



CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS FOR

2017 ROAD CONSTRUCTION PROJECTS
(ST17-001)

ISSUED FOR BID

Submission Deadline:

2:00 PM, November 28, 2017

Submit Proposals to:

Town of Pecos City
Attn: Syra Nichols, City Secretary
110 E. 6th Street
Pecos, TX 79772

This document was prepared under the direction of and is released for bidding purposes under the authority of:



Seth A. Sorensen, P.E.
City Manager



★ T E X A S ★
110 E. 6th Street
Pecos, TX 79772
ssorensen@pecostx.gov
432-445-2421
432-445-6670 (fax)

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ADVERTISEMENT FOR BIDS

Sealed Bids for 2017 ROAD CONSTRUCTION PROJECTS (ST17-001) will be received by the Town of Pecos City at City Hall, 110 E. 6th Street, Pecos Texas 79772, Attn: Syra Nichols, City Secretary, until 2:00 PM on Tuesday, November 28, 2017 at which time the bids will be publicly opened and read aloud in the City Council Chambers of Pecos City Hall.

The Project basically consists of:

Clearing and grubbing; base preparation; grading; installation of water, sewer, and drainage; miscellaneous concrete and placement of new HMA.

The Issuing Office for the Bidding Documents is: Pecos Public Works, 110 E. 6th Street, Pecos Texas 79772. Requests for clarification may be directed to Seth Sorensen, P.E., City Manager, at (432)445-2421 or ssorensen@pecostx.gov.

Prospective Bidders may examine at no cost the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of 8:00 AM and 5:00 PM. Bidding Documents may be downloaded online without charge from the City's website at www.pecostx.gov and www.ciplist.com. Notification of any revisions to the bid documents will be issued through www.ciplist.com.

The cost of Bidding Documents from the Issuing Office is \$100.00 for a printed set and \$10.00 for electronic format on compact disc (plus the cost of shipping). Cost of Bidding Documents and shipping is non-refundable. Upon Issuing Office's receipt of payment, Bidding Documents will be sent via the prospective Bidder's delivery method of choice. The date that the Bidding Documents are transmitted by the Issuing Office will be considered the Bidder's date of receipt of the Bidding Documents. Partial sets of the Bidding Documents will not be available from the Issuing Office.

A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum bid price and in the form of a certified check, bank money order, or a Bid bond.

Successful Bidder will be required to furnish Performance and Payment Bonds and proof of insurance, complying with the General Conditions of the Agreement.

Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Bids will remain subject to acceptance for 60 days after the Bid opening.

Owner: Town of Pecos City
By: Syra Nichols
Title: City Secretary
Date: November 11th and November 18th, 2017

+ + END OF ADVERTISEMENT FOR BIDS + +

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement for bids.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid the Statement of Qualifications as found in Section 00 45 13.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

- b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of Section 00 72 00 "Standard General Conditions" will apply.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site. Appointments for site visits shall be made by contacting the Issuing Office.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

ARTICLE 5 – BIDDER’S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder’s safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 No pre-bid conference will be held for this project.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for portions of the Work:
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, without an increase in Bid price.
- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder’s name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

- 14.01 Base Bid with Alternates
- A. Bid Alternates will not be considered as part of this bid.
- 14.02 *Unit Price*
- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
 - B. The “Bid Price” (sometimes referred to as the extended price) for each unit price Bid item will be the product of the “Estimated Quantity” (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding “Bid Unit Price” offered by the Bidder. The total of all unit price Bid items will be the sum of these “Bid Prices”; such total

will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.03 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to City of Kilgore, Attn: Deborah Dane, City Clerk, 815 N. Kilgore Street, Kilgore, Texas 75662.

15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

22.01 Owner is exempt from state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph SC-7.09 of the Supplementary Conditions for additional information.

00 31 21 SURVEY INFORMATION

GENERAL

INFORMATION PROVIDED

1. A full set of construction plans are issued for this project.

PRODUCTS (NOT USED)

EXECUTION (NOT USED)

END OF SECTION

**TOWN OF PECOS CITY
2017 Road Construction Projects
(ST17-001)**

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

TOWN OF PECOS CITY
ATTN: SYRA NICHOLS, CITY SECRETARY
110 E. 6TH ST.
PECOS, TEXAS 79772

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

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

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance

- of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
 - G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 - H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
 - I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
 - J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) shown in the attached Exhibit.
- 5.02 Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.
- 5.03 Extended amounts have been computed in accordance with the General Conditions.
- 5.04 Unit Price and Figures Column will be used to compute the actual bid price.
- 5.05 Bidder accepts the Measurement and Basis of Payment provisions of Paragraph 1.08 of Section 01 29 00: Payment Procedures.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within 90 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 120 calendar days after the date when the Contract Times commence to run.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
 - A. Basis of Bid Form Exhibit
 - B. Required Bid security;
 - C. List of Proposed Subcontractors;
 - D. List of Proposed Suppliers;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data.
 - G. Vendor Compliance to State Law
 - H. Contractor Compliance to Texas Sales Tax Code

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – VENUE

9.01 Bidder agrees that venue shall lie exclusively in Reeves County, Texas, in which the Owner is located, for any legal action.

ARTICLE 10 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By: _____

[Signature] _____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail
address: _____

Bidder's License No.: _____

(where applicable)

00 44 00.13 BASIS OF BID EXHIBIT

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE	
1	1	LS	MOBILIZATION		
			DOLLARS & CENTS	\$	
			PER LUMP SUM (\$ _____)		
2	1	LS	BONDS AND INSURANCE		
			DOLLARS & CENTS	\$	
			PER LUMP SUM (\$ _____)		
3	1	\$\$	CONTINGENCY		
			FIFTY THOUSAND ZERO	DOLLARS & CENTS	\$50,000.00
			PER FORCE ACCOUNT (\$ 50,000.00 _____)		
4	1	LS	MATERIALS TESTING		
			DOLLARS & CENTS	\$	
			PER LUMP SUM (\$ _____)		
5	1	LS	TRAFFIC CONTROL		
			DOLLARS & CENTS	\$	
			PER LUMP SUM (\$ _____)		
6	7	ACRE	CLEARING AND GRUBBING		
			DOLLARS & CENTS	\$	
			PER ACRE (\$ _____)		

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
7	750	CY	UNCLASSIFIED EXCAVATION	
			DOLLARS & CENTS	\$
			PER CUBIC YARD (\$ _____)	
8	560	CY-MI	HAULING OF EXCESS SOIL	
			DOLLARS & CENTS	\$
			PER CUBIC YARD-MILE (\$ _____)	
9	1	LS	GRADING AND COMPACTION	
			DOLLARS & CENTS	\$
			PER LUMP SUM (\$ _____)	
10	7880	CY	FLEXIBLE "CALICHE" BASE	
			DOLLARS & CENTS	\$
			PER CUBIC YARD (\$ _____)	
11	2100	GAL	PRIME COAT (SS-1)	
			DOLLARS & CENTS	\$
			PER GALLON (\$ _____)	
12	3420	TON	TxDOT TYPE "D" HOT MIX ASPHALT CONCRETE (HMAC)	
			DOLLARS & CENTS	\$
			PER TON (\$ _____)	

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
13	9280	LF	CURB & GUTTER/LAYDOWN CURB	
			DOLLARS &	
			CENTS	\$
	PER LINEAR FOOT (\$ _____)			
14	1	EA	REMOVE AND REPLACE EXISTING CULVERT	
			DOLLARS &	
			CENTS	\$
	PER EACH (\$ _____)			
15	180	LF	REMOVE EXISTING CURB & GUTTER	
			DOLLARS &	
			CENTS	\$
	PER LINEAR FOOT (\$ _____)			
16	350	SF	REMOVE EXISTING SIDEWALK	
			DOLLARS &	
			CENTS	\$
	PER SQUARE FOOT (\$ _____)			
17	620	LF	SAW CUTTING HMAC PAVEMENT	
			DOLLARS &	
			CENTS	\$
	PER LINEAR FOOT (\$ _____)			
18	160	LF	18" N-12 SOIL TIGHT INTEGRATED BELL PIPE	
			DOLLARS &	
			CENTS	\$
	PER LINEAR FOOT (\$ _____)			

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE	
19	2	EA	18" CONCRETE DUAL SAFETY END TREATMENT (TXDOT "SET P-PD")		
			DOLLARS & CENTS		\$
			PER EACH (\$ _____)		
20	8	CY	CONCRETE FILL		
			DOLLARS & CENTS		\$
			PER CUBIC YARD (\$ _____)		
21	10	EA	ADJUST MANHOLE/VALVE COVER TO FINISHED GRADE		
			DOLLARS & CENTS		\$
			PER EACH (\$ _____)		
22	4	EA	POTHOLING AND VERIFICATION OF EXISTING PIPE		
			DOLLARS & CENTS		\$
			PER EACH (\$ _____)		
23	72	CY	6" THICK CONCRETE DRIVEWAYS - REINFORCED		
			DOLLARS & CENTS		\$
			PER CUBIC YARD (\$ _____)		

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
24	8	EA	FIBERGLASS MANHOLE (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN-PLACE)	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
25	630	LF	8" PVC SDR 35 SEWER LINE (FURNISHED, INSTALLED, COMPLETED IN-PLACE)	
			DOLLARS &	
			CENTS \$	
			PER LINEAR FOOT (\$ _____)	
26	1380	LF	10" PVC SDR 35 SEWER LINE (FURNISHED, INSTALLED, COMPLETED IN-PLACE)	
			DOLLARS &	
			CENTS \$	
			PER LINEAR FOOT (\$ _____)	
27	16	EA	4" SEWER SERVICE CONNECTION (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN-PLACE)	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
28	11	EA	6" SEWER SERVICE CONNECTION (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN-PLACE)	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
29	680	LF	6" AWWA C900 PVC PIPE CLASS 150, DR-18 (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS	\$
			PER LINEAR FOOT (\$ _____)	
30	1000	LF	12" AWWA C900 PVC PIPE, DR-18 (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS	\$
			PER LINEAR FOOT (\$ _____)	
31	1	EA	6" LATERAL PRESSURE INTERCONNECTION (HOT TAP) W/6" GATE VALVE (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS	\$
			PER EACH (\$ _____)	
32	3	EA	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS	\$
			PER EACH (\$ _____)	
33	1	EA	6" DUCTILE IRON 22.5° BEND - MJ	
			DOLLARS &	
			CENTS	\$
			PER EACH (\$ _____)	

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
34	1	EA	12" DUCTILE IRON 22.5° BEND - MJ	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
35	3	EA	12" DUCTILE IRON 45° BEND - MJ	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
36	2	EA	12" X 6" DUCTILE IRON REDUCER - MJ	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
37	2	EA	12" GATE VALVE - MJ	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	
38	16	EA	3/4" WATER SERVICE CONNECTION (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	

2017 ROAD CONSTRUCTION PROJECTS

ITEM	QUANTITY	UNIT	DESCRIPTION & UNIT PRICE (LIST UNIT PRICE IN BOTH WORDS AND NUMBERS)	EXTENDED PRICE
39	11	EA	2" WATER SERVICE CONNECTION (COMPLETE) (FURNISHED, INSTALLED, COMPLETED IN PLACE)	
			DOLLARS &	
			CENTS \$	
			PER EACH (\$ _____)	

TOTAL BASE BID		DOLLARS &
		CENTS
	(\$ _____)	

00 43 13 BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Town of Pecos City
110 E. 6th St.
Pecos, TX 79772

BID

Bid Due Date:
Description (*Project Name— Include Location*):

BOND

Bond Number:
Date:
Penal sum _____

(Words)

\$

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

*Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.*

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

1. SUBMITTED BY:

Official Name of Firm: _____

Address: _____

2. SUBMITTED TO:

3. SUBMITTED FOR:

Owner: _____

Project Name: _____

TYPE OF WORK:

4. CONTRACTOR'S CONTACT INFORMATION

Contact Person: _____

Title: _____

Phone: _____

Email: _____

5. AFFILIATED COMPANIES:

Name: _____

Address: _____

6. TYPE OF ORGANIZATION:

SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

CORPORATION

State of Organization: _____

Date of Organization: _____

Executive Officers:

- President: _____

- Vice President(s): _____

- Treasurer: _____

- Secretary: _____

LIMITED LIABILITY COMPANY

State of Organization:

Date of Organization:

Members:

JOINT VENTURE

Sate of Organization:

Date of Organization:

Form of Organization:

Joint Venture Managing Partner

- Name:

- Address:

Joint Venture Managing Partner

- Name:

- Address:

Joint Venture Managing Partner

- Name:

- Address:

7. LICENSING

Jurisdiction: _____
Type of License: _____
License Number: _____
Jurisdiction: _____
Type of License: _____
License Number: _____

8. CERTIFICATIONS

CERTIFIED BY:

Disadvantage Business Enterprise: _____
Minority Business Enterprise: _____
Woman Owned Enterprise: _____
Small Business Enterprise: _____
Other (_____): _____

9. BONDING INFORMATION

Bonding Company: _____
Address: _____
Bonding Agent: _____
Address: _____
Contact Name: _____
Phone: _____
Aggregate Bonding Capacity: _____
Available Bonding Capacity as of date of this submittal: _____

10. FINANCIAL INFORMATION

Financial Institution: _____

Address: _____

Account Manager: _____

Phone: _____

INCLUDE AS AN ATTACHMENT AN AUDITED BALANCE SHEET FOR EACH OF THE
LAST 3 YEARS

11. CONSTRUCTION EXPERIENCE:

Current Experience:

List on **Schedule A** all uncompleted projects currently under contract (If Joint Venture list each participant's projects separately).

Previous Experience:

List on **Schedule B** all similar projects completed within the last 5 Years (If Joint Venture list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

YES NO

If YES, attach as an Attachment details including Project Owner's contact information.

12. SAFETY PROGRAM:

Name of Contractor's Safety Officer: _____

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) OSHA No. 500- Log & Summary of Occupational Injuries & Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section 1 (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____
YEAR	_____	EMR	_____

Total Recordable Frequency Rate (TRFR) for the last 5 years:

YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____
YEAR	_____	TRFR	_____

Total number of man-hours worked for the last 5 Years:

YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____
YEAR	_____	TOTAL NUMBER OF MAN-HOURS	_____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____
YEAR	_____	DART	_____

13. EQUIPMENT:

MAJOR EQUIPMENT:

List on **Schedule C** all pieces of major equipment available for use on Owner's Project.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HEREWITH, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____, 20____

NOTARY PUBLIC - STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C (Major Equipment).
4. Audited balance sheet for each of the last 3 years for firm named in Section 1.
5. Evidence of authority for individuals listed in Section 7 to bind organization to an agreement.
6. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
7. Required safety program submittals listed in Section 13.
8. Additional items as pertinent.

SCHEDULE A

CURRENT EXPERIENCE

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE B

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

00 45 46.01 VENDOR COMPLIANCE TO STATE LAW

Section 2252.002, Texas Government Code, provides that, in order to be awarded a contract as low bidder, non-resident bidders (out-of-state contractors whose corporate offices or principal place of business are outside of the State of Texas) bid projects for construction, improvements, supplies or services in Texas at an amount lower than the lowest Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a non-resident bidder in order to obtain a comparable contract in the State in which the non-resident's principal place of business is located. The appropriate blanks in Section A must be filled out by all out-of-state or non-resident bidders in order for your bid to meet specifications. The failure of out-of-state or non-resident contractors to do so will automatically disqualify that bidder.

