in Subsection 3C4 "Concrete Structures" and Subsection 3C1 "Normal Weight Aggregate Concrete," Class A - 3000 PSI @ 28 days.

2H14.2.3 Expansion Joint Material:
Expansion joint material shall be 3/4" wood fiber asphalt - impregnated expansion board.

2H14.2.4 Paving Cap Seal:
Paving cap seal shall be Greenstreak #610 or approved equal stapled or nailed to expansion board.

2H14.2.5 Curing Compound: Resin Base ASTM C309 Type 1, with light red tint of fugitive dye.

2H14.2.6 Mortar Topping:
a. Cement: ASTM C-150, Type I.

b. Water: ASTM C-94. Potable water need not be tested.

c. Sand: ASTM C-33

d. Mix: 1 part cement and 2 parts sand

2H14.3 CONSTRUCTION METHODS:

2H14.3.1 Excavation:
Excavation, preparation of subgrade and backfill shall be in conformance with the section of these specifications entitled "Street Excavation and Backfill", Subsection 2B5.

2H14.3.2 Subgrade:
The subgrade under the curb and gutter shall be lime stabilized and compacted to the density shown on the drawings. When a density is not shown on the drawings, compaction shall be **95% Standard Proctor Density** (ASTM D698).

2H14.3.3 Forms:
The forms shall be straight, durable and have a depth equal to the required concrete depth. The forms shall be securely staked to line and grade in such a manner that there shall be no movement when the concrete is placed. The subgrade shall be free of loose material and wet down before placing concrete. Concrete shall not be placed until forms have been approved by the Engineer.

2H14.3.4 Reinforcing Steel:
Reinforcing steel, expansion joints with dowels and transverse marking shall be located and accomplished in accordance with the drawings.

2H14.3.5 Concrete Placement:
The concrete shall be placed in such a manner so that segregation does not occur. The concrete shall be thoroughly tamped with a "jitter- bug" or other approved tool.

2H14.3.6 Shaping: The curb and gutter shall be shaped using a "mule" approved by the Engineer.

2H14.3.7 Mortar Topping:
The mortar topping shall be placed no longer than one hour after the initial set of the concrete. The mortar topping shall be smoothed with an approved "mule", all joints and edges shall be tooled, then the topping shall be lightly broomed with a hair broom.

2H14.3.8 Curing:
Immediately after the brooming has been completed, curing compound shall be evenly applied. The quantity applied shall be as directed by the Engineer.

2H14.3.9 Removal of Forms:
Back forms and lip forms shall be left in place for at least 24 hours. All honey comb shall be plastered before backfilling is accomplished.

2H14.3.10 Backfilling:
The concrete curb and gutter shall be carefully backfilled with material taken from the excavation. Backfill shall be placed and completed against the back of the curb and gutter before placing material for pavement section (concrete or caliche) between curbs and gutters. All excess material shall be hauled off the site by the Contactor. The area adjacent to the curb and gutter shall be uniformly graded so as to provide positive drainage towards the street.

DIVISION 2 - SITE WORK

SECTION 2H - ROADS AND WALKS

2H16[1] CONCRETE SIDEWALK AND CONCRETE DRIVEWAYS

2H16.1 SCOPE:
This specification shall govern for all work necessary to provide the concrete sidewalk and/or concrete driveways 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.

2H16.2 MATERIALS:

2H16.2.1 Steel Reinforcing And Dowel Bars: Billet Steel, ASTM A615 Grade 60.

a. Steel reinforcing:
Provide 4" x 4" - W2.9 x W2.9 welded wire fabric or as shown on drawings.

b. Dowels:
Provide 1/2" diameter smooth bars as follows:

Width of Walk	No. of Dowels per Joint
2 ft.	2
3 ft.	2
4 ft.	3
5 ft.	4
6 ft.	5

Width of Drive	No. of Dowels per Joint
8 ft.	6
10 ft.	7
12 ft.	8
16 ft.	11
18 ft.	12
20 ft.	13
24 ft.	16

2H16.2.2 Concrete:
Concrete shall be Class A, 3000 PSI @ 28 days as specified in Subsection 3C1 "Normal Weight Aggregate Concrete".

2H16.2.3 Expansion Joint Material:
Expansion joint material shall be 3/4" wood fiber asphalt - impregnated expansion board.

2H16.2.4 Paving Cap Seal:
Paving cap seal shall be Greenstreak #610 or approved equal stapled or nailed to expansion board.

2H16.2.5 Curing Compound: Resin base ASTM C309 Type I, with light red tint of fugitive dye.

2H16.3 CONSTRUCTION METHODS:

2H16.3.1 Excavation:

Excavation shall include all classes of material, including old concrete.

2H16.3.2 Subgrade:

Subgrade under the sidewalk and/or driveway shall be thoroughly compacted and shall be true to line and grade. The subgrade shall be free from soft spots and loose material. Compaction under concrete driveways shall be **95%** Standard Proctor Density (ASTM D-698) unless shown otherwise on the drawings.

2H16.3.3 Forms:

Forms shall be straight, durable and have a depth equal to the required concrete depth (Commercial size lumber may be used provided full depth of concrete is obtained). The forms shall be securely staked to line and grade in such a manner that there shall be no movement when the concrete is placed. The subgrade shall be wet down before placing concrete. The forms shall be cleaned and oiled before placing concrete. Concrete shall not be placed until forms have been approved by the Engineer.

2H16.3.4 Reinforcing Steel:

Wire mesh shall be supported to insure that it is covered with a minimum of 1-1/2" of concrete.

2H16.3.5 Expansion Joints and Transverse Markings:

Expansion joints and transverse markings shall be square with the sidewalk and/or concrete driveway. Expansion joints with dowels and transverse marking shall be located and accomplished in accordance with the drawings. When not shown on the drawings, provide doweled expansion joints at changes of direction and at maximum 40 feet spacing and provide transverse markings (1/8 inch wide and 1/2 inch minimum depth) at maximum 10 feet spacing.

2H16.3.6 Concrete Placement:

The concrete shall be placed in such a manner so that segregation does not occur. The concrete shall be thoroughly tamped with a "jitterbug" or other approved tool.

2H16.3.7 Jointing and Tooling:

All joints and edges shall be tooled and the finished surface shall be lightly broomed (with a hair broom) to provide a non-skid surface. When directed by the Engineer, the Contractor shall apply an approved sand-cement mixture to the surface just before the final floating and troweling.

2H16.3.8 Curing:

Immediately after the brooming has been completed, curing compound shall be evenly applied. The quantity applied shall be as directed by the Engineer.

2H16.3.9 Removing Forms:

Forms shall be carefully removed so that the sidewalk and/or concrete driveway is not damaged. All "honeycomb" shall be plastered before backfilling is accomplished.

2H16.3.10 Joining New and Old Concrete:
When joining new and old concrete, the old concrete shall be cut with a concrete saw for a depth of 1/2", then the remaining depth shall be neatly broke using an approved method, then the exposed edges shall be thoroughly cleaned and then painted with an epoxy bonding agent before placing the new concrete. The epoxy bonding agent shall be applied in strict conformance with manufacturer's recommendations. When expansion joints are provided utilize 3/4" wood fiber expansion board and Greenstreak #628 paving cap seal at interface with existing and new concrete.

2H16.3.11 Backfilling:
The concrete sidewalk and/or driveway shall be carefully backfilled with material taken from the excavation. The Contractor shall neatly spread all excess material as directed by the Engineer. The area adjacent to the sidewalk and/or driveway shall be uniformly graded so as to provide positive drainage towards the street.

DIVISION 2 - SITE WORK

SECTION 2H - ROADS AND WALKS

2H22[1] PAVEMENT MARKING (Reflectorized Paint)

2H22.1 SCOPE:
This specification shall govern for all work necessary to provide all Pavement Marking 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.

2H22.2 INTENT:
It is the intent of this specification that all pavement marking comply with the applicable portions of Item 670 "Pavement Marking" of the Standard Specifications for Construction of Highways, Streets and Bridges, 1982 Edition; of the Texas Department of Highways and Public Transportation for the selected material and all work be in accordance with the current edition of the Texas MUTCD.

2H22.3 LAYOUT:
The Contractor shall layout all work from the base line furnished by the Engineer. The base line will be the center of the pavement and will be marked at 200' intervals.

2H22.4 MATERIAL:
2H22.4.1 Paint: Paint shall meet the requirements of Federal Specification TT-P-115 (Chlorinated Rubber).

2H22.4.2 Reflective Media:
Glass spheres shall meet the requirements of Federal Specification TT-B-1325, (To meet Texas Department of Highways Requirements).

2H22.5 EQUIPMENT:
Striping equipment shall be equipped with an automatic cut off device (with manual operating capabilities) to provide clean, square marking ends. Equipment shall be equipped with a bead dispenser, one for each spray gun, placed on the equipment so that beads are applied to the paint almost instantly as the marking is being placed on the roadway surface. The bead dispensers shall be designed and aligned so the beads are applied uniformly to the entire surface of the marking. The bead dispenser shall be equipped with automatic cut-off controls, synchronized with the cut-off of the marking equipment.

2H22.6 CONSTRUCTION METHODS:
2H22.6.1 General:
The Contractor shall use a crew experienced in the work of installing pavement marking and in the necessary traffic control for such operations on roadway surfaces and shall supply all the equipment, personnel, traffic control, and material necessary for the placement of all pavement marking.

2H22.6.2 Application Rates:
a. Paint: 105 gal./sq. ft. (plus or minus 5 gal.) to provide a wet film thickness of 16 to 20 mils.

b. Beads: 6 to 8 lbs./gal. (6 lbs./gal. minimum)

2H22.6.3 Dimensions and Tolerances:
a. General:
All lines shall have clean edges and have a uniform cross-section. Deviation from the alignment established by the base line shall not exceed Two inches, and said deviation shall not exceed one inch per 200 feet of roadway nor shall any deviation be abrupt.

b. Width: All striping shall be 4" wide (plus or minus 1/8")

c. Broken Lines:
   (1) Stripe Length: 10' (Minimum 10' & Maximum of 10.5')
   (2) Gap Length: 30'
   (3) Tolerance: The total length of the stripe-gap cycle shall be not less than 39.5' nor longer than 40.5' in variance from one cycle to the next, nor shall the average total length for a road mile of broken line exceed 40.5' or be less than 39.5' .

d. Excess Variation:
   Paint markings on the roadway that are not in alignment or otherwise unacceptable shall be totally and completely removed by the Contractor by any effective method approved by the Engineer, except that grinding will not be permitted under any circumstances.

2H22.6.4 Preparation of Surface:
The surface to receive the pavement marking shall be thoroughly cleaned of dirt, dust, or other deleterious materials that will prevent adhesion of the paint to the roadway by sweeping or other approved methods.

2H22.6.5 Temperature:
Pavement marking material shall not be applied when the roadway temperature is less than 60°F. or more than 120°F. or when general weather conditions, in the opinion of the Engineer, are not suitable.

2H22.6.6 Pilot Marking:
Materials used for pilot markings and equipment used to place such markings are subject to approval by the Engineer.

2H22.6.7 Protection of Markings:
The Contractor shall protect the freshly applied pavement markings from traffic until they have dried sufficiently so as not to be damaged or tracked by normal traffic movement.

APPENDIX A:

GENERAL PERMIT APPLICATION TO BE FILLED OUT BY CONTRACTOR.

CITY OF PORT ARANSAS
710 W. AVENUE A
PORT ARANSAS, TEXAS 78373
361-749-4111
www.cityofportaransas.org

GENERAL PERMIT APPLICATION
(Remodels-Repairs-Roof-Etc.)