Check the statement that is correct for Bidder.

- Non-resident vendors in _____(give state), our principal place of business, are required to be _____percent lower than resident bidders by state law. A copy of the statute is attached.

- Non-resident vendors in _____(give state), our principal place of business, are not required to underbid resident bidders.

- Our principal place of business or corporate office is in the State of Texas.

Bidder:

Company Name:	
By:	
Name:	
Title:	
Business Address:	
Phone:	
Fax:	
Email:	

END OF SECTION

00 42 23.03 CONTRACTOR COMPLIANCE TO TEXAS SALES TAX CODE

ARTICLE 1 - LEGAL REQUIREMENT

1.01 Comply with all requirements of the Texas Sales Tax Code.

ARTICLE 2 - DECLARATIONS

2.1 Contractor hereby certifies that the Contract Amount is divided as follows:

Material permanently incorporated into the Project and resold to the Owner as defined in Tax Code.	\$ _____
All other charges and costs	\$ _____
Total (Total must equal the Contract Price)	\$ _____

2.2 The Total Amount of Bid for Materials and Services must equal the sum of the Total Amount Bid for Materials and the Total Amount Bid for Services as well as the sum of all individual bid items.

2.3. Materials are those items which are tax exempt and are physically incorporated into the facilities constructed for the OWNER. Materials include, but are not limited to, purchased items such as pipe, embedment, concrete, manholes, asphalt, road base, machinery, and equipment, etc.

2.4. Services are those items which are not tax exempt and are used by the CONTRACTOR but are not physically incorporated into the OWNER'S facilities and/or items that are consumed by construction. Services include, but are not limited to, supplies, tools, concrete forms, scaffolding, temporary buildings, the rental of equipment, skill, and labor, etc.

ARTICLE 3 - AUTHORIZATION

3.01 Execute this form at time of execution of contract and make a part of the contract.

Company Name: _____
(typed or printed)

By _____
(Signature -- attach evidence of authority to sign)

Name: _____
(typed or printed)

Title: _____
(Signature of Corporate Secretary)

Business address: _____

Phone: _____ Facsimile: _____ E-mail _____

END OF SECTION

00 51 00 NOTICE OF AWARD

Date of Issuance:

Owner: Town of Pecos City, Texas

Owner's Contract No.:

Engineer: Seth Sorensen

Engineer's Project No.: ST17-001

Project:

Contract Name:

Bidder:

Bidder's

Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Danville Road Resurfacing, Cargill Road Resurfacing and Reconstruction, Miscellaneous Asphalt Paving

The Contract Price of the awarded Contract is: \$ []

[] unexecuted counterparts of the Agreement accompany this Notice of Award, and **one copy** of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner

Authorized Signature

By:

Title:

Copy: Engineer

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and bet The Town of Pecos City, Texas (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Clearing and grubbing; base preparation; grading; installation of water, sewer, and drainage; miscellaneous concrete and placement of new HMA.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

2017 Road Construction Projects (ST17-001)

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by The Town of Pecos City.

3.02 The Public Works Department of the Town of Pecos City and its designated personnel (“Engineer”) have been assigned by the Owner to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially completed within **210** calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **240** calendar days after the date when the Contract Times commence to run.

4.03 *Milestones*

- A. All items related to the construction of “Area 1” shall be substantially complete and installed in-place within **60** calendar days after the date when the Contract Times commence to run.
- B. All items related to the construction of “Area 2” shall be substantially complete and installed in-place within **120** calendar days after the date when the Contract Times commence to run.

4.04 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
 - 1. Milestone A: Contractor shall pay Owner Two Hundred and Fifty Dollars and No Cents (\$250.00) for each additional day that expires after the time (as duly adjusted pursuant to the Contract) as specified in Paragraph 4.03.A above for Substantial Completion until the Work is substantially complete.
 - 2. Milestone B: Contractor shall pay Owner Two Hundred and Fifty Dollars and No Cents (\$250.00) for each additional day that expires after the time (as duly adjusted pursuant to the Contract) as specified in Paragraph 4.03.B above for Substantial Completion until the Work is substantially complete.
 - 3. Liquidated damages for failing to timely attain Substantial Completion of Areas 1 and/or 2 (Milestones A and B) shall be additive and will be imposed concurrently.
 - 4. Substantial Completion: Contractor shall pay Owner Four Hundred Dollars and No Cents (\$400.00) for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 - 5. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner Five Hundred Dollars and No Cents (\$500.00) for each day that expires after such time until the Work is completed and ready for final payment.
 - 6. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently. Failure to complete reconstruction work may be additive and imposed concurrently with substantial completion and/or final completion.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

- 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

- a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer’s estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of 3 percent per annum.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor’s safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor’s entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (Section 00 52 13)
 - 2. Plans Set
 - 3. Performance Bond (Section 00 61 13.13)
 - 4. Payment Bond. (Section 00 61 13.16)
 - 5. General Conditions. (Section 00 72 00)
 - 6. Supplementary Conditions. (Section 00 73 00)
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. Attached Layouts, Maps, and Photographs.
 - 9. Addenda.
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor’s Basis of Bid (Section 00 41 00.01)
 - 11. Documentation submitted by Contractor prior to Notice of Award.
 - 12. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned

without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____
(which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

_____ The Town of Pecos City, Texas

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

_____ 110 E. 6th St.

_____ Pecos, TX 79772

License No.: _____

(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

00 55 00 NOTICE TO PROCEED

Owner:	Town of Pecos City, Texas	Owner's Contract No.:
Contractor:		Contractor's Project No.:
Engineer:	Seth Sorensen	Engineer's Project No.: ST17-001
Project:	2017 Road Construction Projects	Contract Name:
		Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the number of days to achieve Substantial Completion is 90, and the number of days to achieve readiness for final payment is 120.

Before starting any Work at the Site, Contractor must comply with the following:
[Place Items Here]

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

00 61 13.13 PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

Town of Pecos City
110 E. 6th St.
Pecos, TX 79772

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the

Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any

person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any

amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

00 61 13.16 PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

Town of Pecos City
110 E. 6th St.
Pecos, TX 79772

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1 **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and
 - 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:

00 62 11 SUBMITTAL TRANSMITTAL FORM

OWNER: TOWN OF PECOS CITY **PROJECT NUMBER:** _____

PROJECT NAME: _____

CONTRACTOR: _____

Contractor's Submittal No.: _____ Specification Section: _____

Plan Sheet No.: _____ Description: _____

CONTRACTOR'S CERTIFICATION: I hereby certify that this submittal has been reviewed by the Contractor and is in strict conformance with the Contract Documents as modified by Addenda, Change Orders, and Field Orders. **CERTIFIED BY:** _____ **DATE:** _____

TYPE	#	DESCRIPTION	#SENT	#RET'D	STATUS
P		Application for Payment			Approved
CO		Change Order			Approved As Corrected
MR		Contract Modification Request			Not Approved
CTR		Certified Test Report			Revise & Resubmit
EIR		Equipment Installation Report			Filed As Received
FO		Field Order			Final Distribution
NBC		Notification by Contractor			Change Order Issued
O&M		Operation & Maintenance Manuals			Field Order Issued
PD		Photographic Documentation			Recommended For Approval
RD		Record Data			Returned W/O Review
RFI		Request for Information			Add'l Information Required
AM		Sample			Cancelled
SD		Shop Drawings			See Review Comments
SCH		Schedule of Progress			Pending Change Order

FOR ENGINEER'S USE ONLY

DATE RECEIVED: _____ BY: _____ DATE RETURNED: _____ BY: _____

COMMENTS: _____

DISTRIBUTION				REVIEW			
NO.	SENT TO.	NO.	SENT TO.	DEPT.	BY	DATE SENT	DATE RET'D

CERTIFICATE OF INSURANCE

Owner _____

Date _____

Address _____

Project No. _____

Type of Project _____

THIS IS TO CERTIFY THAT _____
(Name and address of insured)

is, at the date of this certificate, insured by this Company with respect to the business operations hereinafter described, for the types of Insurance and in accordance with the provisions of the standard policies used by this Company, and further hereinafter described. Exceptions to standard policy noted on reverse side hereof.

TYPE OF INSURANCE

	Policy No.	Effective	Expires	Limits of Liability
Workmen's Compensation				
Public Liability				1 person \$ _____ 1 accident \$ _____
Contingent Liability				1 person \$ _____ 1 accident \$ _____
Property Damage				
Builder's Risk				
Automobile				
Other				

The foregoing Policies (do) (do not) cover all sub-contractors.

Locations Covered: _____

Descriptions of Operations Covered: _____

The above policies either in the body thereof or by appropriate endorsement provide that they may not be changed or cancelled by the insurer in less than five days after the insured has received written notice of such change or cancellation.

Where applicable local laws or regulations require more than five days actual notice of change or cancellation to the assured, the above policies contain such special requirements, either in the body thereof or by appropriate endorsement thereto attached.

(Name of Insurer)

By: _____

Title: _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

**Application For Payment
Change Order Summary**

Approved Change Orders				
Number	Additions	Deductions		
TOTALS				
NET CHANGE BY CHANGE ORDERS				

1. ORIGINAL CONTRACT PRICE.....	\$ _____
2. Net change by Change Orders.....	\$ _____
3. Current Contract Price (Line 1 ± 2).....	\$ _____
4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates).....	\$ _____
5. RETAINAGE:	
a. X _____ Work Completed.....	\$ _____
b. X _____ Stored Material.....	\$ _____
c. Total Retainage (Line 5.a + Line 5.b).....	\$ _____
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c).....	\$ _____
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....	\$ _____
8. AMOUNT DUE THIS APPLICATION.....	\$ _____
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above).....	\$ _____

Contractor's Certification	
The undersigned Contractor certifies, to the best of its knowledge, the following:	
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;	
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and	
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.	
Contractor Signature	
By: _____	Date: _____

Payment of:	\$ _____
	(Line 8 or other - attach explanation of the other amount)
is recommended by:	_____ (Date)
	(Engineer)
Payment of:	\$ _____
	(Line 8 or other - attach explanation of the other amount)
is approved by:	_____ (Date)
	(Owner)
Approved by:	_____ (Date)
	Funding or Financing Entity (if applicable)

Work Change Directive No.

Date of Issuance: _____ Effective Date: _____
 Owner: Town of Pecos City Owner's Contract No.: _____
 Contractor: _____ Contractor's Project No.: _____
 Engineer: _____ Engineer's Project No.: _____
 Project: _____ Contract Name: _____

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

- Non-agreement on pricing of proposed change.
- Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price \$ _____ [increase] [decrease].
 Contract Time _____ days [increase] [decrease].

Basis of estimated change in Contract Price:

- Lump Sum Unit Price
- Cost of the Work Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____
 Title: _____

Date of Issuance:	Effective Date:
Owner: Town of Pecos City	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

<p>RECOMMENDED:</p> <p>By: _____ Engineer (if required)</p> <p>Title: _____</p> <p>Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Owner (Authorized Signature)</p> <p>Title: _____</p> <p>Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Contractor (Authorized Signature)</p> <p>Title: _____</p> <p>Date: _____</p>
---	--	---

Approved by Funding Agency (if applicable)

By: _____ Date: _____
Title: _____

00 65 16 CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Town of Pecos City, Texas	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	Seth Sorensen	Engineer's Project No.:	ST17-001
Project:	2017 Road Construction Projects	Contract Name:	

This [preliminary] [final] Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None As follows

Amendments to Contractor's responsibilities: None As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

00 65 19.13 AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS AND RELEASE OF LIENS FORM

PROJECT NAME: _____

PROJECT NO.: _____

I CERTIFY to the best of my knowledge and belief that all work has been performed and materials supplied in strict accordance with the terms and conditions of the corresponding contract documents between the TOWN OF PECOS CITY, hereinafter called the OWNER, and

_____, hereinafter called the CONTRACTOR, for the above referenced project.

I further certify and declare that, except as listed below, all bills for materials, supplied, utilities, and for all other things furnished or caused to be furnished by the CONTRACTOR and used in the execution of the contract will be fully paid upon receipt of Final Payment and that there are no unpaid obligations, liens, claims, security interests, encumbrances, liabilities, and/or demands of State Agencies, subcontractors, materialmen, mechanics, laborers, or any others resulting from or arising out of any work done, caused to be done, or ordered to be done by the CONTRACTOR under the contract.

EXCEPTIONS: (If none, write "NONE," Contractor shall furnish a bond, acceptable to the Owner, for each exception)

In consideration of the prior and final payments made and all payments made for authorized changes, the CONTRACTOR releases and forever discharges the OWNER from any and all obligations, liens, claims, security interests, encumbrances, and/or liabilities arising by virtue of the contract and authorized changes between the parties, either verbal or in writing, and any and all claims and demands of every kind and character whatsoever against the OWNER, arising out of or in any way relating to the contract and authorized changes.

I further certify and agree that the warranty period is defined as commencing with Substantial Completion (or with each Substantial Completion if there is more than one) of the Project, or any portion thereof, and continuing for one (1) calendar year from the date of Final Acceptance of the entire project unless otherwise modified in writing as part of the Substantial Completion of Final Acceptance.

This statement is made for the purpose of inducing the OWNER to make FINAL PAYMENT under the terms of the contract, relying on the trust and statements contained herein.

(Seal) CONTRACTOR

(Signature) _____ (Title)

Subscribed and sworn to me this ____ Day of _____, 20____

(Seal) NOTARY

My Commission Expires: _____

00 65 19.19 CONSENT OF SURETY TO FINAL PAYMENT FORM

TO OWNER: TOWN OF PECOS CITY
110 E. 6TH ST.
PECOS, TEXAS 79772

PROJECT NAME: _____

PROJECT NO.: _____

DATE: _____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

Surety Name: _____

Address: _____

, SURETY,

on bond of

Contractor Name: _____

Address: _____

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to

TOWN OF PECOS CITY
110 E. 6TH ST.
PECOS, TEXAS 79772

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this ____ day of _____, 20____

(Surety)

Attest:

(Signature of Authorized Representative)

(Seal):

(Printed Name and Title)

Prepared by



Issued and Published Jointly by



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et

seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*:
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

- C. *Day*:
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*:
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide*:
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Initial Acceptance of Schedules*

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

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

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

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

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

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

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

technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

5.01 *Availability of Lands*

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

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and

surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
3. Technical Data contained in such reports and drawings.

- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
2. is of such a nature as to require a change in the Drawings or Specifications; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental

Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

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

6.02 *Insurance—General Provisions*

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

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

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 4. Foreign voluntary worker compensation (if applicable).