Please Print or Type

PROPERTY INFORMATION **DATE OF APPLICATION:** _____

_____ Business / Property Owner's Name

_____ Address of Project

Port Aransas, TX 78373 City, State, ZIP

$_____ **Value of Work (Labor & materials)**

**** Any exterior alteration may require a WPI-1 or letter (from engineer) WITH application submission. A WPI-2 or WPI-8(C) will be required before the permit will final out (C of C). ****

Describe ALL proposed work in detail: _____

_____

_____

_____

_____

_____

CONTRACTOR(S) - INFORMATION

_____ General - Business/Company Name _____ Telephone

_____ Electrician – Business/Company Name _____ Telephone

_____ Plumber – Business/Company Name _____ Telephone

_____ Mechanical – Business/Company Name _____ Telephone

************************** **OFFICE USE ONLY** **************************

Planning: Zoning/Setback: _____ **Dune Permit Needed: Yes** ☐ **No** ☐ ☐ **Approved Date:** _____

Comments: _____

Building Official: _____ ☐ **Approved Date:** _____ ☐ **Items Required Date:** _____

☐ **No Permit Required Date:** _____

Comments: _____

_____

_____

_____

APPENDIX B:

CITY OF PORT ARANSAS GAS DEPARTMENT

INSTALLATION SPECIFICATIONS

CITY OF PORT ARANSAS
GAS DEPARTMENT

INSTALLATION SPECIFICATIONS

NATURAL GAS DISTRIBUTION SYSTEM

REVISION#20200623

These written specifications are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures.

COPA GAS
SPECIFICATIONS FOR THE CITY OF PORT ARANSAS NATURAL GAS DISTRIBUTION SYSTEM

1 GENERAL TERMS AND CONDITIONS 1

1.1 Purpose 1

1.2 Scope.....1

1.3 Engineered and Approved Plans.....2

1.4 Qualification of Natural Gas Distribution System Contractors 2

1.5 Reference Standards 2

1.6 Licenses and Permits 2

1.7 Inspections.....3

2 POLYETHYLENE PIPE AND FITTING MANUFACTURER ASSURANCE.....4

2.1 Polyethylene Manufacturer Quality Control 4

2.2 Qualification of Polyethylene Manufacturers.....4

2.3 Polyethylene Compliance Tests 4

2.4 Interchangeability of Pipe and Fittings ...5

2.5 Approved Manufacturers for Pipe, Fittings, Materials, and Equipment.....5

3 EQUIPMENT 7

3.1 General 7

3.2 Trailers 7

3.3 Forklifts 7

3.4 Butt-Fusion Equipment.....7

3.5 Electro-Fusion Equipment 7

3.6 Pyrometer.....7

3.7 Generator 7

3.8 Combustible Gas Indicator.....8

3.9 Fire Extinguisher 8

3.10 Voltmeter and Half Cell.....8

3.11 Cadweld Equipment.....8

4 MATERIALS 9

4.1 General 9

4.2 Storage 9

4.3 Trench Excavation, Bedding, and Backfill9

4.4 Polyethylene Pipe 9

4.5 Butt-Fusion Polyethylene Fittings 10

4.6 Electro-Fusion Polyethylene Tap Tees, Couplings, and Fittings 10

4.7 Excess Flow Valves 11

4.8 Polyethylene Ball Valves 11

4.9 Valve Boxes, Supports, and Lids..... 11

4.10 Tracer Wire 12

4.11 Wire Connectors and Junction Boxes (Lugs) 12

4.12 Electrical Grounding Rods and Clamps . 12

4.13 Transition Fittings 12

4.14 Anodeless Service Supply Risers 12

4.15 Brass Meter Ball Valves..... 13

4.16 Meters and Regulators 13

4.17 Pipe Wrap Tape 14

4.18 Steel Pipe 14

4.19 Steel Flanges 14

4.20 Steel Ball Valves 14

4.21 Pipeline Encasements.....15

4.22 Corrosion Protection Coating 16

4.23 Atmospheric Corrosion Protection Coating.....16

4.24 Sacrificial Anodes 16

4.25 Meter Assemblies: Pipe Nipples and Fittings 16

4.26 PVC Solvent Cement.....17

4.27 PVC Cleaner.....17

4.28 Pipe Thread Compound.....17

4.29 Thread Seal Tape.....17

5 JOINING.....18

5.1 Heat Fusion 18

5.2 Steel Joining (Welding).....18

5.3 Steel Joining (Threads) 19

5.4 Plastic Adhesive Joining.....19

5.5 Joining by Other Means.....19

6 INSTALLATION.....20

6.1 Trench Excavation, Trench Bedding, Burial Depth, Underground Clearance, and Backfill.....20

6.2 Gas Pipe, Valves, Fittings Inspection and Installation..... 22

6.3 Cathodic Protection (CP) 29

6.4 Gas Main Dehydration 29

7 CUSTOMER OWNED NATURAL GAS PIPING AND FITTINGS 31

7.1 Description 31

7.2 Existing Gas Plumbing 31

7.3 Coordination with Gas Customers..... 31

7.4 Cooperation with the City of Port Aransas Building Department 32

7.5 Attributable Delays due to Obstructions or Incomplete Work..... 32

8 TESTING 33

8.1 Trial Fusions 33

8.2 Leak Testing 33

8.3 Pipe Testing 33

8.4 Testing Tracer Wire 34

8.5 Purging 34

9 ABANDONMENT OR DEACTIVATION 36

9.1 General 36

9.2 Removal..... 36

9.3 Recovered Materials 36

9.4 Reuse of Abandoned Pipe, Valves, and Fittings 36

9.5 Customer Owned Materials Removed . 36

10 DOCUMENTATION.....37

10.1 Pipe Record Reports.....37

10.2 Pipeline Test Record Reports.....37

10.3 Abandonment / Deactivation records ..38

10.4 Fusion Data Logging 38

10.5 Purge Record.....38

COPA GAS
SPECIFICATION FOR THE CITY OF PORT ARANSAS NATURAL GAS DISTRIBUTION SYSTEM

1 GENERAL TERMS AND CONDITIONS

1.1 Purpose

These written specifications are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures.

The Transportation of Natural Gas and Other Gas by Pipeline: Department of Transportation (DOT) regulations in Title 49 Code of Federal Regulation (CFR) Part 192 specifies the Minimum Federal Safety Standards for any proposed natural gas facility designed, constructed, tested, and operated. In addition to the minimum design standards in Title 49 CFR Part 192, it includes specifications for; design requirements, pipeline material qualifications, personnel qualifications, and internal, external, and atmospheric corrosion requirements.

The Texas Administrative Code (TAC) Title 43 Part 1, §21.40 Underground Utilities – specify the minimum requirements for any proposed natural gas facility installed in a Texas State Right of Way.

It shall be the responsibility of the Contractor and its agents to become familiarized with all reference standards, regulations, requirements, and codes, including the plans and specifications.

1.2 Scope

The Contractor and its agents shall furnish all materials, equipment, qualified labor, and documentation required to successfully complete the project, unless otherwise specified in these specifications.

This specification establishes the limits of applicability and describe how it will be applied and enforced. Additionally, it describes the minimum requirements for:

- *polyethylene gas pipe*
- *gas fittings*
- *gas valves and extension boxes*
- *excess flow valves*
- *tracer wire*
- *wire connectors*
- *service risers*
- *meter assembly pipe nipples and fittings*
- *trench and fill*
- *minimum Contractor qualifications*
- *equipment*
- *compliance testing*
- *modification of existing natural gas yard lines to accommodate relocation of gas meters*
- *other related equipment, materials, and fittings*
- *documentation*

All installation of the City of Port Aransas Natural Gas Distribution System by the Contractor and its agents shall be performed in accordance with all reference standards in these specifications, while meeting or exceeding the minimum standards of Title 49

CFR §192, §199, §40, and 43 TAC §21.40.

1.2.1 Customer Owned Piping

All installation of Private systems (Customer owned piping) by the Contractor or its agents shall meet or exceed the minimum relevant requirements of:

- NFPA 54/ANSI Z223.1 or NFPA 58
- ASME B31.8 or the latest Edition of the International Fuel Gas Code
- the Local Municipal Code

1.3 Engineered and Approved Plans

All natural gas distribution system piping construction shall be performed in accordance with engineered construction plans for the work prepared under the direction of the City of Port Aransas Gas Department Director and Professional Engineer.

Construction Plans shall conform to the applicable requirements of the City of Port Aransas Gas Department, these specifications, and the U.S. Department of Transportation Pipeline Safety Regulations; Title 49, Code of Federal Regulation §192, §199, §40 and 43 TAC §21.40.

1.4 Qualification of Natural Gas Distribution System Contractors

Contractor and its agents performing work on the City of Port Aransas natural gas distribution system shall have a drug testing program in place for all covered employees as defined in the *Pipeline Safety Regulations, Code of Federal Regulation Title 49 Part 199 "Drug Testing Pipeline Safety" And Part 40 "Procedures for Transporting Workplace Drug Testing Programs."* A total number of the Contractor's and its agents covered employees shall be submitted to the City of Port Aransas Gas Department that meet the criteria as defined in Title 49 CFR Part 199.3 and will be subject to verification of all pre-employment drug testing, random drug testing, and post-accident drug/alcohol testing that is performed during any given calendar year. In addition, the Contractor and its agents shall submit a Business Tax Identification Number (BTIN) to the City of Port Aransas Gas Department prior to commencement of the project.

1.5 Reference Standards

Where all or part of any Federal, ASTM, ANSI, NFPA, etc…; standard specification is incorporated, the reference standard shall be the latest edition and revision.

1.6 Licenses and Permits

A licensed and bonded Contractor shall perform all underground natural gas distribution system piping construction work.

The Contractor shall secure all necessary permits unless otherwise specified under contract before commencing construction.

The Contractor and its agents Covered Employees shall have all Licenses and Qualification credentials on site and readily available during all construction phases.

1.7 Inspections

The City of Port Aransas Gas Department shall reserve the right to inspect each order upon delivery and, at the option of the City of Port Aransas, reject any items not meeting the criteria of this specification. All work shall be inspected by an Authorized Representative from the City of Port Aransas Gas Department and will have the authority to halt construction if, in his/her opinion, the specification or standard construction practices are not being followed.

Whenever any portion of the specification is violated, the Project Engineer or the Gas Utility Director shall by written notice, order further construction to cease until all deficiencies are corrected.

If the deficiencies are not corrected, performance will be required of the Contractor's surety. A copy of the order shall be filed with the Contractor's license application for future review.

2 POLYETHYLENE PIPE AND FITTING MANUFACTURER ASSURANCE

2.1 Polyethylene Manufacturer Quality Control

The polyethylene pipe and fitting manufacturer shall have an established quality control program responsible for inspecting incoming and outgoing materials.

Incoming polyethylene materials shall be inspected for density, melt flow rate, UV protection, and contamination. The supplier shall certify the cell classification properties of incoming material. Incoming materials shall be approved by quality control before processing into finished goods.

Outgoing materials shall be checked for diameter, wall thickness, roundness, concentricity, toe-in, inside and outside surface finish, marking, and end cut. Quality control shall verify production checks, and test for density, melt flow rate, hoop tensile strength, and ductility. X-ray inspection procedures shall be used to inspect molded fittings for voids, and knit line strength shall be tested.

All fabricated fittings shall be inspected for joint quality and alignment. Representative tests to verify long-term performance shall include slow crack growth, pipe inside surface ductility, and ambient and elevated temperature sustained pressure testing.

The Manufacturer shall maintain records of manufacturing location, pipe production, and resin lots for at least 50 years.

2.2 Qualification of Polyethylene Manufacturers

The Manufacturer shall have manufacturing and quality control facilities that are capable of producing and assuring the quality of the pipe and/or fittings required by these Specifications.

The pipe and fitting manufacturer shall be ISO Certified in accordance with the current edition of ISO 9001 and a documented quality management system that defines product specifications and manufacturing and quality assurance procedures that assure conformance with customer and applicable regulatory requirements.

Upon request, the manufacturer shall provide a current Certificate of Compliance form and independent ISO 9000 Registrar.

2.3 Polyethylene Compliance Tests

The Manufacturer shall certify the inspection and testing of the materials and products. In case of conflict with the Manufacturers' certifications, the Contractor, Project Engineer, or the City of Port Aransas Gas Department may request retesting by the Manufacturer or have retests performed by an outside testing service.

All retesting shall be at the requestor's expense, and shall be performed in accordance with the Specification herein.

2.4 Interchangeability of Pipe and Fittings

Pipe and Fittings from different Manufacturers, different Material Designation Code, Pipe Category, or different SDR ***shall not*** be interchanged without prior authorization from the City of Port Aransas Gas Department.

Shop fabricated pipe fittings ***shall not*** be used without prior authorization from the City of Port Aransas Gas Department.

Side-fusion and Socket-fusion polyethylene pipe fittings ***shall not*** be used without prior authorization from the City of Port Aransas Gas Department.

All polyethylene Tap Tee's on the Natural Gas Distribution System shall be bonded to the main using only an Electro-Fusion method. Other methods ***shall not*** be used without prior authorization from the City of Port Aransas Gas Department.

2.5 Approved Manufacturers for Pipe, Fittings, Materials, and Equipment

Manufacturers that are qualified and/or approved by the City of Port Aransas Gas Department are listed below.

- *Performance Pipe – Plastic Pipe Manufacturer*
- *Kerotest – Plastic Fitting and Equipment Manufacturer*
- *Ballomax – Polyethylene and Steel Ball Valves*
- *Jomar Valves – Lockwing Brass Meter ball valves*
- *RuB, Inc. – Lockwing Brass Meter ball valves*
- *UMAC, Inc. – GasBreaker Excess Flow Valves*
- *King Innovation – Dryconn Waterproof Wire Connectors and Lugs*
- *Handley Industries, Inc. – Valve extension boxes, lids, and supports*
- *Central Plastics Company – E.F. & B.F. Plastic Fittings, Gas Meter Fittings, and Equipment Manufacturer*
- *Itron – Commercial & Residential Gas Meters*
- *BelGas – Farm-Tap Field, Commercial, & Residential Gas Regulators*
- *Baker Hughes – Mooney Regulator Pressure Reducing Stations*
-
- *McElroy – Fusion Equipment*
- *MTD Trifusion – Fusion Equipment and Electro-fusion Fittings*
- *PLCS, Inc. – Coil Pipe Trailers*
- *SMP – Coil Pipe Trailers*
- *Reed – Tools*
- *Mustang Manufacturing, Inc. – Squeeze Tools*
- *Footage Tools – Tools and Pulling Heads*
- *Heath Consultants – Gas Detectors and Data Recorders*
- *Wika – Pressure Gauges*
- *3M – FBE Coatings, Splicing Products, and Pipe Wrap*
- *William H. Harvey Company – Pipe Wrap, Pipe Thread Compound, and Thread Seal Tape*
- *Rectorseal – PVC Solvent Cement and PVC Pipe Cleaner*

- *Canusa-CPS – Wrapid Sleeve™ One-piece wraparound sleeve*
- *Denso North America – Pipe Wrap Primer Corrosion Protection and Sealing Technology*
- *Maloney Technical Products – Pipeline Markers, Casing Insulators, and End Seals*
- *Expansion Seal Technologies – PE and Steel Pipe Test Plugs*
- *RUST-OLEUM Corporations – 7400 System Alkyd Enamel Gray Coatings.*
- *Mesa Products Inc. – Galvanic Anodes (Aluminum, Magnesium, and Zinc)*
- *ThermOweld – Cadweld Equipment and Supplies*
- *M.C. Miller Company – Cathodic Protection Equipment*
- *Galvan Electrical – Ground Rods, Ground Rod Clamps, and Accessories*

3 EQUIPMENT

3.1 General

The Contractor and its agents shall have all equipment necessary to install the pipe and appurtenances referred to in the Plans and Specifications.

All Contractor equipment to be used on site shall be certified by the City of Port Aransas Gas Department to be in good working condition, meet the minimum standard manufacture specifications, and suitable for the intended purpose prior to beginning each day. Additionally, equipment shall be properly maintained during project installation. Any equipment without prior certification shall be removed from the construction site.

The City of Port Aransas Gas Department will inspect the following items and reject any that are not in compliance. The City of Port Aransas Gas Department shall have the right to reject any or all equipment judged inadequate.

3.2 Trailers

The Contractor shall have trailers capable of transporting Polyethylene pipe spools and straight lengths without damaging the pipe.

3.3 Forklifts

The Contractor shall have padding for each forklift, wide non-abrasive slings, padded clamps or padded pipe hooks. Pipe must be secured so that it cannot fall while being handled. Conventional chains, chain hooks and non-padded forklifts are expressly forbidden.

3.4 Butt-Fusion Equipment

The Contractor shall have in good working condition a Butt Fusion machine and all the required accessories capable of fusing 1” IPS – 8” IPS polyethylene pipe and have the ability to record the data for each fusion.

3.5 Electro-Fusion Equipment

The Contractor shall have in good working condition a Universal Electro-Fusion Processor that shall monitor ambient conditions and fitting output with all the required accessories capable of electro-fusing 1” IPS – 8” IPS Fittings and Data Recording each fusion.

3.6 Pyrometer

The Contractor shall have in good working condition a calibrated Pyrometer or Infrared Pyrometer, to an accuracy of 0.5% (±3°F) that has the ability to measure temperatures from 0°F – 500°F.

3.7 Generator

The Contractor shall have in good working condition, a Portable Electric Generator capable of meeting or exceeding the power supply of the

equipment needed for the planned installation.

3.8 Combustible Gas Indicator

The Contractor shall have in good working condition a calibrated Combustible Gas Indicator (CGI) that is certified UL Class 1 Groups A, B, C, and D; and NFPA 54 Compliant. In addition, it shall be capable of detecting natural gas in air at one thousand parts per million (1000 ppm) or equivalent 0.1% Volume of Gas and Recording Data.

3.9 Fire Extinguisher

The Contractor shall have in good condition, a Portable 20LB ABC Fire Extinguisher; certified ANSI/UL 711 and inspected in accordance with NFPA 10.

3.10 Voltmeter and Half Cell

The Contractor shall have in good working condition a Voltmeter with Test Leads capable of recording data and a copper-copper sulfate half-cell.

3.11 Cadweld Equipment

The Contractor shall have in good working condition Cadweld-Equipment.

4 MATERIALS

4.1 General

All gas pipe, materials, and fittings shall be new and meet or exceed the minimum requirements of all Federal, State, Local, ASTM, ANSI, NFPA, etc…, as incorporated by reference standard specifications and shall be the latest edition and/or revision.

Unless otherwise indicated on Design Plan Specifications, plastic gas pipe, along with plastic valves and fittings shall be polyethylene PE2708 material, and steel gas pipe shall be API-5L Grade B seamless construction, coated thickness of 40MIL (FBE) Fusion Bonded Epoxy.

4.2 Storage

All pipe and fittings shall be stored off the ground on wooden pallets or non-abrasive skids. The Contractor will be responsible for all dents, gouges, coating defects, and/or dimensional variations.

4.3 Trench Excavation, Bedding, and Backfill

Trench excavation, bedding, and backfill material shall be in accordance with ASTM D2488 Visual-Manual Procedures and the Unified Soil Classification System (USCS).

Native material (Sand) shall be acceptable for excavation backfill and bedding with the exception that the material is free from all ledge rock, blacktop, sea shell, boulders, cement, large stones, organic matter, rubbish, and other equivalent debris that could damage the integrity of the pipe and/or pipe coating.

4.4 Polyethylene Pipe

Unless otherwise specified in this document "Specification for The City of Port Aransas Natural Gas Distribution System" or other approved engineering plans; ***medium density*** materials used for the manufacture of polyethylene pipe, casing, and fittings shall be YELLOW IPS PE2708/PE2406 meeting cell classification 234373E per ASTM D3350; and shall be Listed in Plastics Pipe Institute (PPI)-Technical Report (TR)-4 with standard grade Hydrostatic Design Basis (HDB) ratings of 1250 psi at 73°F. ***High density*** materials used for the manufacture of polyethylene pipe, casing, and fittings shall be YELLOW or YELLOW STRIP IPS PE3608/PE4710 meeting cell classification 445574C or 445574C per ASTM D3350; and shall be listed in PPI-TR-4 with standard grade HDB ratings of 1600 psi at 73°F.

All polyethylene pipe, casing, and fitting materials shall be yellow in color or clearly identified as ***"FOR GAS USE."*** Materials shall be stabilized against ultraviolet deterioration and shall be suitable for unprotected outdoor storage for at least four (4) years.

All Polyethylene Pipe shall be IPS PE 2406 MDPE, IPS PE 2708 MDPE, IPS PE 3608 HDPE, or IPS PE 4710 HDPE, have a minimum standard dimension ratio (SDR) of 11, and shall be manufactured and tested in accordance with the latest published edition of ASTM D 2513. SDR 21, 17, 13.5, nor 11.5 ***shall not*** be used without prior authorization from the City of Port Aransas Gas Department.

Polyethylene pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, blisters, dents, sand, dirt, mud, liquids, pipe shavings, and other injurious defects. One inch (1") IPS and two inch (2") IPS pipe shall be in coils. The coils shall be in either 500 foot or 1000 foot lengths and shall consist of a single contiguous pipe. All sizes larger than two inch (2") in diameter shall be IPS pipe and shall be in 40 foot or longer straight lengths. Straight lengths shall consist of a single length of pipe without couplings or any intermediate joints. All polyethylene pipe markings shall be legible and so applied as to remain legible under normal handling and installation practices. These markings shall consist of the word ***"GAS," the designation code, the manufacture's name or trademark, the IPS size, SDR number, the pipe test category (method & value), the month and year manufactured, and identification of resin supplier.***

All Polyethylene Pipe shall be installed per manufacture and plan specifications.

4.5 Butt-Fusion Polyethylene Fittings

Polyethylene heat fusion fittings shall be manufactured and tested by the manufacturer in accordance with the latest published edition of ASTM D 2513 and ASTM D 3261, and the DOT requirements in Title 49 CFR Subpart C – Pipe Design §192.121 thru §192.123.

All polyethylene fittings shall match the same IPS, Material Designation Code, Pipe Category, and SDR as the pipe except when pre-authorized through Plan Specifications or the City of Port Aransas Gas Department.

All polyethylene fittings shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, blisters, dents, sand, dirt, mud, liquids, pipe shavings, and other injurious defects.

4.6 Electro-Fusion Polyethylene Tap Tees, Couplings, and Fittings

Electro-fusion polyethylene fittings shall conform to the latest edition of ASTM F1055 and be manufactured in accordance with the latest edition of ASTM D2513.

All Electro-fusion polyethylene fittings shall be IPS and be used at every tap tee outlet to connect gas service lines,

installed per manufacture and plan specifications.

4.7 Excess Flow Valves

Excess Flow Valves (EFV) shall comply with Title 49 CFR Part 192.381, ASTM F2138, and the Manufacturers Standardization Society (MSS) SP 115. In addition, EFV's shall be factory tested in accordance with ASTM F1802 to assure it performs within the designated trip flow and bypass flow ranges.

Each EFV shall be fixed or anchored to the interior of the fitting to preclude movement of the valve and shall be installed per manufacture and plan specifications.

4.8 Polyethylene Ball Valves

Polyethylene ball valves shall meet or exceed the requirements of Title 49 CFR Part 192.145, ANSI/AMSE B16.40, ASTM D 2513, and ISO 9002 approved. In addition, all polyethylene ball valves shall be Full-Port and supplied with the Butt End outlets that match the pipe SDR, have a full open IPS bore, have a fused body shell or one piece molded, and ***shall not*** have metal parts. The construction materials for each Polyethylene Ball Valve shall be installed per manufacture and plan specifications and conform to the following:

- *Body: Polyethylene*
- *Ball: Polypropylene*
- *Stem: Acetal*
- *Wrench Adapter: Polypropylene*
- *Ground Water Seal: Neoprene*

4.9 Valve Boxes, Supports, and Lids

Handley Valve Boxes and Supports for Polyethylene Ball Valves – Extension Valve Boxes and Supports used on the City of Port Aransas Natural Gas System shall seal tight and comply with Title 49 CFR §192.179, §192.181, §192.193, and §192.365, or equal and pre-approved, and shall be installed per manufacture and plan specifications.