- B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include

coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

- H. *Contractor's professional liability insurance:* If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

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

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05

will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

- C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

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

- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

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

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

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

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *“Or Equals”*

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

be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

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

7.05 *Substitutes*

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

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

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or

entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

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

7.08 *Permits*

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

7.09 *Taxes*

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

7.10 *Laws and Regulations*

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

agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

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

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance

with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

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

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

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

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

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

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
 2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

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

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

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

7.18 *Indemnification*

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

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

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

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

- 9.02 *Replacement of Engineer*
- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.
- 9.03 *Furnish Data*
- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.
- 9.04 *Pay When Due*
- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.
- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

10.01 *Owner’s Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor’s executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer’s efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer’s visits or observations of Contractor’s Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

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

10.04 *Rejecting Defective Work*

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

10.05 *Shop Drawings, Change Orders and Payments*

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

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

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

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

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the

design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

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

11.03 *Unauthorized Changes in the Work*

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

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

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

11.05 *Change of Contract Times*

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

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other

proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

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

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 Notification to Surety

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's

responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer’s decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor’s knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*:
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator’s fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final

and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

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

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
 5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

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

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

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

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

14.01 Access to Work

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

14.02 Tests, Inspections, and Approvals

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

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

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

14.04 *Acceptance of Defective Work*

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

of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

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

14.06 *Owner May Stop the Work*

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

14.07 *Owner May Correct Defective Work*

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

payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

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

Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due:

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

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - 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.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment:*

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

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

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

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

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

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;
2. correct such defective Work;
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective

Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

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

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

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

16.03 *Owner May Terminate For Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

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

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

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

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

00 73 00 SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1: DEFINITIONS AND TERMINOLOGY

SC-1.01 DEFINED TERMS

A. Add a new Paragraph 1.01.A.49:

“49. Written Amendment – A written statement modifying the Contract Documents, signed by Owner and Contractor on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.”

SC-1.02 TERMINOLOGY

A. Add a new Paragraph 1.02.B.2 as follows:

“2. “At no additional cost to Owner”, “With no extra compensation to Contractor”, “At Contractor’s own expense”, “incidental to” or similar words mean that the Contractor will perform or provide specified Work and that all cost for performing the Work is included in the Contract Price. ”

B. Delete Paragraph 1.02.C and add the following:

“C. Day

1. A “calendar day” shall be a day of 24 hours measured from midnight to the next midnight, and is any day of the year, with no days being excluded.
2. A “working day” shall be a day which permits construction of the principal units of the Work for a period of not less than 7 hours between 7:00 a.m. and 6:00 p.m. Working days do not include days on which weather or other conditions not under the control of the Contractor prevent Contractor from working the seven hours defining a working day. Working days do not include Saturdays, Sundays or any of the following holidays: New Year, President’s Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the day after Thanksgiving and Christmas Eve and Christmas Day.”

C. Add new Paragraphs 1.02.E.5 and 1.02.E.6 as follows:

- “5. Specifications are written in modified brief style. Requirements apply to all Work of the same kind, class, and type even though the word “all” is not stated.”
- “6. Simple imperative sentence structure is used which places a verb as the first word in the sentence. It is understood that the words “furnish”, “install”, “provide”, or similar words include the meaning of the phrase “The Contractor shall...” before

these words.”

ARTICLE 2: PRELIMINARY MATTERS

SC-2.03 BEFORE STARTING CONSTRUCTION

- A. Add a new paragraph immediately after Paragraph 2.05.A.3:
 - “B. Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. Contractor shall promptly report in writing to the Engineer any conflict, error, ambiguity or discrepancy which the Contractor may discover and shall obtain a written interpretation from the Engineer before proceeding with any Work affected thereby. In the event of a conflict in the Drawings, Specifications, or other portions of the Contract Documents which were not reported prior to the Award of the Contract, the Contractor shall be deemed to have included the most expensive item in their Bid.”

ARTICLE 3: DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01 INTENT

- A. Add the following to Paragraph 3.01.A:

“Drawings and Specifications do not indicate or describe all of the Work required to complete the Project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with the Engineer. Provide any work, materials or equipment required for a complete and functional system even if they are not detailed or specified.

 1. The Contract requirements described in the General Conditions, Supplementary Conditions and General Requirements apply to each and all Sections of the Specifications unless specifically noted otherwise.
 2. Organization of Contract Documents is not intended to control or to lessen the responsibility of the Contractor when dividing Work among Subcontractors, or to establish the extent of Work to be performed by any trade, Subcontractor or Supplier. Specifications or details do not need to be indicated or specified in each specification or drawing. Items shown in the Contract Documents are applicable regardless of location in the Contract Documents.
 3. Standard paragraph titles and other identifications of subject matter in the Specifications are intended to aid in locating and recognizing various requirements of the Specifications. Titles do not define, limit, or otherwise restrict specification text.”
- B. Add new Paragraphs 3.01.F through 3.01.H as follows:
 - “F. Comply with the most stringent requirements where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, unless Contract Documents indicate otherwise.
 1. Quantity or quality level shown or indicated shall be the minimum to be provided or performed in every instance.
 2. Actual installation must meet or exceed the minimum quality indicated.

3. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for context of requirements.
 4. Refer instances of uncertainty to the Engineer for a decision before proceeding.”
- “G. Provide materials and equipment comparable in quality to similar materials and equipment incorporated in the Project or as required to meet the minimum requirements of the application if the materials and equipment are shown in the Drawings but are not included in the Specifications.”
- “H. The Contract Documents comprise the entire Agreement between Owner and Contractor. The Contract Documents may be modified only by Field Order, Change Order or Written Amendment.”

SC-3.02 REFERENCE STANDARDS

- A. Add a new Paragraph 3.02.B as follows:
- “B. Comply with applicable construction industry standards as if bound or copied directly into the Contract Documents regardless of lack of reference in the Contract Documents. Apply provisions of the Contract Documents where Contract Documents include more stringent requirements than these referenced standards.
1. Standards referenced directly in the Contract Documents take precedence over standards that are not referenced but recognized in the construction industry as applicable.
 2. Comply with standards not referenced but recognized in the construction industry as applicable for performance of the Work except as otherwise limited by the Contract Documents. The Engineer determines whether code or standard is applicable, or which of several are applicable.
 3. Make copies of reference standards available as requested by Engineer or Owner.”

SC-3.03 REPORTING AND RESOLVING DISCREPANCIES

- A. Delete Paragraph 3.03.A.3 entirely and insert the following in its place:
- “3. In the event of a conflict in the Drawings, Specifications, or other portions of the Contract Documents which were not reported prior to the Bidding of the Contract, the Contractor shall be deemed to have included the most expensive item, system, procedure, etc. in his Bid.”

SC-3.05 REUSE OF DOCUMENTS

- A. Delete the last sentence of Paragraph 3.05.B entirely and insert the following in its place:
- “B. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes, unless specifically prohibited in writing by the Owner for security reasons. If the Owner so directs, Contractor shall surrender all copies of the construction Contract Documents and other related documents, in paper or digital format and remove these documents from computer equipment or storage devices as a condition of final payment.”

ARTICLE 4: COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.05 DELAYS IN CONTRACTOR'S PROGRESS

- A. Add the following to Paragraph 4.05.C.2:
"Adjustments of Contract Times for weather will not be allowed when Contract Times are set forth as calendar days. Abnormal weather conditions will be considered in the event of hurricanes and tornadoes."
- B. Add the following to Paragraph 4.05:
"H. The Contractor agrees to make no claims for damage for delay in the performance of the Contract occasioned by any act or omission to act of the Owner, Engineer, or any of the Owner's or Engineer's agents, and agrees that any such claim shall be fully compensated by an extension of time, as set forth in a Change Order, to complete performance of the Work as provided herein."

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

SC-5.04 DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS

- A. Amend Paragraph 5.04.A by deleting "promptly" and inserting "promptly but no later than within 24 hours."

SC-5.05 UNDERGROUND FACILITIES

- A. Amend Paragraph 5.05.B by deleting "promptly" and inserting "promptly but no later than within 24 hours."

ARTICLE 6: BONDS AND INSURANCE

SC-6.02 INSURANCE – GENERAL PROVISIONS

- A. Add the following paragraph immediately after Paragraph 6.02.B:
"1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months."
- A. Delete Paragraph 6.02.D entirely.
- B. Add the following new paragraph immediately after Paragraph 6.02.J:
"K. Owner shall not be responsible for purchasing and maintaining any insurance to protect the interest of the Contractor, Subcontractors, or others in the Work. The stated limits of insurance required are minimum only. Contractor shall determine the limits that are

adequate. These limits may be basic policy limits or any combination of basic limits and umbrella limits. In any event, Contractor is fully responsible for all losses arising out of, resulting from or connected with operations under this Contract whether or not said losses are covered by insurance. The acceptance of certificates or other evidence of insurance by the Owner, Engineer, and/or others listed as additional insured that in any respect do not comply with the Contract requirements does not release the Contractor from compliance herewith.”

SC-6.03 CONTRACTOR’S INSURANCE

A. Add the following new paragraph immediately after Paragraph 6.03.J:

“K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

Workers’ Compensation, etc.,	
State	Statutory
Applicable Federal (e.g., Longshore)	Statutory
Employers’ Liability	
Bodily Injury by Accident	\$500,000
Bodily Injury by Disease - Each Employee	\$500,000
Bodily Injury by Disease - Policy Limit	\$500,000
Insurance shall include a waiver of subrogation in favor of the Additional Insured identified in these Supplementary Conditions.	

2. Contractor’s Commercial General Liability under Paragraphs 6.03.B and 6.03C of the General Conditions:

Commercial General Liability	
Each Occurrence	\$300,000
Fire Damage	\$100,000
Personal and Advertising Injury	\$600,000
General Aggregate	\$600,000
Products/Completed Operations	\$300,000
Explosion, Collapse, Underground	\$300,000
Note: For contracts that do not require Excess or Umbrella Insurance, the aggregate limits under Commercial General Liability shall be maintained fully available for this Contract by obtaining and maintaining a Designated Construction Project General Aggregate Limit endorsement, or equivalent.	

- a. Contractor’s Liability Insurance shall also include completed operations and product liability coverage, and eliminate the exclusion with respect to property under the care, custody and control of Contractor. In lieu of

elimination of the exclusion, Contractor may provide and maintain Installation Floater insurance for property under the care, custody, or control of Contractor. The Installation Floater insurance shall be a broad form or "All Peril" policy providing coverage for all materials, supplies, machinery, fixture, and equipment which will be incorporated into the Work.

Coverage under the Contractors Installation Floater will include:

- i. Faulty or defective workmanship, materials, maintenance or construction.
 - ii. Cost to remove defective or damaged Work from the Site or to protect it from loss or damage.
 - iii. Cost to cleanup and remove pollutants.
 - iv. Coverage for testing and startup.
 - v. Any loss to property while in transit.
 - vi. Any loss at the Site.
 - vii. Any loss while in storage, both on-site and off-site.
 - viii. Any loss to temporary project works if their value is included in the Contract Price.
- b. Coverage cannot be contingent on an external cause or risk or limited to property for which the Contractor is legally liable. Contractor's Installation Floater will provide limits of insurance adequate to cover the value of the installation. The Contractor will be solely responsible for any deductible carried under this coverage and claims on materials, supplies, machinery, fixture, and equipment which will be incorporated into the Work while in transit or in storage. This policy will include a waiver of subrogation for those listed as additional insured in these Supplemental Conditions.

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury	
Combined Single Limit (Bodily Injury and Property Damage)	\$300,000

4. Excess or Umbrella Liability:

Excess or Umbrella Liability is not required for contract values less than \$1,000,000.

5. Contractor's Pollution Liability

Pollution Liability	
Each Occurrence	\$300,000
General Aggregate	\$600,000

6. Contractor's Professional Liability:

Contractor's Contractual Liability Insurance	
Each Claim	\$1,000,000
Annual Aggregate	\$1,000,000

SC-6.04 OWNER'S LIABILITY INSURANCE

A. Delete Paragraph 6.04.A entirely and insert the following in its place:

"A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Contractor shall purchase and maintain for Owner, at no additional cost, Owner's Protective Liability insurance naming Owner as the named insured with

insurance that will protect said parties against claims which may arise from operations under the Contract Documents. This coverage shall be from the same company that provides Contractor's liability insurance coverage, and in the same minimum amounts. The Engineer and Engineer's consultants are additional insured as their interest may appear including their officers, directors, agents and employees."

SC-6.06 WAIVER OF RIGHTS

- A. Delete Paragraph 6.06.B entirely.

ARTICLE 7: CONTRACTOR'S RESPONSIBILITIES

SC-7.09 TAXES

- A. Add a new paragraph immediately after Paragraph 7.09A:
- "B. Owner is exempt from payment of sales and compensating use taxes of the State of Texas and of cities and counties thereof on all materials to be incorporated into the Work.
1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies and materials not incorporated into the Work."

SC-7.10 LAWS AND REGULATIONS

- A. Delete the last sentence of Paragraph 7.10.B.

SC-7.15 EMERGENCIES

- A. Amend Paragraph 7.15.A by deleting the last sentence and inserting the following in its place:
- "If Engineer determines that the incident giving rise to the emergency action was not the responsibility of the Contractor and that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order, Field Order or Work Change Directive will be issued."

SC-7.18 INDEMNIFICATION

- A. Delete Paragraph 7.18.C entirely.

ARTICLE 11: AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.07 EXECUTION OF CHANGE ORDERS

- A. Add a new Paragraph 11.07.C as follows:
- "C. Contractor assumes and bears responsibility for all costs and time delays associated with any variation from the requirements of the Contract Documents unless the variation is specifically approved by Change Order."

ARTICLE 13: COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 COST OF THE WORK

- A. Amend Paragraph 13.01.B by deleting the following words in the first sentence:
“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:”
and insert the following in its place:
“those paid for the Work included in the Contract Price, shall include only the following items, and shall not include any of the costs itemized in Paragraph 13.01.C. Contractor shall provide certified payroll records listing personnel classifications and salaries for all individuals involved in additional Work. Salaries for those not included in the certified payroll will be considered as being compensated under Paragraph 13.01.C, and shall include only the following items:”
- B. Amend Paragraph 13.01.B.1 by deleting the following words in the second sentence:
“without limitation superintendents, foreman”
and inserting the following in its place:
“one foreman (unless agreed upon prior to beginning Work)”
- C. Amend Paragraph 13.01.B.1 by deleting the following words in the last sentence: “be included in the above”
and inserting the following in its place:
“not exceed 1.5 times regular pay and shall be included in the above”
- D. Amend Paragraph 13.01.C.1 by adding “superintendents” to the list of excluded personnel in the first sentence.
- E. Amend Paragraph 13.01.E by inserting “and at intervals” in the last sentence as shown below:
“.....and submit in a form and at intervals acceptable to Engineer ...”

SC-13.03 UNIT PRICE WORK

- A. Delete Paragraph 13.03.E in its entirety and insert the following in its place:
 - E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
 - 1. if the extended price of a particular item of Unit Price Work amounts to 10 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 20 percent from the estimated quantity of such item indicated in the Agreement; and
 - 2. if there is no corresponding adjustment with respect to any other item of Work; and
 - 3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the

quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.”