All Polyethylene Valves installed shall be accompanied by a seal tight valve extension box made of a non-corrosive material and a magnetically locatable lid marked ***"GAS"*** yellow in color.

Each polyethylene extension valve box used for two inch (2") thru four inch (4") polyethylene valves shall be heavy duty, installed per manufacture and plan specifications, and conform to DOT requirement Title 49 CFR Part 192.181(c)(3), and contain the following:

- *Slip-type design to protect from downward pressure (shall not be a twist lock type)*
- *Lock-in vandal resistant pentagon bolt on the lid*
- *Vent hole on the lid*
- *Magnetically locatable lid*
- *Have a two and three-quarter inch (2¾"), four inch (4"), and six inch (6") Pipe knock-out molds or cut-away arches*

- *Have a one and one-half inch (1½") cast iron flange for off-road installations*
- *Have a five inch (5") cast iron heavy-duty flange for in road installations*
- *Full throat/unobstructed six inch (6") inside diameter (ID) upper tube with a twelve inch (12") ID bell*
- *one inch (1") polyethylene valves shall have a full throat/unobstructed four inch (4") ID upper tube with a six inch (6") ID bell*
- *A valve support shall be installed for all one inch (1") thru four inch (4") polyethylene valves.*

4.10 Tracer Wire

Tracer wire shall be a #12 AWG HS-CCS high-strength copper clad steel conductor (HS-CCS); insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts. HS-CCS conductor must be a 21% conductivity for locating purposes; Break load 600# minimum. HDPE insulation shall be RoHS compliant and utilize virgin grade material.

Insulation color shall meet the APWA color code standard "Yellow" for identification of buried gas utility. Tracer wire shall be Copperhead™ HS-CCS, HDPE 30 mil insulation made in the USA or equal and pre-approved, and shall be installed per manufacture and plan specifications.

4.11 Wire Connectors and Junction Boxes (Lugs)

King-Innovation® DryConn Gas Utility Wire Connectors and Lugs – Wire Connectors and Lugs used on the City of Port Aransas Natural Gas System shall be pre-filled with dielectric sealant that will never harden and shall be; UL 486-D Listed as a sealed wire connector for use in damp, wet, raintight, and direct bury or equal and pre-approved, and shall be installed per manufacture and plan specifications.

4.12 Electrical Grounding Rods and Clamps

5/8" Copper Clad Ground Rods and Heavy-Duty Bronze Alloy Ground Clamps (Hex-Head) #12 Solid UL listed approved for direct burial or equal and pre-approved shall be used on the City of Port Aransas Natural Gas System, installed per plan specifications.

4.13 Transition Fittings

All Transition Fittings shall meet or exceed the requirements of ASTM D2513 category 1, ASTM F1973, ANSI B 1.20, ANSI B 31.8 and Title 49 CFR Part 192. All transition fitting's shall be installed per manufacture and plan specifications.

4.14 Anodeless Service Supply Risers

Pre-bent fabricated anodeless service risers shall meet or exceed the requirements of ASTM D2513, ASTM F 1973, ANSI B 1.20, ANSI B 31.8, DOT Title 49 CFR Part 192.281, and NFPA-58.

All anodeless risers shall be fabricated from casing materials that meet or exceed ASTM A513 and ASTM A53 schedule 40, type F steel pipe. The casing shall also conform to the following requirements:

- *Gray, fusion bonded, epoxy coated (8 mil minimum thickness)*
- *Sixty inches (60") long*
- *MIPT outlet*
- *Crimp gasket moisture seal*

Additionally, the casing pipe shall be bent to a ten inch (10") minimum radius resulting in a thirty inch (30") horizontal by thirty inch (30") vertical configuration.

A ten inch (10") long IPS PE pigtail shall extend from the steel pipe casing. All IPS carrier pipes shall be yellow PE2708/PE2406 Polyethylene for 60 psig and lower or yellow/yellow strip PE3608/PE4710 for 60 psig thru 100 psig.

The transition from steel to PE shall occur within five inches (5") of the (outlet) threaded end for one inch (1") risers and six and a-half inches (6½") for two inch (2") risers. Risers shall include insulation between the steel casing and PE carrier pipe by means of an O-ring/air space configuration or by the use of a sleeve made of non-heat conducting materials.

4.15 Brass Meter Ball Valves

Jomar Lockwing Gas Service Ball Valve 175-LWIN – 100% Full Port, 175 psig service designation, maintenance free 1" and 2" Brass meter valves used on the City of Port Aransas Natural Gas System; installed per manufacture and plan specifications.

Meter ball valves shall meet or exceed all applicable parts of DOT Title 49 CFR Part 192 and ANSI B16.33. Meter ball valves shall conform to the following:

- *Threads shall conform to ANSI B1.20.1*
- *Shall be corrosion resistant with T.E.A. Ternary Eco Alloy treatment or applied AGA painted gray finish*
- *Maintenance free*
- *Brass packing gland*
- *304 stainless steel screw*
- *Shall have a tamper resistant bass lockwing cap*
- *Brass body and end connections*
- *Chrome plated brass ball*
- *Brass stem*
- *Rigid EPDM packing*
- *Female x Female threads*
- *100% full port*
- *TFM 1600 seats*
- *Double Viton Stem O-rings*
- *100% leak tested*
- *Design pressure of 175 psig*
- *Design temperature range: -40°F to 366°F*

4.16 Meters and Regulators

The City of Port Aransas Gas Department will supply all Natural Gas Regulators and Meters. The Contractor shall install all Natural Gas Regulators and Meter in accordance to manufacture specifications. The Contractor shall supply all pipe nipples, fittings,

equipment, and materials necessary to install meter assemblies as per plan specifications.

4.17 Pipe Wrap Tape

William H. Harvey Printed, "10mil 3M™" Corrosion Protection Pipe Wrap Tape – Wrap Tape or equal and pre-approved shall be used on the City of Port Aransas Natural Gas System applied per plan specifications.

4.18 Steel Pipe

Steel Pipe Specifications – Seamless Grades B (API 5L X60 PSL2) Plain or beveled end, 12 mil Scotchkote™ 206N Fusion Bonded Epoxy (FBE) Coating and resilient to cathodic protection currents or equal and pre-approved, and shall be installed per plan specifications.

4.19 Steel Flanges

Each Carbon Steel Forged Flanges per ASTM A105, Raised Face, Weld Neck or NPT (female) ASME/ANSI B1.20.1, Class 300, Standard per ASME/ANSI B16.5, procedure for calculating the dimensions for pressure flanges ASME/ANSI B31.8 or equal and pre-approved, and shall be installed per ASTM and AWS Standards for Welding. Studs, nuts and bolts shall be as specified by the flange manufacturer.

4.20 Steel Ball Valves

Fully welded Carbon Steel Ball Valves used on the City of Port Aransas Natural Gas System, above or below ground, shall meet or exceed the minimum requirements of API 6D. The valve manufacture shall be ISO Certified in accordance with the current edition of ISO 9001. Additionally, each carbon steel valve shall conform to the following:

- *¼ turn operations*
- *304 stainless steel ball and stem*
- *Contain 2" square operating nut*
- *A locking plate with stoppers to prevent over turning*
- *25% Carbonized PTFE (Teflon™) Seats rated to -20°F*
- *Zinc coated stem bearings*
- *Contain a Serial Number on the body or plate*
- *Regular Port*
- *Flanged Class 300 ASME/ANSI B16.5 or NPT (female) ASME/ANSI B1.20.1*

Steel Valves shall be Ball Valves and equal to those as manufactured by Broen Ballomax or pre-approved by the Gas Utility Director.

All underground Steel Ball Valves installed shall be accompanied by a seal tight valve extension box made of a non-corrosive material and a magnetically locatable lid marked ***"GAS"*** and yellow in color.

Each extension box used for two inch (2") thru four inch (4") underground steel ball valves shall be heavy duty,

installed per manufacture and plan specifications, and conform to DOT requirement *Title* 49 CFR Part 192.181(c)(3), and contain the following:

- *Slip-type design to protect from downward pressure (shall not be a twist lock type)*
- *Lock-in vandal resistant pentagon bolt on the lid*
- *Vent hole on the lid*
- *Magnetically locatable lid*
- *Have a two and three-quarter inch (2¾"), four inch (4"), and six inch (6") Pipe knock-out molds or cut-away arches*
- *Have a one and a-half inch (1½") cast iron flange for off-road installations*
- *Have a five inch (5") cast iron heavy-duty flange for in road installations*
- *Full throat/unobstructed six inch (6") inside diameter (ID) upper tube with a twelve inch (12") ID bell*

4.21 Pipeline Encasements

Contractor shall install commercial available casing insulators with a minimum of four (4) plastic runners; each runner shall be installed at five feet (5') maximum intervals on the carrier main prior to inserting into the casing. Insulators shall be sized to center the gas main in the casing.

4.21.1 City Right of Ways

Encasements crossing the City right of ways shall be HDPE marked "GAS" and 2 times the diameter of the carrier distribution piping from right-a-way line to right-a-way line when practical or near pipeline lateral: when the planned Maximum Allowable Operating Pressure (MAOP) is 60psig or lower. When the planned maximum allowable operating pressure is greater than 60 psig, casing shall be of welded joints, schedule 40, coated steel, catholically protected, and designed with vents located at both ends that are protected from insects and prevent water from entering the casing, placed near the right of way line immediately above the pipeline.

4.21.2 State Right of Ways

Encasements crossing the Texas State Right of Way shall be of welded joints, schedule 40, and cathodically protected coated steel 2 times the diameter of the carrier piping from right-a-way line to right-a-way line when practical or near pipeline lateral and designed with vents located at both ends that are protected from insects and prevent water from entering the casing, placed near the right of way line immediately above the pipeline.

4.21.3 Water Ways

Each Polyethylene carrier gas main crossing a waterway measuring ten feet (10') to seventy five feet (75') in width from its crests shall be encased in yellow or yellow striped HDPE marked "GAS" and 2 times the diameter of the carrier distribution piping when the planned MAOP is less than 60 psig and shall extend ten feet (10') past the crest of the waterway. When the planned MAOP of the carrier main

is greater than 60 psig, it shall be encased in an all welded joints, schedule 40, coated steel, catholically protected, and designed with a High End vent, located; one foot (1') from the end of the casing. Encasement shall extend twelve feet (12') past the crest of the waterway. Waterway encasement crossings greater than seventy five feet (75') in width from its crests shall comply to "Encasements crossing the Texas State Right of Way."

Each Steel Encasement shall have installed a Cadweld Bonded, Galvanic Cathodic Protection Sacrificial Anode Bed located at the lower end of the casing.

4.22 Corrosion Protection Coating

Steel pipe coating shall be factory applied; one-part, heat curable, thermosetting powdered, 12 mil Scotchkote™ 206N Fusion Bonded Epoxy (FBE) Coating and resilient to cathodic protection currents or equal and pre-approved.

All repairs, Cadweld bonding, and welded joint sections shall be grinded smooth of surface irregularities and weld spatters than Sleeved with the Canusa one-piece Windoweld Wrapid Sleeve™ or equal and pre-approved.

All steel welds on valves and fittings shall be grinded smooth of surface irregularities and weld spatters, coated with one-part, heat curable, thermosetting powdered, 12 mil Scotchkote™ 206N Fusion Bonded Epoxy (FBE) Coating or equal, and pre-approved. Coating shall be field applied to all welded valves and fittings and shall be heated and cured in accordance with the manufacture specifications.

4.23 Atmospheric Corrosion Protection Coating

RUST-OLEUM 7400 SYSTEM Machine Tool Gray Alkyd Enamel Paint – Coating for aboveground apparatuses or equal and pre-approved shall be used on the City of Port Aransas Natural Gas System applied in accordance with manufacture specifications.

4.24 Sacrificial Anodes

Sacrificial Anodes used on the City of Port Aransas Natural Gas System shall comply with ASTM B843, standards for MAG High Potential Anodes.

Magnesium Anodes shall be packed in a permeable cloth bag, have a minimum 15 foot long #12 AWG type Solid Copper Lead Wire Conductor, silver soldered to a perforated galvanized steel strap core. The Contractor shall install in accordance with the manufacture procedures.

4.25 Meter Assemblies: Pipe Nipples and Fittings

The City of Port Aransas Gas Department does not use any particular USA Manufacture for Pipe Nipples and Fittings.

The following specifications or equal and pre-approved shall be used when making a determination for all 1" thru 2" pipe nipples and fittings. Bushing Reducers ***shall not*** be allowed on Natural Gas Systems.

Pipe nipples and fittings shall be manufactured in the USA and shall be installed per manufacture specifications.

- *1" thru 2" Welded Carbon Steel Pipe Nipples ASTM A53, NPT ASME/ANSI B1.20.1, Standard ASTM A733, Class 150, Schedule 40 Hot Dip Galvanized ASTM A153.*
- *1" thru 2" Malleable Iron Pipe Fittings per ASTM A197, NPT ASME B1.20.1, Standard ASME/ANSI B16.3, Class 150, and Type III per ASTM B633 with a trivalent zinc top coat.*
- *1" thru 2" Malleable Iron Unions per ASTM A197, NPT per ASME B1.20.1, Standard per ASME/ANSI B16.39, Class 150, Hot Dipped Galvanized per ASTM A153, brass to iron seat.*

Pipe nipples and fittings for meter assemblies include, but are not limited to the following: Nipples 1" thru 12" in length, Elbows; 90° & 40°, Full/Half Couplings, Square Head Plugs, Hex Head Plugs, Caps, Tees, Reducer Tees, Bell Reducers. Gas meter Connections: 1 ¼" Meter Swivel Sets and 20LT Meter Swivel Sets.

4.26 PVC Solvent Cement

Rectorseal Hot™ 203L PVC Solvent Cement – PVC Solvent Cement used on the City of Port Aransas Natural Gas System shall meet or exceed ASTM D2564, blue in color, fast setting; able to handle 30 psig of gas pressure after 15 minutes, and have the application temperature tolerates of 40°F to 120°F or equal and pre-approved, and shall be applied per manufacture specifications.

4.27 PVC Cleaner

Rectorseal Jim™ PR1L PVC Cleaner – used on the City of Port Aransas Natural Gas System shall meet or exceed ASTM F656, and have the application temperature tolerates of 40°F to 120°F or equal and pre-approved, and shall be applied per manufacture specifications.

4.28 Pipe Thread Compound

Harvey Seal Formula 55 – Pipe thread compound used on the City of Port Aransas Natural Gas System shall meet or exceed the temperature tolerates of -50°F to +400°F and gas pressures to 3000 psi or equal and pre-approved, and shall be applied per manufacture specifications.

4.29 Thread Seal Tape

Harvey Yellow Gas Line PTFE – Thread seal tape used on the City of Port Aransas Natural Gas System shall meet or exceed the temperature tolerates of -450°F to +500°F and gas pressures to 10,000 psi or equal and pre-approved, and shall be applied per manufacture specifications.

5 JOINING

5.1 Heat Fusion

The Contractor shall ensure that all its covered employees making heat fusion joints have been qualified In accordance with Title 49 CFR §192.285. Heat Fusion Joining (Butt-Fusion or Electro-Fusion joints) on polyethylene gas piping shall be in accordance with Title 49, Code of Federal Regulations §192.283.

The Contractor shall maintain records of each qualified covered employee, and shall certify that qualification training was received not more than 12 months before commencing construction.

The City of Port Aransas Gas Inspector must be present during all pipe fusions to insure that all required procedures are adhered to and to witness the quality of each joint.

At the City of Port Aransas Gas Department's discretion, the Contractor will remove fusion(s) and supply it for random testing to insure quality control.

5.2 Steel Joining (Welding)

The City of Port Aransas shall perform all joining of steel pipes and fittings, unless otherwise noted in the Bid Documents. When the Contractor is required to join steel pipe and fittings it shall be done by the shielded metal arc welding process and the following requirements shall apply:

5.2.1 Welding Procedures

All welding, including welder qualification testing, shall be done following City Utilities written welding procedure specification (which complies with API 1104), or Contractor may submit for approval his own written welding procedure and procedure qualification records with his bid documents. The Gas Director shall determine acceptability of submitted procedures based on API 1104 in advance of welder qualification testing. If Contractor has submitted his own procedure, he must have his procedure qualified per API 1104 and all welding shall be done by competent welders who shall have been tested by an AWS certified welding inspector approved by the City of Port Aransas. The welding test shall comply with the requirements of 49 CFR Subpart E and API 1104 and shall be administered by a welding inspector certified by the American Welding Society to have complied with the requirements of Section 6.1 of AWS QC1-88, "Standard for AWS Certification of Welding Inspectors."

5.2.2 The Contractor shall arrange and pay for all welder and procedure qualification testing. This expense is coincident with the installation of steel gas main and shall not be considered grounds for additional charge to the City of Port Aransas. Contractor may choose to use an

AWS inspector or testing company of their choice and submit result documents to the Gas Director for approval.

5.3 Steel Joining (Threads)

Threaded joints shall not exceed the nominal diameter of NPS two inch (2”). The dimensional standards for pipe threads are given in ASME B1.20.1 which includes the number of threads per inch, pitch diameter, and normal engagement lengths for all pipe diameters.

All Threaded fittings shall be of carbon steel coated galvanized and NPT tapered male and female threads shall be sealed with Teflon tape or Thread Jointing Compound applied per manufacture specifications.

5.4 Plastic Adhesive Joining

Plastic pipe shall not be joined by thread or by miter joints. Plastic other than Polyethylene shall be joined by solvent cement that complies with ASTM D2564-96a and applied per manufacture specifications. Pipe cleaner is never to be used on ABS piping.

5.5 Joining by Other Means

The use of joining by other means within the gas distribution system shall ***necessitate approval*** by the City of Port Aransas Gas Department.

Polyethylene gas pipe and fittings may be joined together, or to other materials by transition fittings, electro fusion fittings, or fully restrained mechanical couplings under assured conditions. These types of fittings shall be designed for joining polyethylene to another material. When joining by other means, the installation instructions of the joining type fitting shall be observed, and the Contractor’s Covered Employees shall be Qualified under Title 49 Code of Federal Regulations §192.805 & §192.807 for the installation of these types of joining procedures.

When mechanical OD couplings (Category 1 only) are used, polyethylene gas pipe shall be reinforced with a stiffener in the pipe bore. Stiffeners shall be properly sized for the diameter and wall thickness of polyethylene pipe being joined. For service pipe connections, the stiffener length shall match the pipe end penetration depth into the coupling.

The use of polyethylene fusion ***socket*** fittings is ***not permitted*** to be used on the City of Port Aransas Gas Distribution System.

6 INSTALLATION

6.1 Trench Excavation, Trench Bedding, Burial Depth, Underground Clearance, and Backfill

Trench excavation, bedding, and backfill shall be in accordance with ASTM D2488 Visual-Manual Procedures and the Unified Soil Classification System (USCS), the material specifications, and plans or as otherwise authorized in writing by the Project Engineer or the Gas Utility Director.

Burial depth shall be in accordance with these specifications and the applicable federal, state, and municipal code or as otherwise authorized in writing by the Project Engineer or the Gas Utility Director.

6.1.1 Trench Excavation

The Contractor shall remove excess groundwater. Where necessary, trench walls shall be shored or reinforced. All necessary precautions shall be taken to ensure a safe working environment and to protect the public.

6.1.2 Trench Bedding

Trench bedding shall be on grade and be a stable foundation. Unstable trench bottom soils shall be removed, and a six inch (6”) bedding of compacted clean sand SP shall be filled to pipe bottom grade.

A trench cut in sea shell or stony soil shall be excavated to six inches (6”) below pipe bottom grade, and brought back to grade with a compacted clean sand SP bedding.

All ledge rock, blacktop, sea shell, boulders, cement, large stones, organic matter, rubbish, and other equivalent debris that could damage the integrity of the pipe and/or pipe coating shall be removed prior to pipe installation.

6.1.3 Burial depth

Burial depth of piping shall have at least twenty-four inches (24”), but not greater than thirty inches (30”) of cover in private property, and at least thirty-six inches (36”), but not greater than forty-eight inches (48”) of cover in all City of Port Aransas right-of-ways, measured vertically from the top crown of the pipe to the top of the proposed grade.

In Texas State Right of Ways: the burial depth for longitudinal placement of Polyethylene pipelines operating below 60 psig shall have at least thirty-six inches (36”), but not greater than forty-eight inches (48”) of cover, measured vertically from the top crown of the pipe to the top of the proposed grade.

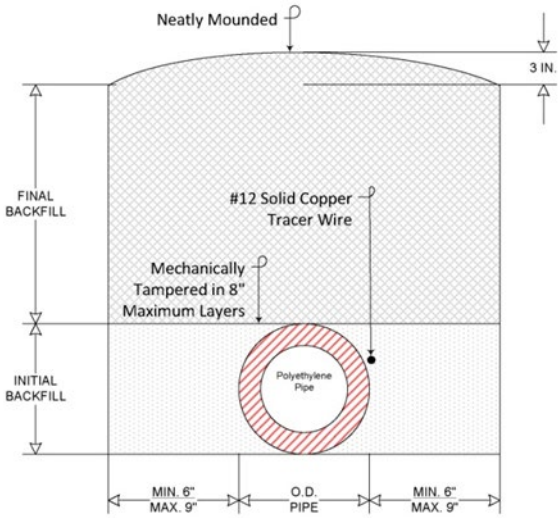
Polyethylene pipelines operating below 60 psig that cross a paved Texas State Right of Way shall be encased in a welded joints, schedule 40, catholically protected coated steel and have

a minimum burial depth of thirty inches (30”), but not greater than forty-eight inches (48”) of cover, measured vertically from the top crown of the casing to the top of the outside pavement structure. Each Encasement shall be designed with vents located at both ends, placed at or near the right of way line immediately above the casing.

6.1.4 Underground clearance

Gas distribution piping shall be installed with a minimum of twelve inches (12”) of clearance from any underground utility, or proposed utility, and a minimum of twenty-four inches (24”) of clearance from any structure not associated with the gas distribution pipe.

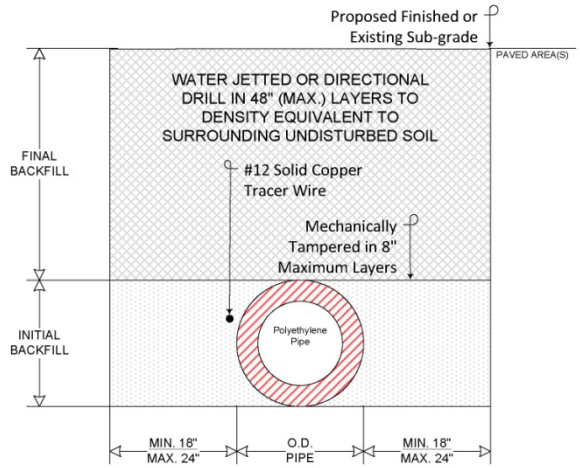
If clearance cannot be attained, the pipeline must be encased and have enough clearance to be protected from damage that might result from other utility excavations, from the proximity of the other structures, and



to allow the required space for future maintenance or repairs of the newly installed Gas distribution pipe. This alternative shall ***necessitate approval*** by the City of Port Aransas Gas Department.