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

SC-15.01 PROGRESS PAYMENTS

- A. Amend Paragraph 15.01.D.1 by deleting “Ten” and inserting “Thirty” in its place.
- B. Amend Paragraph 15.01.E.1 by adding new paragraphs “m”, “n”, “o”, and “p” as follows:
 - “m. Owner has been notified of failure to make payments to Subcontractors or Suppliers or for labor;”
 - “n. failure to submit up-to-date record documents”
 - “o. failure to submit monthly Progress Schedule updates or revised schedules as requested by the Owner or Engineer”
 - “p. failure to provide project photographs required by the Specifications.”
- C. Amend Paragraph 15.01.E.2. by adding “to Owner’s satisfaction.” to the end of the second sentence.
- D. Amend Paragraph 14.01.E.3 by deleting “and subject to interest as provided in the Agreement.”
- E. Add a new Paragraph 14.01.E.4 as follows:
 - “4. Owner may permanently withhold payment from Contract Price for:
 - a. Liquidated damages incurred by Contractor, or
 - b. Compensation for Engineer for overtime charges of Resident Project Representative, third review of submittals, review of substitutions, re- inspection fees, inspections or designs related to correction of defective Work, or other Services identified as requiring payment by the Contractor.
 - c. Costs for tests performed by the Owner to verify that Work previously tested and found to be defective has been corrected. Verification testing is to be provided at the Contractor’s expense to verify products or constructed works are in compliance after corrections have been made.”

ARTICLE 16: SUSPENSION OF WORK AND TERMINATION

SC-16.02 OWNER MAY TERMINATE FOR CAUSE

- A. Add a new Paragraph 16.02.A.5 as follows:
 - “5. If Contractor fails to provide the replacement bond required by General Conditions, Section 5.01.C or insurance coverage as required by General Conditions Article 5 and as amended by Supplemental Conditions.”
- B. Add a new Paragraph 15.02.A.6 as follows:
 - “6. If any petition of bankruptcy is filed by or against Contractor, or if Contractor is adjudged as bankrupt or insolvent or makes a general assignment for the benefit of creditors, or if a receiver is appointed for the benefit of Contractor’s creditors, or if a

receiver is appointed on account of Contractor's insolvency, upon the occurrence of any such event, Owner shall be entitled to request of Contractor or its successor in interest adequate assurance of future performance in accordance with the terms and conditions hereof. Failure to comply with such request within 7 days of delivery of the request shall entitle Owner to terminate this agreement and to the accompanying rights set forth in Paragraphs 15.02 and 15.03 hereof. In all events pending receipt of adequate assurance of performance and actual performance in accordance therewith, Owner shall be entitled to proceed with the Work with its own forces or with other contractors on a time and material or other appropriate basis. The cost of work by Owner or other contractors will be back charged against the Contract Sum hereof."

- C. Delete Paragraph 16.02.G entirely.

SC-16.04 CONTRACTOR MAY STOP WORK OR TERMINATE

- A. Add a new Paragraph 16.04.C as follows:

"C. This Contract may not be assigned in whole or in part by the Contractor without the previous written consent of the Owner."

ARTICLE 17: FINAL RESOLUTION OF DISPUTES

SC-16.02 METHODS AND PROCEDURES

- A. Add the following new paragraph immediately after Paragraph 17.01.

"17.02 Arbitration

- A. All matters subject to final resolution under this Article will be decided by arbitration in accordance with Construction Industry Arbitration Rules and Mediation Procedures of the American Arbitration Association subject to the conditions and limitations of this paragraph. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in this Article, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations. The demand for arbitration should include specific reference to Paragraph SC-17.02.D below.
- C. No arbitration arising out of or relating to the Contract shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and

2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include a concise breakdown of the award, and a written explanation of the award specifically citing the Contract provisions deemed applicable and relied on in making the award.
- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.”

ARTICLE 18: MISCELLANEOUS

- A. Add a new Paragraph 18.02.B as follows:
 - “B. All references and conditions for a “calendar day contract” in the General Conditions and Supplementary Conditions shall apply for a “Fixed Date Contract.” A “Fixed Date Contract” is one in which the calendar dates for reaching Substantial Completion and/or final completion are specified in lieu of identifying the actual calendar days involved.”
- B. Delete Paragraph 18.08 and replace with the following:

“18.08 Headings

The Article and paragraph headings in this Agreement are inserted for convenience only and do not constitute parts of these General Conditions or as a limitation of the scope of the particular section to which they refer. This Agreement will be fairly interpreted in accordance with its terms and conditions and not for or against either Party.”
- C. Add a new Paragraph 18.09 as follows:

“18.09 Independent Contractor

 - A. Each Party will perform its duties under this Agreement as an independent contractor. The Parties and their personnel will not be considered to be employees or agents of the other Party. Nothing in this Agreement will be interpreted as granting either Party the right or authority to make commitments of any kind for the other. This Agreement will not constitute, create, or be interpreted as a joint venture, partnership or formal business organization of any kind.”
- D. Add a new Paragraph 18.10 as follows:

“18.10 Sovereign Immunity

 - A. The parties agree that the Owner has not waived its sovereign immunity by entering into and performing its obligations under this Agreement.”
- E. Add a new Paragraph 18.11 as follows:

“18.11 Severability

 - A. If a court of competent jurisdiction renders any part of this Agreement invalid or

unenforceable, that part will be severed and the remainder of this Agreement will continue in full force and effect.”

F. Add a new Paragraph 18.12 as follows:

“18.12 No Third Party Beneficiaries

A. Nothing in this Agreement shall be construed to create any right in any third party not a signatory to this Agreement, and the parties do not intend to create any third party beneficiaries by entering into this Agreement.”

END OF SECTION

01 11 00 SUMMARY OF WORK

1.00 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS REQUIREMENTS INCLUDED

- A. This Section describes the project in general and provides an overview of the extent of the work to be performed. Detailed requirements and extent of work are stated in the applicable Specification sections and/or shown on the Drawings. The Contractor shall, except as otherwise specifically stated herein or in any applicable parts of these Contract Documents, provide and pay for all labor, materials, equipment, tools, construction equipment, and other facilities and services necessary for proper execution, testing, and completion of the Work.
- B. Any part or item of the work which is reasonably implied or normally required to make each installation satisfactorily and completely operable shall be performed by the Contractor and the expense thereof included in the applicable price bid for the item. All miscellaneous appurtenances and other items of work that are incidental to meeting the intent of the plans and these Specifications, are considered to be included in the applicable price bid for this project, even though these appurtenances and items may not be specifically called for in the Specifications or shown on the Drawings.
- C. Comply with all applicable state and local codes and regulations pertaining to the nature and character of the work being performed.
- D. The Work under this contract includes all items included on the included bid forms and various incidental work. Contractor shall provide all materials, tools, equipment, labor, superintendence, transportation, and incidentals necessary for the Work as indicated in the Contract Documents.

1.02 RELATED REQUIREMENTS

- A. The General Conditions, the Supplementary Conditions, and Division One Specifications apply to each specification section.

1.03 CONTRACTS

- A. Construct the Work under at unit prices, as shown on the Bid Form.

1.04 WORK BY OTHERS (NOT USED)

1.05 FUTURE WORK (NOT USED)

1.06 WORK SEQUENCE

- A. Construct the Work in stages to accommodate Public and Private use of the premises during the construction period; coordinate the construction schedule and operations with the Owner's Representative and the appointed representative of Surface Equipment Corporation.
- B. Construct the Work in stages to provide for public convenience.

1.07 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit his use of the premises for Work and for storage, to allow for:
- B. Work by other Contractors.

- C. Owner occupancy.
- D. Public use.
- E. Coordinate use of premises under direction of Owner's representative.
- F. Assume full responsibility for the protection and safekeeping of Products under this Contract that are stored on the site.
- G. Move any stored Products under Contractor's control that interfere with operations of the Owner or separate contractor.
- H. Obtain and pay for the use of additional storage or work areas needed for operations.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION

3.01 ATTENTION TO WORK

- A. Contractor shall give personal attention to and shall supervise the Work to the end that it shall be prosecuted faithfully. When he/she is not personally on site, a competent superintendent or foreman who shall be the legal representative of the Contractor shall represent him.

3.02 ACCESS TO WORK

- A. The Contractor shall provide access for inspection of the Work by the Owner and/or official Governmental agencies.

END OF SECTION

01 26 00 CONTRACT MODIFICATION PROCEDURES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Promptly implement Change Order procedures.
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material/force account basis.
 - 3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Person authorized to accept changes in the Work.
 - 2. Person responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS

- A. Agreement: The amounts of established unit prices.
- B. Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and material basis.
 - 2. Contractor's claims for additional costs.
- C. Section 01 29 00: Payment Procedures.
- D. Section 01 78 39: Project Record Documents.
- E. Section 01 33 00: Submittal Procedures

1.03 DEFINITIONS

- A. Change Order: See General Conditions.
- B. Field Order: A written directive to make immediate changes that may or may not result in a change order.
- C. Work Change Directive: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

1.04 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a Proposal Contract Modification (PCM) to Contractor. Request will include:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
 - 4. A specific period of time during which the requested price will be considered valid.
 - 5. Such request is for information only and is not an instruction to execute the changes or to stop Work in progress.
- B. Contractor may initiate changes by submitting a Contract Modification Request (CMR) to Engineer containing:
 - 1. Description of the proposed changes.
 - 2. Statement of the reason for making the changes.

3. Statement of the effect on the Contract Sum and the Contract Time.
 4. Statement of the effect of the work of separate contractors.
 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.
- C. All proposals will be evaluated by the Engineer.
- D. The Contractor may be informed that the proposed modifications are not approved and construction is to proceed in accordance with the Contract Documents.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal and for each unit price that has not previously been established with sufficient substantiating data to allow Engineer to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations including but not limited to:
1. Labor required.
 2. Equipment required.
 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 4. Taxes, insurance, and bonds.
 5. Credit for work deleted from Contract, similarly documented.
 6. Overhead and profit.
 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs and for work done on a time and material/force account basis with documentation as required for a lump-sum proposal, plus additional information.
1. Name of the Owner's authorized agent who ordered the work and date of the order.
 2. Dates and times work was performed and by whom.
 3. Time record, summary of hours worked, and hourly rates paid.
 4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used with list of quantities.
 - c. Subcontracts.

1.06 PREPARATION AND EXECUTION OF CHANGE ORDERS

- A. Engineer will prepare each Change Order, Field Order, or Work Change Directive per the Articles of the General Conditions.
- B. Form for Change Order: Engineers Joint Contract Documents Committee (ECJDC) Document C-941.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.
- E. The Change Order will be sent to the Contractor for execution with a copy to the Owner recommending approval.
- F. Change Orders can only be approved by the Owner.

1. Work performed on the proposed contract modifications prior to approval of the Change Order will be performed at the Contractor's risk.
2. No payment will be made for work on Change orders until approved by the Owner.

1.07 LUMP SUM/FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 1. Engineer's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the Contractor to proceed with the changes.
- C. Contractor may sign and date the Change Order to indicate agreement with the terms therein.

1.08 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on either:
 1. Engineer's definition of the scope of the required changes.
 2. Contractor's Proposal for a change, as recommended by Engineer.
 3. Survey of completed work.
- B. The amounts of the unit prices to shall be:
 1. Those stated in the Agreement.
 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
 1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 2. Contractor may sign and date the Change Order to indicate agreement with the terms therein.
- D. When quantities of the items cannot be determined prior to start of the work:
 1. Engineer or Owner will issue a construction change authorization directing Contractor to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.
 2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
 3. Engineer will sign and date the Change Order to indicate his/her agreement with the terms therein.
 4. Owner and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

1.09 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Request for Payment forms to record each change as a separate item of Work and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 29 00 PAYMENT PROCEDURES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Application for Payment to Engineer in accord with the schedule established by Conditions of the Contract and Agreement Between Owner and Contractor.

1.02 RELATED REQUIREMENTS

- A. Agreement Between Owner and Contractor.
- B. Conditions of the Contract: Progress Payments, Retainages, and Final Payment.
- C. Section 01 29 73: Schedule of Values.
- D. Section 01 77 00: Closeout Procedures.

1.03 FORMAT AND DATA REQUIRED

- A. Submit applications typed on EJCDC Document C-620, Contractor's Application for Payment, with itemized data typed on 8-1/2 x 11" white paper continuation sheets.
- B. Provide itemized data on continuation sheet
 - 1. Format, schedules, line items, and values: Those of the Schedule of Values accepted by Engineer.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets
 - 1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
 - 3. List each Change Order executed prior to date of submission at the end of the continuation sheets.
 - a. List by Change Order Number and description, as for an original component item of work.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter identifying:
 - 1. Project.
 - 2. Application number and date.
 - 3. Detailed list of enclosures.
 - 4. For stored products:
 - a. Item number and identification as shown on application.

- b. Description of specific material.
 - B. Submit one copy of data and cover letter for each copy of application.
- 1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT
- A. Fill in Application form as specified for progress payments.
 - B. Use continuation sheet to present the final statement of accounting as specified in Section 01 77 00: Closeout Procedures.
- 1.07 SUBMITTAL PROCEDURE
- A. Submit Application for Payment to Engineer at the times stipulated in the Agreement.
 - B. Number: Five copies of each Application.
 - C. When Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner with copy to Contractor.
- 1.08 MEASUREMENT AND BASIS OF PAYMENT
- A. No separate payment will be made for items not listed in this section. Prices are to include all costs, including overhead, profit, compliance with General Requirements and Technical Specifications and any and all incidentals required to complete the Project as specified in the Contract Documents and as shown on the Schedule of Values.
 - B. Bid Item No. 1 – MOBILIZATION will be paid as a lump sum to perform preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities and lead paint testing, necessary for the start of the work, excluding the cost of construction materials and any other preconstruction expense. Mobilization shall not exceed 5% of the total base bid.
 - C. Bid Item No. 2 – BONDS AND INSURANCE will be paid as a lump sum for the costs of acquiring, furnishing, and maintaining all required bonds and insurance for the durations specified in the Contract Documents.
 - D. Bid Item No. 3 – CONTINGENCY will be paid as a force account for unforeseen work items and minor bid item overruns. Force account work shall include all labor, tools, equipment, and incidentals required for the associated work items. Force Account items shall only be paid upon the proper execution of approved field and/or change orders.
 - E. Bid Item No. 4 – MATERIALS TESTING will be paid as a lump for moisture density control of subgrade and base course and density control of asphalt pavements. This item includes all materials, labor, equipment, reports and incidentals for contract compliance, complete and in place.
 - F. Bid Item No. 5 – TRAFFIC CONTROL will be paid as a lump sum for the implementation of traffic control measures. This item includes all materials, labor, equipment, and incidentals for establishing and maintaining a safe work zone in compliance with TMUTCD Standards.
 - G. Bid Item No. 6 – CLEARING AND GRUBBING will be paid by the acre for the removal of all brush, debris, detritus and other materials from the worksite(s) that are unsuitable for compaction or inclusion in fill. This item includes all labor, equipment, and superintendence to remove all unsuitable material and hauling to an approved waste location. All plants and root systems shall be removed to at least one (1) foot below grade prior to placement of base material.