6.1.5 Backfill

Trench excavations shall be immediately backfilled after the pipe, valves, fittings, and weld joint locations are recorded, unless other protection is directed or indicated. The Contractor shall restore the surface improvements to the pre-construction condition.



Backfill in layers of two inch (2”) – four inch (4”) clean sand, embedding to the top crown of the pipe and mechanically tamper to a density equivalent of not less than 100% of an ASTM D698 Proctor Curve. Native soils may be used provided that the embedment material soil type and particle size is in accordance with ASTM D 2774. Embedment shall be placed and compacted to at least 90% Standard Proctor Density in six inch (6”) lifts

to at least six inches (6”) above the pipe crown. During embedment placement and compaction, care shall be taken to ensure that the haunch areas below the pipe spring-line are completely filled and free of voids.

Tracer wire shall be placed alongside within two inches (2”) of the polyethylene pipe. Final backfill shall be placed and compacted to finished grade.

6.1.6 Directional and Non-Directional Boring

Contractor shall locate all underground utilities by pothole prior to the start of any installation of pipe casing or carrier pipe by bore. Tracer Wire shall be attached to all Polyethylene pipe prior to insertion of the borehole or casing.

All pipe ends shall be sealed with an end cap or similar fitting authorized by the City of Port Aransas Gas Department prior to pulling it into a borehole or casing.

6.2 Gas Pipe, Valves, Fittings Inspection and Installation

Gas distribution piping shall be installed in accordance with Title 49 CFR Part 192, Subpart G (Mains), Subpart H (Service lines), applicable codes and regulation, 43 TAC §21.40, and ASTM D2774.

In the event of damage, immediately make all repairs and replacements to the approval of the City of Port Aransas Gas Inspector.

6.2.1 Pipe Handling

When material is delivered, a receiving inspection shall be performed, and any shipping damage shall be reported no later than 7 calendar days to the supplier or manufacturer and no later than 24 hours from discovery to the City of Port Aransas Gas Department.

The Contractor shall protect the gas pipe from debris or liquids from entering the pipe at all times. Incidents shall require air purging, sponging, and/or pigging of the pipe segment that is contaminated. Procedures shall be at the discretion of the City of Port Aransas Gas Inspector.

6.2.2 Handling Polyethylene Pipe

Polyethylene Pipe that has scratches, notches, cuts or any other abrasions the exceed 10% of the pipe wall thickness shall be removed and discarded. *Care shall be taken not to cause scuffing or gouging of the polyethylene pipe surface while transporting, loading, unloading, or installing.* The City of Port Aransas Gas Inspector shall be notified of all defects and subsequent repairs.

When lifting with slings, only wide fabric choker slings capable of safely carrying the load, shall be used to lift, move, or lower pipe and fittings. Wire rope or chain ***shall not*** be used.

6.2.3 Polyethylene Pipe Storage

Coils and bundles of polyethylene pipe shall be stored two inches (2”) off the ground and stacked in a way to prevent them from slipping or collapsing, which could cause damage the polyethylene pipe. Temporary end-caps shall be placed on polyethylene pipe ends during storage to prevent ingress of contamination.

Polyethylene pipe shall be stabilized against ultraviolet deterioration and shall be suitable for unprotected outdoor storage for a minimum of four (4) years.

6.2.4 Polyethylene Pipe Installation

The Contractor shall inspect the polyethylene pipe for abnormalities during installation.

The Contractor shall ensure that all persons making heat fusion joints on the City of Port Aransas Natural Gas Distribution System are qualified in accordance with Section 5 "JOINING.” Butt Fusion shall be performed between two pipe ends, or pipe ends and fitting outlets that have the same outside diameter and are not different in wall thickness. Transitions between unlike wall thickness shall only be made by means of electro-fusion.

The minimum long term cold bending radius for polyethylene pipe SDR 11 is twenty five times (25x) the outer pipe diameter. If fusions are present in the bend the minimum long term cold 5bending radius shall be fifty times (50x) the outer pipe diameter. Fittings ***shall not*** be allowed in pipe bends.

Underground clearance shall be in accordance with the specifications herein or as otherwise authorized in writing by the Project Engineer or the Gas Utility Director.

Installation of polyethylene piping shall not exceed the maximum depth in accordance with the specifications herein, unless affirmed on the plans or authorized by the Gas Utility Director.

6.2.5 Protecting Polyethylene Pipe against Shear and Bending Loads

In accordance with ASTM D 2774, connections shall be protected where an underground polyethylene branch or service pipe is joined to a branch fitting such as a saddle tap, branch saddle, or tapping tee on a main pipe, and where pipes enter or exit casings or retaining walls. The area surrounding the connection shall be embedded in properly placed, compacted backfill, preferably in combination with a protective sleeve or other mechanical structural support to protect the polyethylene pipe against shear and bending loads.

6.2.6 Butt-Fusion Polyethylene Fittings (Installation)

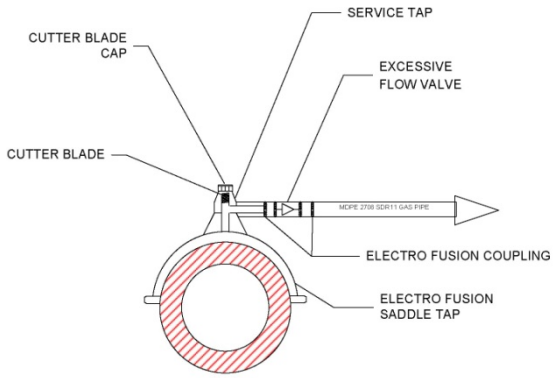
All Butt-Fusion Polyethylene Fittings shall be inspected for visible cracks,

holes, foreign inclusions, blisters, dents, sand, dirt, mud, liquids, pipe shavings, and other injurious defects prior to butt-fusion.

Butt-Fusion shall be performed as described per manufacture fitting installation procedures.

6.2.7 Electro-Fusion Polyethylene Tap Tees, Couplings, and Fittings (Installation)

All Electro-Fusion Polyethylene Fittings shall be inspected for visible cracks, holes, foreign inclusions, blisters, dents, sand, dirt, mud, liquids, pipe shavings, and other injurious defects prior to electro-fusion.



ELECTRO FUSION APPLICATION

All polyethylene main taps on the City of Port Aransas Natural Gas System shall be an Electro-Fusion Saddle Tap w/Butt-Fusion Outlet.

Electro-Fusion shall be performed as described per manufacture fitting installation procedures.

6.2.8 Excess Flow Valves (Installation)

Excess Flow Valves (EFV) shall be butt-fusion by butt-fusion installed between every residential tap and gas service line as specified on the detail drawings in the specifications and shall be installed per manufacture instructions.

All EFV's installed on the City of Port Aransas Natural Gas Distribution System shall be tagged with the; manufacture name, capacity range, and flow direction. In addition, a stainless steel tag indicating the flow capacity of the EFV shall be securely attached to the gas riser.

6.2.9 Polyethylene Ball Valves, Boxes, Supports, and Lids (Installation)

Polyethylene ball valves shall be Full-Port and supplied with the Butt End outlets that match the pipe SDR and have a full open IPS bore.

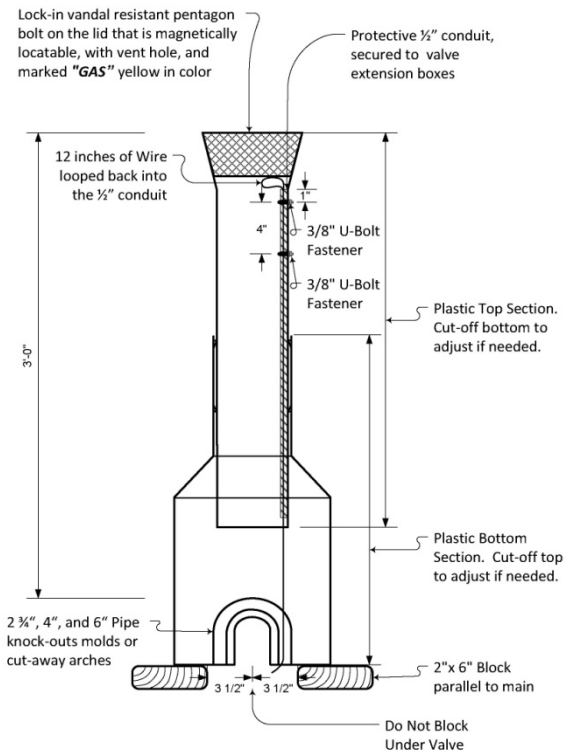
All Polyethylene Ball Valves shall be installed per manufacture instructions and engineered plans.

All Polyethylene Valves installed shall be accompanied by a seal tight valve extension box made of a non-corrosive material and a lid marked ***"GAS"*** and yellow in color.

Each valve extension box shall be finished with an eighteen inch (18") circumference by four inch (4") thick cement ring around the lid and the ad-

justment height set flush to the proposed grade without disturbing the polyethylene ball valve.

Each polyethylene extension valve box used for two inch (2”) thru four inch (4”) polyethylene valves shall be installed in accordance to the detail drawing and plan specifications.



Valve supports shall be installed for all one inch (1”) thru four inch (4”) polyethylene valves.

6.2.10 Tracer Wire, Wire Connectors, Junction Boxes (Lug), and Grounding Rods

One (1) tracer wire end shall be stripped and firmly connected to a Junction Box (Lug), firmly attached to a bare portion of the continuous solid tracer wire.

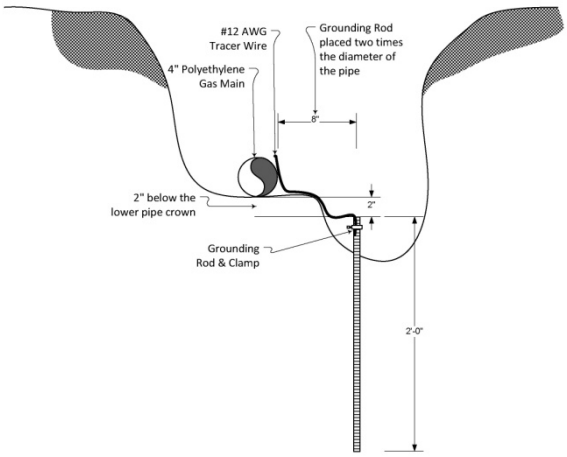
Two (2) tracer wire ends shall be stripped and pre-twisted prior to installing water proof Wire Connectors and connector shall be firmly tightened.

Three (3) or more tracer wire ends shall be stripped and firmly connected to a Junction Box (Lug) firmly attached to the bare portions of the continuous solid tracer wire.

All tracer wire connectors and lugs shall be firmly wrapped with a layer of Approved Corrosion Protection Pipe Wrap Tape.

Installed tracer wire shall be connected to existing main tracer wire at all tie-ins and placed alongside within two inches (2”) of all new polyethylene pipe and shall extend up to grade in a protective one-half inch (½”) conduit, secured to all valve extension boxes and anodeless service risers.

At every main end cap and lateral, the tracer wire shall be firmly connected to a twenty-four inch (24”) long by



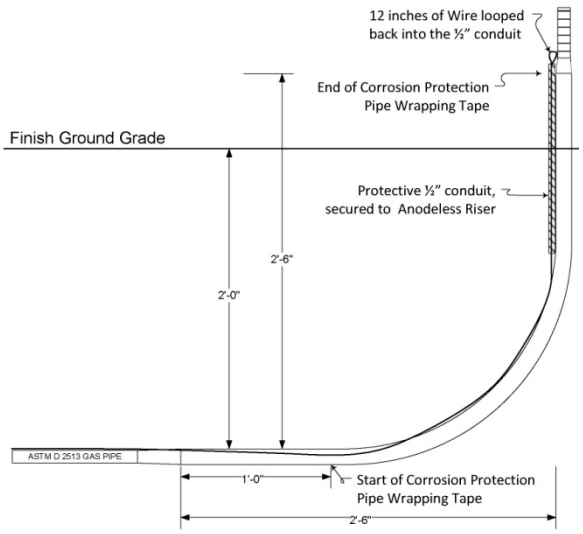
five-eighths of an inch (5/8”) diameter electrical grounding rod, with a ground rod clamp suitable for direct burial applications. The electrical grounding rod shall be place at a distance of two (2) times the diameter of the pipe in inches and buried vertically, two inches (2”) below the lower pipe crown as specified in detailed plan.