- H. Bid Item No. 7 – UNCLASSIFIED EXCAVATION will be measured by the cubic yard and paid as excavation and removal of excess native soils. Work shall include all labor, tools, equipment, and incidentals required for the associated work items.
- I. Bid Item No. 8 – HAULING OF EXCESS SOIL will be paid by the cubic yard hauled each mile to deliver unclassified excavation to the location noted on the plans. No mileage will be granted for return (i.e. “empty”) trips. Item shall include all labor, tools, equipment, fuel, materials, and incidentals required to load and haul unclassified excavation. Quantity disputes shall be determined by measuring stockpiles and averaging haul distances.
- J. Bid Item No. 9 – GRADING AND COMPACTION will be paid as lump sum and will include all surveying, labor, material, equipment and water necessary to achieve finished grades and compaction rates as identified in the plans and specifications.
- K. Bid Item No. 10 – FLEXIBLE “CALICHE” BASE will be paid by the cubic yard and will include all labor, tools, equipment, fuel, water, materials, and incidentals required to load, haul and install base material to the achieve finished grades and compaction rates as identified in the plans and specifications.
- L. Bid Item No. 11 – PRIME COAT (SS-1) will be paid for by the gallon applied in accordance with the plans and specifications. Pay requests for this item shall be documented along with daily tank stabbings to verify before and after application rates and quantities. Tank Stabbing information shall be available upon request by the engineer. This item includes all materials, equipment, labor, fuels and other incidentals required to deliver and properly apply materials.
- M. Bid Item No. 12 - TxDOT TYPE “D” HMAC will be paid by the ton for the hauling, placement and compaction of hot mix asphalt concrete in accordance with TxDOT specifications. This item includes all materials, labor, equipment, fuels and incidentals for the proper installation of HMAC at the prescribed thicknesses. Plant tickets shall be made available to the engineer upon request.
- N. Bid Item No. 13 – CURB & GUTTER/LAYDOWN CURB will be paid for by the linear foot and will include all surveying, labor, tools, equipment, forms, fuel, water, materials, and incidentals required to install concrete curb and gutter to the dimensions and locations as identified in the plans and according to specifications.
- O. Bid Item No. 14 – REMOVE AND REPLACE EXISTING CULVERT will include all labor, tools, equipment, fuel, water, materials, and incidentals required to excavate and remove an existing culvert, move it to the prescribed location and reinstall with proper compaction.
- P. Bid Item No. 15 – REMOVE EXISTING CURB & GUTTER will be measured by the linear foot and will include all labor, tools, equipment, fuel, water, materials, and incidentals required to excavate and remove existing curb and gutter. Item also includes all costs to haul the material to a previously agreed location. Item includes any landfill fees, as applicable.
- Q. Bid Item No. 16 – REMOVE EXISTING SIDEWALK will be measured by the square foot and will include all labor, tools, equipment, fuel, water, materials, and incidentals required to excavate and remove existing sidewalk. Item also includes all costs to haul the material to a previously agreed location. Item includes any landfill fees, as applicable.
- R. Bid Item No. 17 – SAWCUTTING HMAC PAVEMENT will be measured by the linear foot and paid for sawcutting related to localized asphalt repairs and creating a clean edge against existing asphalt pavement. Work shall include all labor, tools, equipment, and incidentals required for the associated work items.
- S. Bid Item No. 18 – 18" N-12 SOIL TIGHT INTEGRATED BELL PIPE will be measured by the linear foot to supply, deliver, install drainage pipe. Work shall include all materials, labor,

- tools, equipment, and incidentals required for the associated work items, including any beveling of the pipe as may be required.
- T. Bid Item No. 19 – 18" CONCRETE DUAL SAFETY END TREATMENT (TxDOT "SET P-PD") will be measured by the each to supply, deliver, form, pour or otherwise install safety end treatments on 18" N-12 pipe. Work shall include all materials, labor, tools, equipment, and incidentals required for the associated work items.
 - U. Bid Item No. 20 – CONCRETE FILL shall be used to backfill around 18" N-12 drainage pipe and at locations where water and sewer lines cross. Work shall include all materials, excavation, labor, tools, equipment, and incidentals required for the associated work items.
 - V. Bid Item No. 21 – ADJUST MANHOLE/VALVE COVER TO FINISHED GRADE will include raising or lowering manhole lids and valve covers to finished grades. Manhole adjustments shall be sealed and waterproofed so as to prevent inflow and infiltration. Work shall include all materials, excavation, labor, tools, equipment, and incidentals required for the associated work items.
 - W. Bid Item No. 22 – POTHOLING AND VERIFICATION OF EXISTING PIPE shall include excavating down to water and sewer lines, and exposing said lines sufficiently to accurately determine the diameter of pipe, direction of pipe travel, and depth from finished grade to top of pipe. Work shall include all excavation, labor, tools, equipment, and incidentals required for the associated work items.
 - X. Bid Item No. 23 – 6" THICK CONCRETE DRIVEWAYS - REINFORCED will be measured by the cubic yard of concrete and will include all labor, tools, equipment, materials, forms, water, materials, and incidentals required to compact base, prepare and install 6" of reinforce concrete pavement for driveways.
 - Y. Bid Item No. 24 – FIBERGLASS MANHOLE (COMPLETE) will be measured and paid for by the each. Manhole heights can be determined from plan details and elevations. Work shall include all materials, excavation, labor, tools, equipment, and incidentals required for the associated work items.
 - Z. Bid Item No. 25 – 8" PVC SDR 35 SEWER LINE will be measured by the linear foot of installed, completed in place sewer line in the prescribed diameter and thickness. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
 - AA. Bid Item No. 26 – 10" PVC SDR 35 SEWER LINE will be measured by the linear foot of installed, completed in place sewer line in the prescribed diameter and thickness. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
 - BB. Bid Item No. 27 – 4" SEWER SERVICE CONNECTION (COMPLETE) will be measured by the each for a complete (as defined on the plans) sewer connection in the diameter prescribed above. Work shall include costs of furnishing and installing at materials, surveying, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
 - CC. Bid Item No. 28 – 6" SEWER SERVICE CONNECTION (COMPLETE) will be measured by the each for a complete (as defined on the plans) sewer connection in the diameter prescribed above. Work shall include costs of furnishing and installing at materials, surveying, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.

- DD. Bid Item No. 29 – 6" AWWA C900 PVC PIPE CLASS 150, DR-18 will be measured by the linear foot of installed, completed in place water line in the prescribed diameter and thickness. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- EE. Bid Item No. 30 – 12" AWWA C900 PVC PIPE, DR-18 will be measured by the linear foot of installed, completed in place water line in the prescribed diameter and thickness. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- FF. Bid Item No. 31 – 6" LATERAL PRESSURE INTERCONNECTION (HOT TAP) W/6" GATE VALVE will be measured by the each for a complete (as defined on the plans) interconnection with gate valve. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- GG. Bid Item No. 32 – FIRE HYDRANT ASSEMBLY W/6" GATE VALVE (COMPLETE) will be measured by the each for a complete (as defined on the plans) interconnection with gate valve, hydrant, fittings and 6" pipe. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- HH. Bid Item No. 33 – 6" DUCTILE IRON 22.5° BEND - MJ will be measured by the each for furnished and installed fittings, including all mechanical joint restraints, gland packs, tie rods, and other appurtenances as necessary. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- II. Bid Item No. 34 – 12" DUCTILE IRON 22.5° BEND - MJ will be measured by the each for furnished and installed fittings, including all mechanical joint restraints, gland packs, tie rods, and other appurtenances as necessary. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- JJ. Bid Item No. 35 – 12" DUCTILE IRON 45° BEND - MJ will be measured by the each for furnished and installed fittings, including all mechanical joint restraints, gland packs, tie rods, and other appurtenances as necessary. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- KK. Bid Item No. 36 – 12" X 6" DUCTILE IRON REDUCER - MJ will be measured by the each for furnished and installed fittings, including all mechanical joint restraints, gland packs, tie rods, and other appurtenances as necessary. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- LL. Bid Item No. 37 – 12" GATE VALVE - MJ will be measured by the each and will include furnishing and installing gate valves along with including all mechanical joint restraints, gland packs, tie rods, and other appurtenances as necessary. Work shall include costs of furnishing and installing at materials, surveying, testing, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.
- MM. Bid Item No. 38 – 3/4" WATER SERVICE CONNECTION (COMPLETE) will be measured by the each for a complete (as defined on the plans) water connection in the diameter

prescribed above. Work shall include costs of furnishing and installing at materials, surveying, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.

NN. Bid Item No. 39 – 2" WATER SERVICE CONNECTION (COMPLETE) will be measured by the each for a complete (as defined on the plans) water connection in the diameter prescribed above. Work shall include costs of furnishing and installing at materials, surveying, excavation, labor, tools, equipment, and incidentals required for the proper installation of associated work items.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 29 73 SCHEDULE OF VALUES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit to the Engineer a Schedule of Values allocated to the various portions of the Work within 10 days after award of contract.
- B. Upon request of Engineer, support the values with data that will substantiate their correctness.
- C. The Schedule of Values shall be used as the basis for the Contractor's Applications for Payment.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract.
- B. Section 01 29 00: Payment Procedures.

1.03 FORMAT AND CONTENT OF SCHEDULE OF VALUES

- A. Type schedule on 8-1/2 x 11" white paper. Engineer will consider contractor's standard forms and automated printout for approval upon Contractor's request. Identify schedule with:
 - 1. Title of Project and location.
 - 2. Engineer and Project number.
 - 3. Name and address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- B. For lump sum contracts and items:
 - 1. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.
 - 2. Follow the Bid Proposal as the format for listing component items.
 - a. Identify each line item with the number and title of the respective major sections of the specifications.
 - 3. For each major line item, list sub values of major products or operations under the item.
 - 4. For the various portions of the Work:
 - a. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
 - b. For items on which progress payments will be requested for stored materials, break down the value into:
 - 1) The cost of the materials, delivered and unloaded, with taxes paid.
 - 2) The total installed value.
 - c. Submit a subschedule for each separate stage of work specified in Section 01 11 00.
 - 5. The sum of all values listed in the schedule shall equal the total Contract Sum.
- C. For unit price contracts and items:
 - 1. Submit a subschedule of unit cost and quantities for:
 - a. Products on which progress payments will be requested for stored products.
 - 2. The form of submittal shall parallel that of the Bid Proposal, with each item identified the same as the line item in the Proposal.

3. The unit quantity of bulk materials shall include an allowance for normal waste.
4. The unit values for the material shall be broken down into:
 - a. Cost of the material, delivered and unloaded at the site, with taxes paid.
 - b. Installation costs, including Contractor's overhead and profit.
5. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values and the Contract Sum.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 30 00 ADMINISTRATIVE REQUIREMENTS

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

Administer contract requirements to construct the project. Provide documentation per the requirements of this Section. Provide information as requested by the Engineer or Owner concerning this project.

1.02 RELATED REQUIREMENTS

Section 01 33 00: Submittal Procedures.

1.03 COMMUNICATION DURING THE PROJECT

The Engineer is to be the first point of contact for all parties on matters concerning this project.

The Engineer will coordinate correspondence concerning:

1. Submittals, including requests for payment
2. Clarification and interpretation of the Contract Documents
3. Contract modifications
4. Observation of work and testing
5. Claims

The Engineer will normally communicate only with the Contractor. Any required communication with suppliers or subcontractors will only be with the first involvement of the Contractor.

Written communications are to be directed to the Engineer at the address indicated at the pre-construction Conference. Communications should include as a minimum:

6. Name of the Owner
7. Project name
8. Contract title
9. Project number
10. Date
11. A reference statement

Submit communications on the forms referenced in this Section or in Section 01 33 00.

1.04 PROJECT MEETINGS

Pre-construction Conference

1. Attend a pre-construction meeting.
2. The location of the conference will be determined by the Engineer.
3. The time of the meeting will be determined by the Engineer, but will be after the Notice of Award is issued and not later than fifteen (15) days after the Notice to Proceed is issued.
4. The Owner, Engineer, representative of utility companies, the Contractor's project manager and superintendent, and representatives from major subcontractors and suppliers may attend the meeting.
5. Contractor should provide and be prepared to discuss:
 - a. Preliminary construction and submittal schedule per Section 01 32 26: Construction Progress Reporting.

- b. Schedule of values and anticipated schedule of payments per Section 01 29 73: Schedule of Values.
- c. List of Suppliers and Subcontractors.
- d. Contractor's organizational chart as it relates to this project.
- e. Letter indicating the agents of authority for the Contractor and the limit of that authority with respect to the execution of legal documents, contract modifications and payment requests.

1.05 Progress Meetings

- 1. Attend meetings with the Engineer and Owner:
 - a. Meet on a monthly basis or as requested by the Engineer to discuss the project.
 - b. Meet at the project site or other location as designated by the Engineer.
 - c. Contractor's superintendent and other key personnel are to attend the meeting. Other individuals may be requested to attend to discuss specific matters.
- 2. Provide information as requested by the Engineer or Owner concerning this project.
 - a. Prepare to discuss:
 - 1) Status of overall project schedule.
 - 2) Contractor's detailed schedule for next month.
 - 3) Anticipated delivery dates for equipment
 - 4) Coordination with the Owner.
 - 5) Status of submittals.
 - 6) Information or clarification of the Contract Documents.
 - 7) Claims and proposed modifications to the contract
 - 8) Field observations, problems, or conflicts.
 - 9) Maintenance of quality standards.
 - b. Notify the Engineer of any specific items to be discussed a minimum of one (1) week prior to the meeting.
- 3. Review minutes of meetings and notify the Engineer of any discrepancies within ten (10) days of the date of the memorandum.
 - a. Following the date, the minutes will stand as shown or as corrected.
 - b. Corrections will be reflected in the minutes of the following meeting.
 - c. Each issue is to be numbered to indicate the meeting number and the issue number. Issues discussed will be documented and old issues will remain on minutes of subsequent meetings until the issue is resolved.

1.06 Pre-submittal and Pre-installation meetings

- 1. Attend pre-submittal and pre-installation meetings as required in the individual technical specifications or as determined necessary by the Engineer (for example, instrumentation, roofing, concrete mix design, etc.).
- 2. The location of the meeting will be determined by the Engineer.
- 3. The time of the meeting will be determined by the Contractor when ready to proceed with the associated work, subject to submission of an NBC and acceptance by the Engineer and owner of the proposed time.
- 4. The Owner, Engineer, the Contractor's project manager and superintendent, and representatives from affected subcontractors and suppliers shall attend the meeting.

1.07 REQUESTS FOR INFORMATION

Submit Request for Information (RFI) to the Engineer to obtain additional information or clarification of the Contract Documents.

1. Submit a separate RFI for each item per Section 01 33 00: Submittal Procedures.
 2. Attach adequate information to permit a written response without further clarification. Engineer will return requests that do not have adequate information to the Contractor for additional information. Contractor is responsible for all delays resulting from multiple submittals due to inadequate information.
 3. A response will be made when adequate information is provided.
- B. Response to an RFI is given to provide additional information, interpretation, or clarification of the requirements of the Contract Documents and does not modify the Contract Documents.
- C. If the RFI indicated that a contract modification is required, the Engineer will initiate a proposed Contract Modification (PCM) per Section 01 26 57: Change Order Procedures.

1.08 NOTIFICATION BY CONTRACTOR

- A. Notify the Engineer of:
1. Need for testing.
 2. Intent to work outside regular working hours.
 3. Request to shut down facilities or utilities.
 4. Proposed utility connections.
 5. Required observation by Engineer or inspection agencies prior to covering work.
 6. Training.
- B. Provide notification a minimum of two (2) weeks in advance in order to allow Owner and Engineer time to respond appropriately to the notification.
- C. All notifications shall be in writing.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 32 16 CONSTRUCTION PROGRESS SCHEDULE

GENERAL

1.01 REQUIREMENTS INCLUDED

Prepare and submit a progress schedule for the work and update the schedule on a monthly basis for the duration of the project.

Provide schedule in adequate detail to allow Owner to monitor the work progress, to anticipate the time and amount of progress payments, and to relate submittal processing to sequential activities of the work.

Incorporate and specifically designate the dates of anticipated submission of submittals and the dates when submittals must be returned to the Contractor into the schedule.

Assume complete responsibility for maintaining the progress of the work per the schedule submitted.

1.02 RELATED REQUIREMENTS

Conditions of the Contract

Section 01 11 00: Summary of Work

Section 01 33 00: Submittal Procedures

1.03 FORM OF SCHEDULES

Prepare schedules in the form of a horizontal bar chart.

Provide separate horizontal bar for each trade or operation.

Horizontal time scale: Identify the first workday of each week.

Scale and spacing: Allow space for notations and future revisions.

Format of listings: The chronological order of the start of each item of work.

Identification of listings: By major specification section numbers.

1.04 CONTENT OF SCHEDULES

Construction Progress Schedule: construction by activity.

Show the dates for the beginning and completion of each major element of construction. Where applicable, specifically list:

Site clearing.

Site utilities.

Foundation work.

Structural framing.

Subcontractor work.

Equipment installations.

Finishings.

Show projected percentage of completion for each item as of the first day of each month.

Submittals Schedule for Shop Drawings, Product Data, and Samples. Show:

The dates for Contractor's submittals.

The dates approved submittals will be required from the Engineer.

Prepare and submit subschedules for each separate stage of work specified in Section 01 11 00: Summary of Work or Bid Proposal.

Provide subschedules to define critical portions of prime schedules.

1.05 PROGRESS REVISIONS

Indicate progress of each activity to date of submission.

Show changes occurring since previous submission of schedule:

Major changes in scope.

Activities modified since previous submission.

Revised projections of progress and completion.

Other identifiable changes.

Provide a narrative report as needed to define:

Problem areas, anticipated delays, and the impact on the schedule.

Corrective action recommended and its effect.

The effect of changes on schedules of other prime contractors.

1.06 SUBMISSIONS

Submit initial schedules within 15 days after award of Contract.

Engineer will review schedules and return review copy within 10 days after receipt.

If required, resubmit within seven days after return of review copy.

Submit revised progress schedules with each application for payment. Failure to do so will result in withholding of progress payments.

Submit the number of opaque reproductions that the Contractor requires, plus two copies, which will be retained by the Engineer.

1.07 DISTRIBUTION

Distribute copies of the reviewed schedules to:

Job site files.

Subcontractors.

Other concerned parties.

Instruct recipients to report promptly to the Contractor, in writing, any problems the schedules. Instruct recipients to report promptly to the Contractor, in writing, any problems the schedules.

PRODUCTS (NOT USED)

EXECUTION (NOT USED)

END OF SECTION

01 32 33 PHOTOGRAPHIC DOCUMENTATION

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide a competent photographer to adequately photograph preconstruction conditions, construction progress activities, and post-construction conditions.
- B. Construction activity will not commence prior to preconstruction photographic documentation.
- C. Failure to submit required photographs will delay processing of progress payments.

1.02 RELATED REQUIREMENTS

- A. Section 01 11 00: Summary of Work
- B. Section 01 78 39: Project Record Documents

1.03 SUBMITTALS

- A. Submit photographic documentation on electronic media (CD, DVD, Flash Drive, etc.) as record data.

1.04 USAGE RIGHTS

- A. All photographs become the property of Owner.
- B. Photographs are not to be used by Contractor without express written consent.

2.00 PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

- A. Provide images in digital format (JPG is preferred) produced by a digital camera with a minimum sensor size of 8 megapixels, and at an image resolution of not less than 1600 by 1200 pixels and 400 dpi.

3.00 EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS

- A. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Key Plan: Include digital copy of key plan with each electronic submittal; include point of view identification in each photo file name.
 - 3. Field Office Images: Maintain one set of images accessible in the field office at Project Site, available at all times for reference.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.

1. Provide construction staking before taking construction photographs.
 2. Take sufficient number photographs to show existing conditions adjacent to property before starting the Work.
 3. Take sufficient photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take photographs of major construction activities corresponding to Schedule of Values during installation or construction.
- E. Final Completion Construction Photographs: Take photographs after date of Substantial Completion for submission as project record documents.

END OF SECTION

01 33 00 SUBMITTAL PROCEDURES

GENERAL

REQUIREMENTS INCLUDED

Submit documentation as required by the Contract Documents and as reasonably requested by the Owner and Engineer to:

Record the products incorporated into the Project for the Owner.

Provide information for operation and maintenance of the Project.

Provide information for the administration of the Contract.

Allow the Engineer to advise the owner if products proposed for the project by the Contractor conform, in general, to the design concepts of the Contract Documents.

Contractor's responsibility for full compliance with the Contract Documents is not relieved by the Engineer's review of submittals. Contract modifications can only be approved by Change Order or Field Order.

RELATED REQUIREMENTS

Conditions of the Contract.

Section 01 32 26: Construction Progress Reporting.

Section 01 78 39: Project Record Documents.

Designate in the construction schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Submittals will be needed.

CONTRACTOR'S RESPONSIBILITIES

Review and certify all submittals prior to submission.

Determine and verify:

Field measurements

Field construction requirements

Location of all existing structures, utilities, and equipment related to the submittals

Submittals are complete for their intended purpose

Conflicts between the submittals related to the various Subcontractors and Suppliers have been resolved

Quantities and dimensions shown on the submittals

Submit information per the procedures described in this section and the detailed specifications.

Furnish the following submittals:

As specified in the each Technical Specification.

Schedules, data, and other documentation as described in detail in this section or referenced in the General Conditions and Contract Documents.

Documentation required for the administration of the Contract.

Shop Drawings required for consideration of a contract modification.

Submittals as required in the detailed specifications.

Submittals not required will be returned without Engineer's review.

Submit a schedule indicating the date submittals will be sent to the Engineer and proposed dates that the product will be incorporated into the project. Make submittals

promptly in accordance with the schedule to cause no delay in the Project.

Send submittals to the Engineer allowing a reasonable time for delivery, review, and making submittals. Include time for review of a resubmission if necessary. Allow adequate time for the submittal review process, ordering, fabrication, and delivery of the product to not delay progress on the Project.

Schedule submittal to provide all information for interrelated work at one time. No review will be performed on submittals requiring coordination with other submittals. Engineer will return submittals for resubmission as a complete package.

Submit information for all of the components and related equipment required for a complete and operational system in the same submittal.

Include electrical, mechanical, and other information required to indicate how the various components of the system function.

Provide certifications, warranties, and written guarantees with the submittal package for review when they are required.

Fabrications or installation of any products prior to the approval of Shop Drawings is done at the Contractor's risk. Products not meeting the requirements of Contract Documents are defective and may be rejected at the owner's option.

Payment will not be made for products for which submittals are required until the submittals have been received. Payment will not be made for products for which Shop Drawings or Samples are required until these are approved by the Engineer.

QUALITY ASSURANCE

Submit legible, accurate, complete documents presented in a clear, easily understood manner, Submittals not meeting these criteria will be returned without review.

Demonstrate that the proposed products are in full and complete compliance with the design criteria and requirements of the Contract Documents including Drawings and Specifications as modified by Addenda, Field Orders, and Change orders.

Furnish and install products that fully comply with the information included in the submittal.

SUBMITTAL PROCEDURES

Transmit all submittals with a properly completed Submittal Transmittal Form. Electronic submittals in PDF format are preferred.

Use a separate transmittal form for each specific product, class of material, and equipment system.

Submit items specified in different sections of the Specifications separately unless they are part of an integrated system.

Assign a submittal number to the documents originated to allow tracking of the submittal during the review process.

1. Assign the number consisting of a prefix, a sequence number, and a letter suffix. Prefixes shall be as follows:

Prefix	Description	Originator
AP	Application for Payment	Contractor
CO	Change Order	Engineer
CMR	Contract Modification Request	Contractor
CTR	Certified Test Report	Contractor
EIR	Equipment Installation Report	Contractor
FO	Field Order	Engineer
NBC	Notification by Contractor	Contractor
O&M	Operation & Maintenance Manuals	Contractor
PD	Photographic Documentation	Contractor
RD	Record Data	Contractor
RFI	Request for Information	Contractor
SAM	Sample	Contractor
SD	Shop Drawing	Contractor
SCH	Schedule of Progress	Contractor

2. Issue sequence numbers in chronological order for each type of submittal.
 3. Issue numbers for resubmittals that have the same number as the original submittal followed by an alphabetical suffix indicating the number of times the same submittal has been sent to the Engineer for processing. For example: SD 025 A represents shop drawing number 25 and the letter "A" designates this is the second time this submittal has been sent for review.
 4. Clearly note the submittal number on each page or sheet of the submittal.
 5. Correct assignment of numbers is essential since different submittal types are processed in different ways.
- D. Submit documents with uniform markings.
1. Mark submittals to:
 - a. Highlight Contractor's corrections in green.
 - b. Highlight items pertinent to the products being furnished in yellow and delete items that are not when the Supplier's standard drawings or information sheets are provided.
 - c. Cloud items and highlight in yellow where selections by the Engineer or Owner are required.
 - d. Mark dimensions with the prefix FD to indicate field verified dimensions on the Shop Drawings.
 - e. Provide an 8-by-3-inch blank space for Contractor's and Engineer's stamp. Contractor may use a digital certification if this is preferred. This certification must bear a digital signature.
 2. Define abbreviations and symbols used in Shop Drawings.

- a. Use terms and symbols in Shop Drawings consistent with the Contract Drawings.
- b. Provide a list of abbreviations and their meaning as used in the Ship Drawings.
- c. Provide a legend for symbols used on Shop Drawings.
- E. Mark submittals to reference the Drawing number and/or section of the Specifications, detail designation, schedule or location that corresponds with the data submitted. Other identification may also be required, such as layout drawings or schedules to allow the reviewer to determine where a particular product is to be used.
- F. Deliver samples required by the Specifications to the project site. Provide a minimum of two samples.
- G. Construct mock-ups from the actual products to be used in construction per detailed Specifications.
- H. Submit color charts and Samples for every product requiring color, texture, or finish selection.
 - 1. Submit all color charts and Samples at one time.
 - 2. Do not submit color chats and Samples until all record data have been submitted or Shop Drawings for the products have been approved.
 - 3. Submit color charts and Samples not less than 30 days prior to when these products are to be ordered or released for fabrication to comply with the schedule for construction of the Project.
- I. Submit Contract Modification Request per Section 01 30 00: Administrative Procedures to request modifications to the Contract Documents.

1.05 REVIEW PROCEDURES

- A. Shop drawings are reviewed in the order received, unless Contractor request that a different priority be arranged.
- B. Mark a submittal as “priority” to place the review for this submittal ahead of submittals previously delivered. Priority submittals will be reviewed before other submittals for this Project which have been received but not reviewed. Use discretion in the use of “Priority” submittals as this may delay the review of submittals previously submitted. Revise the Schedule of Contractor’s Submittals for substantial deviations from the previous schedule. Review procedures vary with the type of submittal as described in Paragraph 1.06.

1.06 SUBMITTAL REQUIREMENTS

- A. Shop Drawings are required for those products that cannot adequately be described in the Contract Documents to allow fabrication, erection or installation of the product without additional detailed information from the Supplier.
 - 1. Shop Drawings are requested so that the Engineer can:
 - a. Assist the owner in selecting colors, textures or other aesthetic features.
 - b. Compare the proposed features of the product with the specified features so as to advise the Owner that the product does, in general, conform to the Contract Documents.
 - c. Compare the performance features of the proposed product with those specified so as to advise the Owner that it appears that the product will meet the designed performance criteria.
 - d. Review required certifications, guarantees, warranties, and service agreements for compliance with the Contract Documents.

2. Certify on the Contractor's stamp that the Contractor has reviewed the Shop Drawings and made all necessary corrections as such that the products, when installed, will be in full compliance with the Contract Documents. Shop Drawings submitted without this certification will be returned without review.
3. Submit Shop Drawings for:
 - a. Products indicated in the submittal schedule following this section.
 - b. When a substitution or equal product is proposed in accordance with paragraph 1.08 of this Section.
4. Include a complete description of the material or equipment to be furnished. Information is to include:
 - a. Type, dimensions, size, arrangement, model number, and operational parameters of the components.
 - b. Weights, gauges, materials of construction, external connections, anchors, and supports required.
 - c. Performance characteristics, capacities, engineering data, motor curves, and other information necessary to allow a complete evaluation of mechanical components.
 - d. All applicable standards such as ASTM or Federal specification numbers.
 - e. Fabrication and installation drawings, setting diagrams, manufacturing instructions, templates, patterns, and coordination drawings.
 - f. Wiring and piping diagrams and related controls.
 - g. Mix designs for concrete, asphalt, or other materials proportioned for the Project.
 - h. Complete and accurate field measurements for products which must fit existing conditions. Indicate on the submittal that the measurements represent actual dimensions obtained at the site.
5. Provide all required statements of certification, guarantees, extended service agreements, and other related documents with the Shop Drawing. The effective date of these documents shall be the date of acceptance of the work by the Owner.
6. Comments will be made on items called to the attention of the Engineer for review and comment. Any marks made by the Engineer do not constitute a blanket review of the submittal or relieve the Contractor from responsibility for errors or deviations from the Contract requirements.
 - a. Submittals that are reviewed will be returned with one or more of the following designations:
 - 1) Approved: Submittal is found to be acceptable as submitted.
 - 2) Approved as Noted: Submittal is acceptable with corrections or notations made by Engineer and may be used as corrected.
 - 3) Revise and Resubmit: Submittal has deviations from the Contract Documents, significant errors, or is inadequate and must be revised and resubmitted for subsequent review.
 - 4) Not Approved: Products are not acceptable.
 - b. Drawings with a significant or substantial number of markings by the Contractor may be marked "Approved as Noted" and "Revise and Resubmit." These drawings are to be revised to provide a clean record of the submittal.
 - c. Dimensions or other data that do not appear to conform to the Contract Documents will be marked as "At Variance With" (AVW) the Contract Documents or other

information provided. The Contractor is to make revisions as appropriate to comply with Contract Documents.