6.2.11 Transition Fittings (Installation)

On all installed Transition fittings, a layer of Approved Corrosion Protection Pipe Wrap Tape shall be firmly applied by over lapping no greater than one inch (1”) on the casing surface. Transition fittings shall be installed per manufacture instructions and plan specifications.

6.2.12 Anodeless Service Supply Risers

Only one inch (1”) and two inch (2”) pre-bent risers shall be used on the gas distribution system and installed per manufacture instructions and plan specifications.



On all installed anodeless risers, a layer of Approved Corrosion Protection Pipe Wrap Tape shall be firmly applied by over lapping no greater than one inch (1”) on the casing surface as specified in the plan details. All anodeless risers shall be installed per manufacture instructions and Specifications.

6.2.13 Brass Meter Ball Valves

Meter ball valves shall be installed upstream of each gas meter on all anodeless service risers and sized to match the pipe threads of the anodeless service riser.

6.2.14 Meter Assemblies (Installation)

The Contractor shall install all pipe nipples and fittings to build all meter assemblies. All gas meters and regulators shall be installed by the Contractor in accordance with the manufacture instructions and Specifications. An Approved Atmospheric Corrosion Protection Coating shall be applied to each assembly after installation.

The gas service pressure shall be set to the existing; as otherwise set to seven inches of water column (7”W.C.) or as advised by the City of Port Aransas Gas Inspector.

6.2.15 Handling Coated Steel Pipe

Coated Steel Pipe that has scratches, notches, or any other abrasions on the pipe coating shall be repaired in accordance with the specifications herein. *Care shall be taken not to cause scuffing or gouging of the pipe coating while transporting, loading, unloading, or installing.* The City of Port Aransas Gas Inspector shall be notified of all defects and subsequent repairs.

When lifting with slings, only wide fabric choker slings capable of safely carrying the load, shall be used to lift, move, or lower pipe and fittings. Wire rope or chain ***shall not*** be used.

6.2.16 Coated Steel Pipe Storage

Coated Steel pipe joints shall be stored two inches (2”) off the ground and stacked in a way to prevent them from slipping or collapsing, which could cause injury to personnel or damage the steel pipe coating. Temporary end-caps shall be placed on pipe ends during storage to prevent ingress of contamination.

Coated Steel Pipe shall be stabilized against long term atmospheric exposure and shall be stacked in such a way as to prevent rolling, abrasions, impact damage where the pipe touches, and stress stacking that can deform the pipe diameter.

6.2.17 Coated Steel Pipe Installation

The Contractor shall inspect the coating on the steel pipe for abnormalities during and after installation.

The Contractor shall ensure that all persons welding joints on the City of Port Aransas Natural Gas Distribution System are certified in accordance with Section 5 "JOINING.” Steel welding shall be performed between two pipe ends, or pipe ends and fitting outlets that have the same outside diameter and are not different in wall thickness.

Coated steel pipe bends ***shall not*** be permitted; only by directional welded fittings such as 90° Ell, 45° Ell, etc…

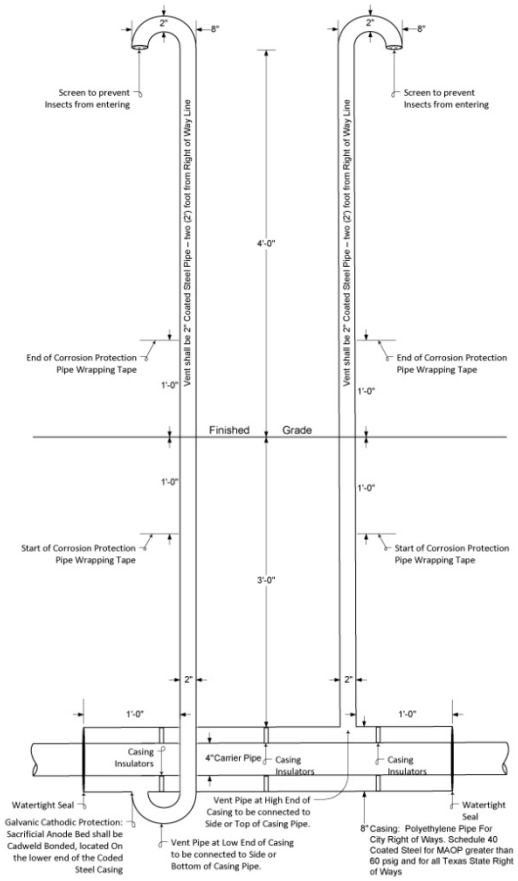
Underground clearance shall be in accordance with the specifications herein or as otherwise authorized in writing by the Project Engineer or the Gas Utility Director.

Installation of coated steel piping shall not exceed the maximum depth in accordance with the specifications herein unless affirmed on the plans or authorized by the Gas Utility Director.

6.2.18 Casings

Encasements shall be installed in accordance with the specifications herein and the detail drawing. Each Steel Encasement shall have installed a Cadweld Bonded, Galvanic Cathodic Protection Sacrificial Anode Bed located at the lower end of the casing.

Contractor shall install commercial available casing insulators with a minimum of four (4) plastic runners; each runner shall be installed at five feet (5’) maximum intervals on the carrier main prior to inserting into the casing. Insulators shall be sized to center the gas main in the casing.



6.2.19 Field Applied Coating on Steel Pipe Welded Joints, Repairs, Cadwelds, Valves, and Fittings

The Contractor shall grind all welded joint surfaces of irregularities and weld spatters to a bare steel surface prior to applying a complete one piece, heat shrinkable, wraparound of 80 mils with a one-piece yellow closure polyethylene backing, the width shall be twelve inches (12”) and suitable for below ground applications. Sleeve shall be the Canusa one-piece Windoweld Wrapid Sleeve™ or equal and pre-approved.

All coating repairs and Cadweld joints shall be grinded smooth of surface irregularities and weld spatters then coated with one-part, heat curable, thermosetting powdered, 12 mil Scotchkote™ 206N Fusion Bonded Epoxy (FBE) Coating or equal and pre-approved. Coating shall be field applied to all coating repairs and Calweld joints and shall be heated and cured in accordance with the manufactures’ specifications.

All steel welds on valves and fittings shall be grinded smooth of surface irregularities and weld spatters, coated with one-part, heat curable, thermosetting powdered, 12 mil Scotchkote™ 206N Fusion Bonded Epoxy (FBE) Coating or equal and pre-approved. Coating shall be field applied in accordance with the manufactures’ specifications to all welded valves and fittings.

RUST-OLEUM 7400 SYSTEM Machine Tool Gray Alkyd Enamel Paint Coating or equal and pre-approved shall be applied in accordance with manufacture specifications to all aboveground apparatuses installed on the City of Port Aransas Natural Gas System.

6.3 Cathodic Protection (CP)

There are several important elements required to designing a cathodic protection system.

A sacrificial MAG anode bed with a designed life of 10 years shall be installed where coated steel pipe is not connected to the impressed current cathodic protection system.

6.3.1 CP Design

The following preliminary data must be gathered: the soil resistivity, length, and diameter of the Coated Steel pipe. One other element required is the coating efficiency on the steel pipe. The coating manufacture will supply the coating resistance value.

The mentioned information above will be needed to calculate the size of sacrificial MAG anodes required for obtaining the amount of current density to change the potential of the steel pipe to -0.85 volts as measured between the Steel and a saturated copper-copper sulfate reference electrode in contact with the electrolyte.

The soil resistivity range within the City of Port Aransas is 0 to 2000 ohm-cm (corrosively severe).

In most circumstances, the average current density required for cathodic protection was 2 milliamperes per square feet to obtain a desired current.

The Contractor shall seek approval from the Gas Utility Director on all Cathodic Protection Designs.

6.3.2 Sacrificial MAG Anode Installation

Sacrificial MAG anodes shall be installed In accordance with the computation of all design factors.

Installation shall be in a vertical position, deep enough to be in permanently moist soil. Each anode shall be buried no less than ten feet (10’) laterally from the pipe. The top of the anode shall be at the same grade level as the lower pipe crown.

The insulated wire shall be stripped and the solid copper connection shall be Cadwelded to a bare section of the steel pipe and coated according to the specifications herein.

6.4 Gas Main Dehydration

The Contractor shall be responsible for installing gas piping in a manner that does not allow water to enter the pipe. If the Inspector determines there is water in any gas piping, the Contractor shall be responsible for pigging that pipe in a manner approved by the Resident Engineer. The pipe shall be pigged repeatedly by the Contractor until the Resident Engineer has determined that the pipe is sufficiently dehydrated. Pipeline pigs shall be Girard Polly Pig YBS-B, KRG or equal. Contractor shall supply all pigs. Inspector shall inspect pig after passage through pipe to determine if that

pig may be reused. Contractor shall be responsible for blocking passage of pig into pipes which do not need to be pigged. If pig passes into a pipe which does not need to be pigged, or if pig becomes stuck in the pipe, the Contractor shall retrieve the pig at his own expense, including but not limited to any excavation, pipe repair and landscape or pavement restoration. If there is water in any gas piping, the Contractor shall be responsible for dehydration of the line as directed by the Inspector and to the Inspector's satisfaction.

7 CUSTOMER OWNED NATURAL GAS PIPING AND FITTINGS

7.1 Description

The Contractor shall coordinate with the City of Port Aransas Building Department for all required permits and inspections of customer owned natural gas piping for homes located in Port Aransas, TX. All inspections shall be scheduled with the Building Department at least two (2) working days in advance.

The work to be performed shall consist of furnishing all tools, equipment, materials, supplies, manufactured articles, transportation, and services (including fuel, power, and communication), labor, and other operations necessary.

Modification to existing customer owned natural gas piping, fittings, or shut-off valves shall require pressure testing of the installation and approval from the City of Port Aransas Building Official.

The work shall be complete and performed in strict accordance of the authority having jurisdiction.

All applicable codes, ordinances, and standards set by legal constituted authority shall be the responsibility of the Contractor. And shall be paid for by the Contractor.

7.2 Existing Gas Plumbing

The modification of the existing gas plumbing shall be performed by the contractor only after receiving written approval from the City of Port Aransas Building Department.

With the City of Port Aransas Building Official's authorization the Contractor shall perform all repairs and modifications required for code compliance of existing natural gas plumbing.

7.3 Coordination with Gas Customers

The Contractor is responsible for coordinating access to private property with the property owner / resident.

The Contractor shall notify the City of Port Aransas Gas Department and the property owner / resident at least 7 days in advance of performing work. Prior to starting work at a specific location the Contractor shall schedule the work with the property owner / resident, as the customer or agent presence during the work is required.

The standard delivery pressure downstream of a residential regulator and gas meter is seven inches in water column (7"w.c.). Non-standard delivery pressures above 7" W.C. shall require advance approval from the City of Port Aransas Gas Department. Non-standard delivery pressures above 7" W.C. will be limited to 3 psig.

The Contractor shall re-light all pilot lights the same day after installing the

new or existing gas meter assemblies. The City of Port Aransas Gas Department shall supply all regulators and meters to the Contractor.

No gas Customer shall be left out of service overnight. Each gas customer shall be reconnected and all pilot lights re-lit before 5:00 PM each day.