- B. Certifications, Warranties and Service Agreements include documents as specifies in the detailed specifications, as shown in the submittal schedule or as follows:
 - 1. Certified Test Report (CTR): A report prepared by an approved testing agency giving results of tests performed on products to indicate their compliance with the specifications.
 - 2. Certification of Local Field Service (CLS): A certified letter stating that field service is available from a factory or supplier approved service organization located within a 300 mile radius of the project site. List names, addresses, and telephone numbers of approved service organizations on or attach it to the certificate.
 - 3. Extended Warranty (EW): A guarantee of performance for the product or system beyond the normal 1 year warranty described in the general Conditions. Issue the warranty certificate in the name of the Owner.
 - 4. Extended Service Agreement (ESA): A contract to provide maintenance beyond that required to fulfill requirements for warranty repairs, or to perform routine maintenance for a definite period beyond the warranty period. Issue the service agreement in the name of the Owner.
 - 5. Certification of Adequacy of Design (CAD): a certified letter from the manufacturer of the equipment stating that they have designed the equipment to be structurally stable and to withstand all imposed loads without deformation, failure, or adverse effects to the performance and operational requirements of the unit. The letter shall state that mechanical and electrical equipment is adequately sized to be fully operational for the conditions specified or normally encountered by the product's intended use.
 - 6. Certification of Applicator/Subcontractor (CSQ): A certified letter stating that the Applicator or Subcontractor proposed to perform a specified function is duly designated as factory authorized and trained for the application of the specified product.
- C. Submit record data to provide information to allow the Owner to adequately identify the products incorporated into the project and allow replacement or repair at some future date.
 - 1. Provide record data for all products per the Specifications. Record data is not required for items for which Shop Drawings and/or operations and maintenance manuals are required.
 - 2. Provide information only on the specified products. Submit a Contract Modification Request for approval of deviations or substitutions and obtain approval by Field Order or Change Order prior to submitting record data.
 - 3. Provide the same information required for Short Drawings.
 - 4. Record data will be received by the Engineer, logged, and provided to Owner for the Project record.
 - a. Record data may be reviewed to see that the information provided is adequate for the purpose intended. Inadequate drawings may be returned as unacceptable.
 - b. Record data is not reviewed for compliance with the Contract Documents. Comments may be returned if deviations from the Contract Documents are noted during the cursory review performed to see that the information is adequate.
- D. Provide Samples for comparison with products delivered to the Site for use on the Project.

1. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product, with integrally related parts and attachment devices.
 2. Indicate the full range of color, texture, and patterns.
 3. Dispose of Samples when related Work has been completed and approved, and disposal is requested by the Engineer. At owner's option Samples will become the property of the Owner.
- E. Construct mock-ups for comparison with the Work being performed.
1. Construct mock-ups of the size or area indicated in the detailed Specifications.
 2. Construct mock-ups complete with texture and finish to represent the finished product.
 3. Protect mock-ups until Work has been completed and accepted by the Owner.
 4. Dispose of mock-ups when related Work has been completed and disposal is approved by the Engineer.
- F. Submit Operation and Maintenance manuals (O&M) for all equipment, mechanical devices, or components described in the Contract Documents. Include copies of approved Shop Drawings in the manual.
- G. Submit Request for Information (RFI) in accordance with Section 01 30 00: Administrative Requirements.
- H. Submit a Schedule of Values in accordance with Section 01 29 73: Schedule of Values
- I. Application for Payment (AP) in accordance with Section 01 29 00: Payment Procedures.
- J. Submit Progress Schedules (SCH) in accordance with Section 01 32 26: Construction Progress Reporting.
- K. Submit Certified Test reports (CTR) from independent testing laboratories in accordance with Section 01 40 00: Quality Requirements.
1. Submit test reports for material fabricated for this project with Shop Drawings for that product.
 2. Submit test reports produced at the point of production for standard production products with the record data for that product.
- L. Submit a list of Suppliers and Subcontractors as record data in accordance with Section 01 30 00: Administrative Requirements.
- M. Submit Equipment Installation Reports (EIR) in accordance with Section 01 75 00: Starting and Adjusting.
- N. Submit Notifications by Contractor (NBC) in accordance with Section 01 30 00: Administrative Requirements.
- O. Submit Photographic Documentation (PD) in accordance with Section 01 32 33: Photographic Documentation.
- P. Submit Process Performance Bonds (PPB) in accordance with the "Supplementary Conditions" and the detailed equipment specifications.

1.07 REQUESTS FOR DEVIATION

- A. Submit requests for deviation from the Contract Documents for any product that does not fully comply with the Contract Documents.
- B. Submit request by Contract Modification Request (CMR) per Section 01 26 57: Change Order Procedures. Identify the deviations and the reason the change is requested.
- C. Include the amount of cost savings to the Owner for deviations that result in a reduction in cost.

- D. A Change Order or Field Order will be issues by the Engineer for deviations approved by the Owner. Deviations from the Contract Documents may only be approved by Change order or Field Order.

1.08 SUBMITTALS FOR EQUAL NON SPECIFIED PRODUCTS

- A. The products of the listed suppliers are to be furnished where detailed specifications list sever manufacturers but do not specifically list “or equal” or “or approved equal” products. Use of any products other than those specifically listed is a substitution and must be approved per Paragraph 1.09.
- B. Contractor may submit other manufacturers’ products that are in full compliance with the specification where detailed specifications list one or more manufacturers followed by the phase “or equal” or “or approved equal.”
 - 1. Submit Shop Drawings of adequate detail to documents that the proposed product is equal or superior to the specified product.
 - 2. Prove that the product is equal. It is not the Engineer’s responsibility to prove the product is not equal.
 - a. Indicate on a point by point basis for each specified feature that the product is equal to the Contract Document requirements.
 - b. Make a direct comparison with the specified manufacturer’s published data sheets and available information. Provide this printed material with the submittal.
 - c. The decision of the Engineer regarding the acceptability of the proposed product is final.
 - 3. Provide a typewritten certification that, in furnishing the proposed product as an equal, the Contractor:
 - a. Has thoroughly examined the proposed product and has determined that it is equal or superior in all respects to the product specified.
 - b. Has determined that the product will perform in the same manner and result in the same process as the specified product.
 - c. Will provide the same warranties and/or bonds as for the product specified.
 - d. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the product into the construction and will waive all claims for additional Work which may be necessary to incorporate the product into the project which maybe subsequently become apparent.
 - e. Will maintain the same time schedule as for the specified product.
 - 4. A modification request is not required for any product that is in full compliance with the Contract Documents.

1.09 SUBMITTALS FOR SUBSTITUTIONS

- A. Substitutions are defined as any product that the Contractor proposes to provide for the Project in lieu of the specified product.
- B. Submit the following for consideration of approval of a Supplier or product which is not specified:
 - 1. Contract Modification Request for deviation from the Contract Documents per paragraph 1.07.
 - 2. Prove that the product is acceptable as a substitute. It is not the Engineer’s responsibility to prove the product is not acceptable as a substitute.

- a. Indicate on a point by point basis for each specified feature that the product is acceptable to meet the intent of the Contract Documents requirements.
 - b. Make a direct comparison with the specified Suppliers published data sheets and available information. Provide this printed material with the submittal.
 - c. The decision of the Engineer regarding the acceptability of the proposed substitute product is final.
3. Provide a written certification that, in making the substitution request, the Contractor:
 - a. Has determined that the substituted product will perform in substantially the same manner and result in the same ability to meet the specified performance as the specified product.
 - b. Will provide the same warranties and/or bonds for the substituted product as specified or as would be provided by the manufacturer of the specified product.
 - c. Will assume all responsibility to coordinate any modifications that may be necessary to incorporate the substituted product into the project and will waive all claims for additional Work which may be necessary to incorporate the substituted product into the project which may subsequently become apparent.
 - d. Will maintain the same time schedule as for the specified product.

1.10 WARRANTIES AND GUARANTEES

- A. Submit warranties and guarantees required by the Contract Documents with the Shop Drawings or record data.
- B. Provide additional copies for equipment and include this additional copy in the Operation and Maintenance Manuals.
- C. Provide a separate manual for warranties and guarantees.
 1. Provide a log of all products for which warranties or guarantees are provided, and for all equipment. Index the log by Specification section number on forms provided by the Engineer.
 2. Indicate the start date, warranty or guarantee period and the date upon which the warranty or guarantee expires for products or equipment for which a warranty or guarantee is required.
 3. Indicate the data for the start of the correction period specified in the general Conditions for each piece of equipment and the date on which the specified correction period expires.
 4. Provide a copy of the warranty of guarantee under a tab indexed to the log.

1.11 RESUBMISSION REQUIREMENTS

- A. Make all corrections or changes in the submittals required by the Engineer and resubmit until approved.
- B. For Shop Drawings:
 1. Revise initial drawings or data and resubmit as specified for the original submittal.
 2. Highlight in yellow those revisions which have been made in response to the first review by the Engineer.
 3. Highlight in blue any new revisions which have been made or additional details of information that has been added since the previous review by the Engineer.
- C. For Samples:
 1. Submit new Samples as required for the initial Sample.

2. Remove Samples which have been rejected
- D. For mock-ups:
 1. Construct a new mock-up as initially required.
 2. Dispose of mock-ups which have been rejected.
- E. Pay for excessive review of Shop Drawings.
 1. Excessive review of Shop Drawings is defined as any review required after the original review has been made and the first resubmittal has been checked to see that corrections have been made.
 2. Pay cost for the additional review to the Owner on a monthly basis as billed by the Owner.
 3. Need for more than one resubmission or any other delay of obtaining Engineer's review of submittals, will not entitle the Contractor to an extension of Contract Time. All costs associated with such delays shall be at the Contractor's expense.

1.12 ENGINEER'S DUTIES

- A. Review the submittals and return with reasonable promptness.
- B. Affix stamp, indicate approval, rejection, and the need for resubmittal.
- C. Distribute documents.

PRODUCTS (NOT USED)

EXECUTION (NOT USED)

END OF SECTION

01 35 53 SECURITY PROCEDURES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide a project security program to:
 - 1. Protect Work, stored products, and construction equipment from theft and vandalism.
 - 2. Protect premises from entry by unauthorized persons.
- B. Comply with local and homeland security requirements.

1.02 RELATED REQUIREMENTS

- A. Section 01 51 00: Temporary Utilities.
- B. Section 01 56 00: Temporary Barriers and Enclosures

1.03 MAINTENANCE OF SECURITY

- A. Initiate security program in compliance with Owner's system, prior to job mobilization.
- B. Maintain security program throughout construction period until Owner occupancy or Owner acceptance eliminates the need for Contractor security.
- C. Contractor is responsible for taking adequate measures to protect the Owner's facilities, the cost of which is included in the Contractor's overhead.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 40 00 QUALITY REQUIREMENTS

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Control the quality of the Work and verify that the Work meets the standards of quality established in the Contract Documents.
 - 1. Inspect the Work of the Contractor, Subcontractors and Suppliers. Correct defective Work.
 - 2. Inspect products and materials to be incorporated into the project. Ensure that Suppliers of raw materials, parts, components, assemblies, and other products have adequate quality control systems to ensure that quality products are produced. Provide only products that comply with the Contract Documents.
 - 3. Provide and pay for the services of an approved professional materials testing laboratory acceptable to the Owner to ensure that products proposed for use fully comply with the Contract Documents.
 - 4. Provide all facilities and calibrated equipment required for quality control tests.
 - 5. Provide consumable construction materials of adequate quality to provide a finished product that complies with the Contract Documents.
 - 6. Perform tests as indicated in this and other sections of the specifications. Schedule the time and sequence of testing with the Owner. All quality control testing is to be observed by the Owner or designated representative.
 - 7. Maintain complete inspection and testing records at the site and make them available to Owner and Engineer.
- B. Technical specifications govern if any requirements of this section conflicts with the requirements of the technical specifications.

1.02 QUALITY ASSURANCE ACTIVITIES BY THE OWNER

- A. Owner will perform its own quality assurance test independent of the Contractor's Quality Control Program or as otherwise described in the Contract Documents. Provide labor, materials, tools, equipment, and related items for testing by the Owner including, but not limited to temporary construction required for testing and operation of new and existing utilities. Assist the Owner and Engineer, and testing organizations in performing quality assurance activities.
 - 1. Provide access to the Work and to the Supplier's operations at all times Work is in progress.
 - 2. Cooperate fully in the performance of sampling, inspection, and testing.
 - 3. Furnish labor and facilities to:
 - a. Provide access to the work to be tested.
 - b. Obtain and handle samples for testing at the project site or at the source of the product to be tested.
 - c. Provide calibrate scales and measuring devices for the Owner's use.
 - d. Facilitate inspections and tests.
 - e. Provide adequate lighting to allow Owner observations.
 - f. Store and cure test samples.
 - 4. Furnish copies of the tests performed on materials and products.

5. Provide adequate quantities of representative product to be tested to the laboratory at the designated location.
 6. Give the Engineer adequate notice before proceeding with work that would interfere with testing.
 7. Notify the Owner and Engineer and the testing laboratory prior to the time that testing is required. Lead time is to be adequate to allow arrangements to be made for testing.
 8. Do not proceed with any work until testing services have been performed and results of tests indicate that the work is acceptable.
 9. Provide complete access to the Site and make Contract Documents available.
 10. Provide personnel and equipment needed to perform sampling or to assist in making the field tests.
 11. Quality assurance testing performed by the Owner will be paid for by the Owner, except for verification testing performed by the Owner, which shall be paid for by the Contractor as described in paragraph 1.06.
- B. Quality assurance activities of the Owner or Engineer through their own forces or through contracts with materials testing laboratories and survey crews are for the purpose of monitoring the results of the Contractor's work to see that it is in compliance with the requirements of the Contract Documents.
- C. Quality assurance activities of the Owner and Engineer or non-performance of quality assurance activities:
1. Do not relieve the Contractor of its responsibility to perform Work and furnish materials and products and constructed Work conforming to the requirements of the Contract Documents.
 2. Do not relieve the Contractor of its responsibility for providing adequate quality control measures.
 3. Do not relieve the Contractor of its responsibility for damage to or loss of the material, product, or Work before Owner's acceptance.
 4. Do not constitute or imply Owner's acceptance.
 5. Do not affect the continuing rights of the Owner after Owner's acceptance of the completed Work.
- D. The presence or absence of the Owner's Representative does not relieve the Contractor from any contract requirements, nor is the Owner's Representative authorized to change any term or condition of the Contract Documents without the Owner's written authorization in a Field Order or Change Order.
- E. Failure on the part of the Owner or Engineer to perform or test products or constructed works in no way relieves the Contractor of the obligation to perform work and furnish materials conforming to the Contract Documents.
- F. All materials and products are subject to the Owner's quality assurance observations or testing at any time during preparation or use. Material or products which have been tested or observed or approved by owner at a supply source or staging area may be re-observed or re-tested by owner before or during or after incorporation into the Work, and rejected if they do not comply with the Contract Documents.

1.03 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 00 and shall include:

1. Test reports per Paragraph 1.07 of this specification. Reports are to certify that products or constructed Works are in full compliance with the Contract Documents or indicate that they are not in compliance and describe how they are not in compliance.
2. Provide Certified Test Reports on materials or products to be incorporated into the Project. Reports are to indicate that material or products are in full compliance with the Contract Documents or indicate that they are not in compliance and describe how they are not in compliance.

1.04 STANDARDS

- A. Testing laboratories shall comply with the ACIL (American Council of Independent laboratories) "Recommended Requirements for Independent Laboratory Qualifications."
- B. Perform testing per recognized test procedures as listed in the various sections of the specifications, standards of the State Department of Highways and Public Transportation, American Society of Testing Materials (ASTM), or other testing associations. Perform tests in accordance with published procedures for testing issues by these organizations.

1.05 DELIVERY AND STORAGE

- A. Handle and protect test specimens of products and construction materials at the Site in accordance with recognized test procedures.

1.06 VERIFICATION TESTING

- A. Provide verification testing when tests indicate that materials or the results of construction activities are not in conformance with Contract Documents.
- B. Verification testing is to be provided at the Contactor's expense to verify products or constructed works are in compliance after correction have been made.
- C. Tests must comply with recognized methods or with methods recommended by the testing laboratory and approved by the Engineer.