7.4 Cooperation with the City of Port Aransas Building Department

The City of Port Aransas Building Official or designee shall have access to the work at all times and all locations where the work is in progress. Contractors shall provide such access to enable the City of Port Aransas Building Official or designee to perform their functions properly.

All changes or revisions in the construction schedule shall be coordinated with the Building Department.

7.5 Attributable Delays due to Obstructions or Incomplete Work

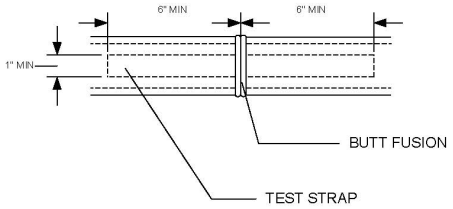
When the City of Port Aransas Building Official is ready to inspect, but is prevented due to unfinished work, all extra charges attributable to the delay will be charged to the Contractor at the City of Port Aransas Building Departments discretion.

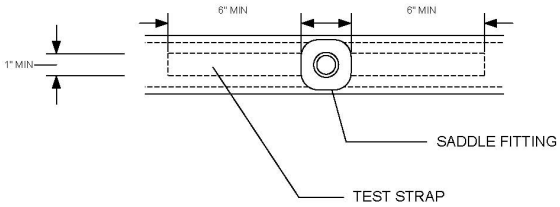
8 TESTING

8.1 Trial Fusions

A trial fusion shall be performed at the beginning of each day to verify fusion procedures and that equipment settings are accurate for the actual jobsite conditions. Upon request by the City of Port Aransas Gas Department, the Contractor shall verify field fusion quality by making and testing a trial fusion.

The following procedures are in accordance to ASTM D 2657: allow trial fusion to cool completely before cutting straps and testing by bending the straps until the ends touch. The City of Port Aransas Gas Department will determine whether the test specimen is appropriate. Figure 1 illustrates ASTM D 2657 test specimen dimensions for bent strap testing.





If the bent strap test of the trial fusion fails at the joint, the field fusions represented by the trial fusion shall be rejected. The Contractor at his expense shall make all necessary corrections to equipment, set-up, operation and fusion procedure, and then shall re-make the rejected fusions.

8.2 Leak Testing

Tie-ins shall be Leak tested no sooner than two (2) minutes after activation with a calibrated Combustible Gas Indicator. A City of Port Aransas Gas Department Representative shall be present during all Tie-ins and Leak Testing. Contractor shall give 48-hour notice prior to commencement of any Tie-ins.

The polyethylene gas distribution system is subject to DOT Pipeline Safety Regulations and shall be tested in accordance to Title 49 CFR §192.513 as applicable.

The Contractor shall take all precautions to eliminate hazards to persons and property near lines being tested. Testing of all polyethylene gas pipe segments shall be for a minimum of two hours under the supervision of a City of Port Aransas Gas Department Inspector.

8.3 Pipe Testing

The Contractor shall test all sizes of Polyethylene Pipe spools at one hundred (100) psig for a minimum duration of 30 minutes prior to installation. During the test, the temperature of the Polyethylene Pipe material shall not be more than 100°F. All pre-

installation testing of Polyethylene Pipe ***not*** installed within seven (7) calendar days shall require a new test prior to burying. A City of Port Aransas Gas Department Inspector shall be present during pre-installation pipe testing. Straight length pipe joints ***do not*** require pre-installation pipe testing.

All sizes of Polyethylene Pipe installed shall be tested in accordance with Title 49 CFR §192.513 and shall be tested at one hundred and fifty percent (150%) of the plan design maximum allowable operating pressure (MAOP) for a minimum duration of 24 hours. During the test, the temperature of the Polyethylene Pipe material shall not be more than 100°F. The pressure shall not decrease during the test period. Test shall be performed on each segment of main installed after service installation is completed.

All steel carrier pipe testing shall be performed in accordance with the applicable regulations in Title 49 CFR Subpart J and shall be tested at one hundred and fifty percent (150%) of the plan design maximum allowable operating pressure (MAOP) for a minimum duration of 24 hours. The pressure shall not decrease during the test period. Test shall be performed on each segment of main installed after service installation is completed.

A City of Port Aransas Gas Department Inspector shall be present at commencement and the completion of the test for verification. The Contractor shall not expel the test medium without the City of Port Aransas Gas Department Inspector present; otherwise, the test shall be invalidated.

All failures discovered during the test period shall be reported to the City of Port Aransas Gas Inspector prior to repairing and retesting.

The Contractor shall notify the City of Port Aransas Gas Department 48 hours in advance of any pipe testing.

8.4 Testing Tracer Wire

The Contractor shall perform a continuity test on all tracer wire installed in the presence of a City of Port Aransas Gas Department Representative. If the tracer wire is found to be discontinuous after testing, the Contractor shall repair or replace the failed segment(s) of tracer wire at their own expense.

8.5 Purging

All new and re-activated pipelines shall be purged of air in accordance to this specification. Purging of air with natural gas is the process of displacing air within a pipeline or pipeline section and should always be performed with caution. If the gas cannot be introduced in a moderately rapid continuous flow, a slug of inert gas shall be introduced into the pipeline before the natural gas is.

The point of discharge shall be controlled with an approved shut-off valve, no greater than half (1/2) the size of the pipe diameter. The discharge point shall be located at least ten feet (10') from all sources of ignition, building openings, and twenty five feet (25') from mechanical air intake openings.

During purging operations of introducing gas, the open point of discharge shall be continuously attended and monitored with a combustible gas indicator (CGI) and shall not be finalized until eighty percent (80%) gas by volume or greater is detected.

All abandoned or deactivated pipelines shall be purged of gas. Purging of gas with air is the process of displacing air within a pipeline or pipeline section and should always be performed with caution. If the air cannot be introduced in a moderately rapid continuous flow, a slug of inert gas shall be introduced into the pipeline before the air is.

The point of discharge shall be controlled with an approved shut-off valve, no greater than half (1/2) the size of the pipe diameter. The discharge point shall be located at least ten feet (10') from all sources of ignition, building openings, and twenty five feet (25') from mechanical air intake openings.

During purging operations of introducing air, the open point of discharge shall be continuously attended and monitored with a combustible gas indicator (CGI) and shall not be finalized until one percent (1%) gas by volume or less is detected.

A City of Port Aransas Gas Department Inspector shall be present during all purging of pipelines. Contractor shall give 48-hour notice prior to commencement.

During the purging process the Contractor shall have a qualified individual (fire watchman) with an approved 20LB ABC Fire Extinguisher up wind at the ready in case of ignition.

9 ABANDONMENT OR DEACTIVATION

9.1 General

The Contractor shall conduct abandonment or deactivation of natural gas pipes in accordance with Title 49 CFR §192.727.

The Contractor shall notify the City of Port Aransas Gas Department 48 hours prior to conducting an abandonment or deactivation.

For each natural gas pipe abandoned or deactivated in place; the Contractor shall disconnect from all sources and supplies of natural gas and purge all inactive natural gas pipes in accordance with Section 8. All pipe ends shall be permanently sealed, capped, or plugged and documented accordingly.

9.2 Removal

The Contractor shall permanently remove all ***below ground and above ground*** City of Port Aransas Natural Gas Distribution System facilities that are abandoned and deactivated in accordance with the engineer plans.

9.3 Recovered Materials

It shall be the responsibility of the Contractor to dispose of all City of Port Aransas Gas Distribution System abandoned materials that are removed from operations with the exception of Gas Meters and Regulators.

The Contractor shall return all gas meters and regulators at the completion of the project to the:

City of Port Aransas
625 W. Avenue A
Port Aransas, TX 78373.

9.4 Reuse of Abandoned Pipe, Valves, and Fittings

The Contractor ***shall not*** be allowed to reuse abandoned pipe, valves, or fittings for any part of this project.

9.5 Customer Owned Materials Removed

It shall be the responsibility of the Contractor to dispose of all Customer owned materials that are removed from operation.

10 DOCUMENTATION

10.1 Pipe Record Reports

The Contractor shall make a record of each pipe spool, pipe joint, fitting and tracer wire installed under these requirements; additionally, the Contractor shall make a record of each re-activated segment(s) pipe.

In duplicate these records shall be given to the City of Port Aransas Gas Department to be retained for the useful life of the pipe system.

- *Project Name*
- *Pipe/Fitting Manufacture,*
- *Material Designation Code,*
- *Pipe/Fitting Category,*
- *Linear feet of Pipe installed, re-activated, and abandon.*
- *Location by Swing Ties for all Polyethylene Valves, Underground Fittings, and Lateral Segments*
- *As built plans and GPS coordinates in electronic format.*

10.2 Pipeline Test Record Reports

The Contractor shall make a record of all pipeline tests, required for; pre-installed spool polyethylene pipe and all installed polyethylene pipe. Each test record shall contain at minimum, the following information:

- *Operator Name: City of Port Aransas Gas Department*
- *Operator Address: 710 W. Avenue A, Port Aransas, TX 78373*
- *Project Name*
- *Contractor Name*
- *Covered Employee Name*
- *Contractor Address, State, & Zip Code*
- *Contractor Phone Number*
- *Date of Pipe Test*
- *Location of Pipe: Address or Block Number(s) and Street Name, or Street Name and Intersection to Intersection where Pipe is being Tested or Segment Name*
- *Type of Test (Replacement, Extension, Pre-installation, or re-activation)*
- *Test Medium Used*
- *Test Pressure (Beginning and Ending)*
- *Test Time (Beginning and Ending)*
- *Size of Pipe being Tested*
- *Amount of Pipe in Linear Feet*
- *Pressure recording charts, or other record of pressure readings*
- *Leaks or Failures, if any discovered*
- *Repairs made to any Leaks or Failures recorded*
- *Printed Name, Date, and Signature of the Person performing the Test*
- *Printed Name, Date, and Signature of Gas Department Inspector*

All pipe that is pressure tested by the Contractor shall require a mechanized or manual device suitable to record pressure losses of one tenth psig (0.10) during a 24 hour period.

10.3 Abandonment / Deactivation records

The following information shall be recorded on a report for each segment abandoned and deactivated:

- *Operator Name: City of Port Aransas Gas Department*
- *Operator Address: 710 W. Avenue A, Port Aransas, TX 78373*
- *Project Name*
- *Contractor Name*
- *Covered Employee Name*
- *Contractor Address, State, & Zip Code*
- *Contractor Phone Number*
- *Date of Abandonment or Deactivation*
- *Pipe manufacture*
- *Pipe material type*
- *Pipe designation code*
- *Pipe size*
- *Linear feet of pipe abandoned or deactivated*
- *Printed Name, Date, and Signature of the Person in charge of performing the Purge*
- *Printed Name, Date, and Signature of Gas Department Inspector*

10.4 Fusion Data Logging

The Contractor shall electronically or manually data-log all fusion joints. The parameters that shall be recorded at minimum are as follows:

- *Project Name*
- *Date & Time*
- *Technician Name*
- *Equipment Type & Unit #*
- *Fusion #*
- *Ambient Temperature*
- *Iron Temperature (achieved only with a pyrometer)*

10.4.1 Fusion Serialization Numbering

The Contractor shall permanently mark the Fusion# at the joint on the pipe for all fusions. Each fusion# shall consist of the following serialization code number:

- *Weld No. (start with 1 every new day)*
- *Tech ID#: last two (4) digits of Welder Qualification ID.*
- *Month & Day*
- *Year*

Weld No.	*Tech ID#*	*Month & Day*	*Year*
1	*8098*	*9/25*	*2013*
Weld No.	*Tech ID#*	*Month & Day*	*Year*
26	*2477*	*9/25*	*2012*

Example:
Tech #8098 [01809892513]
Tech #2477 [26247792512]

The Inspector shall verify 10% of all serialization code numbers for accuracy and permanency.

10.5 Purge Record

The contractor shall manually log the following data on the appropriate form supplied by the City.

- Pipe Record
- Pipe Test Record
- Abandonment / Deactivation Record
- Fusion Data Log (record)