1.07 TEST REPORTS

- A. Test reports are to be prepared for all tests.
 1. Tests performed by testing laboratories may be submitted on their standard test report forms. These reports must include the following:
 - a. Name of the Owner, project title and number, equipment installer and general contractor.
 - b. Name of the laboratory, address, and telephone number.
 - c. Name and signature of the laboratory personnel performing the test.
 - d. Description of the product being sampled or tested.
 - e. Date and time of sampling, inspection, and testing.
 - f. Date the report was issued.
 - g. Description of the test performed.
 - h. Weather conditions and temperature at time of test or sampling.
 - i. Location at the site or structure where the test was taken.
 - j. Standard or test procedure used in making the test.
 - k. A description of the results of the test.
 - l. Statement of compliance or non-compliance with the Contract Documents.
 - m. Interpretations of test results, if appropriate.

2. Submit reports on tests performed by Contractor or his suppliers or vendors per Section 01 33 00.
 3. Engineer will prepare test reports on test performed by the Engineer.
- B. Distribute copies of the test reports to the Engineer within 24 hours of completing the test. Flag test reports with results that do not comply with Contract Documents for immediate attention. Hard copies of test reports are to be distributed to individuals designated at the pre-construction conference.
- C. Payment for Work subject to testing may be withheld until the Contractor's quality control test reports of the Work are submitted to the Owner's Representative.

1.08 NON-CONFORMING WORK

- A. Immediately correct any Work that does not comply with the Contract Documents or submit a written explanation of why the Work is not to be corrected immediately and when corrective action to the Work will be performed.
- B. Payment for non-conforming Work shall be withheld until Work is brought into compliance with the Contract Documents.

1.09 LIMITATION OF AUTHORITY OF THE TESTING LABORATORY

- A. The testing laboratory representatives are limited to providing consultation on the test performed and to an advisory capacity.
- B. The testing laboratory is not authorized to:
 1. Alter the requirements of the Contract Documents.
 2. Accept or reject any portion of the Work.
 3. Perform any of the duties of the Contractor.
 4. Stop the work.

2.00 PRODUCTS

2.01 TESTING APPARATUS

- A. Furnish testing apparatus and related accessories necessary to perform the tests.

3.00 EXECUTION

3.01 QUALITY CONTROL PROGRAM

- A. Perform quality control observations and testing as required in each section of the specifications and where indicated on the drawings.
- B. Provide a quality control program that includes the following phases for each definable Work task. A definable Work task is one which is separate and distinct from other tasks, has separate control requirements, maybe be provided by different trades of disciplines, or may be work by the same trade in a different environment.
 1. Planning Phase. Perform the following before beginning each definable Work task:
 - a. Review the contract drawings.
 - b. Review submittals and determine that they are complete in accordance with the Contract Documents.

- c. Check to assure that all materials and/or equipment have been tested, submitted, and approved.
 - d. Examine the work area to assure that all required preliminary work has been completed and complies with the Contract Documents.
 - e. Examine required materials, equipment, and sample work to assure that they are on hand, conform to submittals, and are properly stored.
 - f. Review requirements for quality control inspection and testing.
 - g. Discuss procedures for controlling quality of the work. Documents construction tolerances and workmanship standards for the Work task.
 - h. Check that the portion of the plan for the Work to be performed incorporates submittal comments.
 - i. Discuss results of planning with the Owner and Engineer. Conduct a meeting attended by quality control personnel as applicable, and the foreman responsible for the Work task. Instruct applicable workers as to the acceptable level of workmanship required in order to meet the requirements of the Contract Documents. Document the results of the preparatory phase actions by separate meeting minutes prepared by the quality control manager and attached to the quality control report.
 - j. Do not move to the next phase unless results of the investigations required for the planning phase indicate that requirements have been met.
2. Work Phase. Complete this phase after the Planning Phase:
- a. Notify the Owner and Engineer at least 24 hours in advance of beginning the Work and discuss the review of the planning effort to indicate that requirements have been met.
 - b. Check the Work to ensure that it is in full compliance with the Contract Documents.
 - c. Verify adequacy of controls to ensure full compliance with Contract Documents.
 - d. Verify that established levels of workmanship meet acceptable workmanship standards. Compare with required sample panels as appropriate.
 - e. Repeat the initial phase for each new crew to work onsite, or any time acceptable specifies quality standards are not being met.
3. Follow-up Phase. Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements:
- a. Make checks daily and record observations in the quality control documentation.
 - b. Conduct follow-up checks to correct all deficiencies prior to the start of additional Work tasks that may be affected by the defective Work. Do not build upon nor conceal non-conforming work.
 - c. Conduct a review of the Work one month prior to the expiration of the correction period prescribed in the General Conditions with the Owner and Engineer. Correct defects noted during the review.
- C. Conduct additional planning and review if:
- 1. The quality of on-going work is unacceptable.
 - 2. Changes are made in applicable quality control staff, onsite production supervision or work crew.
 - 3. Work on a task is resumed after a substantial period of inactivity.
 - 4. Other quality problems develop.

END OF SECTION

1.00 GENERAL

1.01 SPECIFICATION TERMINOLOGY

- A. "Engineer" or "Construction Manager" means Owner Representative.
- B. "Furnish" means to supply, deliver, and unload materials and equipment at the project site ready to install.
- C. "Install" means the operations at the project site including unpacking, assembly, erection, placing, anchoring, applying, working to dimensions, finishing, curing, protecting, cleaning, training, and similar operations required to prepare the materials and equipment for use, verify conformance with Contract Documents and prepare for acceptance and operation by the owner.
- D. "Provide" means to furnish and install materials and equipment.
- E. "Perform" means to complete the operations necessary to comply with the Contract Documents.
- F. "Indicated" means graphic representations, notes, or schedules on drawings, or other requirements in Contract Documents. Words such as "show", "noted", "scheduled", are used to help locate the reference. No limitation on the location is intended unless specifically noted.
- G. "Specified" means written representations in the bid documents or the technical specifications.
- H. "Regulation" means laws, statutes, ordinances, and lawful orders issues by authorities having jurisdictions, as well as, rules, conventions, and agreements within the construction industry that control performance of work, whether they are lawfully imposed by authorities having jurisdiction or not.
- I. "Installer" means an entity engaged by Contractor, either as an employee, subcontractor, or sub-subcontractor to install materials and/or equipment. Installers are to have successfully completed a minimum of five projects similar in size and scope to this project, have a minimum of five years of experience in the installation of similar materials and equipment, and comply with the requirements of the authority having jurisdiction.
- J. "Manufacturer" means an entity engaged by Contractor, as a subcontractor, or sub-subcontractor to furnish materials and/or equipment. Manufacturers are to have a minimum of five years of experience in the manufacture of materials and equipment similar in size, capacity, and scope to the specified materials and equipment.
- K. "Project site" means the space available to perform the work, either exclusively or in conjunction with others performing construction at the project site.
- L. "Testing laboratory" means an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report and interpret the results of those inspections or tests.
- M. "Listed" means equipment is included in a list published by a nationally recognized laboratory which makes periodic inspection of production of such equipment and states that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.
- N. "Labeled" means equipment that embodies a valid label, symbol, or other identifying mark of a nationally recognize testing laboratory such as Underwriters laboratories, Inc., and

production is periodically inspected in accordance with nationally recognized standards or tests to determine safe use in a specified manner.

- O. "Certified" used in context with materials and equipment means the material and equipment has been tested and found by a nationally recognized testing laboratory to meet specification requirements, or nationally recognized standards if requirements are not specified, and is safe for use in the specified manner. Production of the equipment must be periodically inspected by a nationally recognized testing laboratory and the equipment must bear a label, tag, or other record of certification.
- P. "Certified" used in context with labor performance or ability to install materials and equipment means that the abilities of the proposed installer have been tested by a representative of the specified testing agency authorized to issue certificates of competency and has met the prescribed standards for certification.
- Q. "Certified" used in context with test reports, payment requests, or other statements of fact means that the statements made on the document are a true statement as attested to by the certifying entity.

1.02 SPECIFICATION SENTENCE STRUCTURE

- A. Specifications are written in modified brief style. Requirements apply to all work of the same kind, class, and type even though the work "all" is not stated.
- B. Simple imperative sentence structure is used which places a verb as the first work in the sentence. It is understood that the words "furnish", "install", "provide", or similar words include the meaning of the phrase "The Contractor shall..." before these words.
- C. It is understood that the words "directed", "designated", "requested", "authorized", "approved", "selected", or other similar words include the meaning of the phrase "by the Engineer" after these words unless otherwise stated. Use of these words does not extend the Engineer's responsibility for construction supervision or responsibilities beyond those defines in the General Conditions.
- D. "At no additional cost to Owner", "With no extra compensation to Contractor", "At Contractor's own expense", or similar words mean that the Contractor will perform or provide specified operation of work without any increase in the Contract Amount. It is understood that the cost for performing all work is included in the amount bid and will be performed at no additional cost to the owner unless specifically stated otherwise.

1.03 DOCUMENT ORGANIZATION

- A. The contract requirements described in the General Conditions, Supplementary Conditions, and Division 01 apply to each and all specification sections unless specifically noted otherwise.
- B. Organization of Contract Documents is not intended to control or to lessen the responsibility of the Contractor when dividing work among subcontractors, or to establish the extent of work to be performed by any trade, subcontractor, or vendor. Specifications or details do not need to be indicated or specified in each specification or drawing. Items shown in the contract documents are applicable regardless of location in the Contract Documents.
- C. Capitalizing words in the text does not mean that these words convey special or unique meanings or have precedence over other parts of the Contract Documents. Specification text governs over titling and it is understood that the specification is to be interpreted as a whole.

- D. Drawings and specifications do not indicate or describe all of the work required to complete the project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with the Engineer. Provide any work, materials, or equipment required for a complete and functional system even if they are not detailed or specified.

1.04 INTERPRETATIONS OF DOCUMENTS

- A. Comply with the most stringent requirements where compliance with two (2) or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, unless Contract Documents indicate otherwise.
 - 1. Quantity or quality level shown or indicated shall be minimum quality indicated, or it may exceed that minimum within reasonable limits.
 - 2. Actual installation may comply exactly with minimum quality indicated, or it may exceed that minimum within reasonable limits.
 - 3. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for context of requirements.
 - 4. Refer instances of uncertainty to the Engineer for a decision before proceeding.
- B. Provide materials and equipment comparable in quality to similar materials and equipment incorporated in the project or as required to meet the minimum requirements of the application if the materials and equipment are shown in the drawing but are not included in the specifications.

1.05 REFERENCE STANDARDS

- A. Comply with applicable construction industry standards as if bound or copied directly into the Contract Documents regardless of lack of reference in the Contract Documents. Apply provisions of the Contract Documents where Contract Documents include more stringent requirements than the referenced standards.
 - 1. Standards referenced directly in the Contract Documents take precedence over standards that are not referenced but recognized in the construction industry as applicable.
 - 2. Comply with standards not referenced but recognized in the construction industry as applicable for performance of the work except as otherwise limited by the Contract Documents. The Engineer determines whether code or standard, or which of several are applicable.
- B. Consider a referenced standard to be the latest edition with supplements or amendments when a standard is referred to in an individual specification section but is not listed by title and date.
- C. Trade association names and title of general standards are frequently abbreviated. Acronyms or abbreviations used in the Contract Documents mean the recognized name of trade association, standards generating organization, authority having jurisdiction, or other entity applicable in the context of the Contract Documents. Refer to "Encyclopedia of Associations," published by Gale Research Company.
- D. Make copies of reference standards available as requested by Engineer or Owner.

1.06 SUBSTITUTIONS AND EQUAL PRODUCTS

- A. Provide materials and equipment manufactured by the entities specifically listed in each technical specification section. Submit a Contractor's Modification Request per Section 01

33 00, for substitution of materials and equipment of manufacturers not specifically listed or for materials and equipment that does not strictly comply with the Contract Documents.

1.07 SUBSTITUTIONS AND EQUAL PRODUCTS

- A. Contractor may provide “equal” products manufactured by manufacturers other than those specifically listed in the technical specification section unless it is specifically stated that only the materials and equipment of the specified manufacturers shall be provided. Provide Submittals for proposed “equal” non-specific products per Section 01 33 00 for any materials or equipment not specifically listed. Submit a Contractor’s Modification Request for substitution of materials and equipment of other manufacturers or for materials and equipment that does not strictly comply with the Contract Documents. A Field Order or Change Order will be issued if the contract modification is approved.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 51 00 TEMPORARY UTILITIES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain temporary utilities required for construction; remove on completion of Work.

1.02 RELATED REQUIREMENTS

- A. Section 01 11 10: Summary of Work.
- B. Section 01 52 13: Field Offices and Sheds.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with federal, state, and local codes and regulations and with utility company requirements.

2.00 PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company to provide service required for power and lighting, and pay all costs for service and for power used.
- B. Install circuit and branch wiring with area distribution boxes located so that power and lighting are available throughout the construction by use of construction-type power cords.
- C. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work and for areas accessible to the public.

2.03 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature or humidity.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials to disperse humidity and to prevent hazardous accumulations of dust, fumes, vapors, or gases.
- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation, removal, and consumed fuel.

2.04 TEMPORARY WATER

- A. Arrange with Owner to provide water for construction purposes; pay all costs for installation, maintenance, removal, and service charges for water used.
- B. Install branch piping with taps located so that water is available throughout the construction by the use of hoses. Protect piping and fittings against freezing.

2.05 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean, and maintain facilities and enclosures.
- C. Existing facilities may NOT be used during the construction period.

3.00 EXECUTION

3.01 GENERAL

- A. Maintain and operate systems to assure continuous service.
- B. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore existing facilities, if any, used for temporary services to specified or original conditions.
- D. Restore permanent facilities, if any, used for temporary services to specified condition.
 - 1. Prior to final inspection, remove temporary lamps and install new lamps.

END OF SECTION

01 55 26 TRAFFIC CONTROL

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide, operate, and maintain equipment, services, and personnel with traffic control and protective devices as required to expedite vehicular traffic flow on public streets, driveways, property access, haul routes, at site entrances, on onsite access roads, and in parking areas. Maintain traffic control devices by taking corrective action as soon as possible. Corrective action includes but is not limited to cleaning, replacing, straightening, covering, or removing devices. Maintain the devices such that they are properly positioned, spaced, and legible, and that retroreflective characteristics meet requirements during darkness and rain.
- B. Before beginning work, designate in writing a Contractor's Responsible Person (CRP) to be the representative of the Contractor who is responsible for taking or directing corrective measures of installation and maintenance deficiencies as soon as possible. The CRP must be accessible by phone and able to respond to emergencies during all construction periods.
- C. Provide written traffic control plans as needed, namely in areas of high traffic, difficult configurations, and as required by the State to perform work in state rights of way, or as deemed necessary by the Engineer. Traffic control plans are subject to review by the Engineer, however the contractor assumes responsibility for the proper implementation of traffic control devices.
- D. Remove temporary equipment and facilities when no longer required; restore grounds to original or to specified conditions.

1.02 RELATED DOCUMENTS

- A. Section 01 56 00: Temporary Barriers and Enclosures.
- B. Section 01 57 00: Temporary Controls.
- C. Texas Manual on Traffic Control Devices, most current edition

1.03 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control or affected by Contractor's operations.
- B. Provide traffic control and directional signs, mounted on barricades or standard posts
 1. At each change of direction of a roadway and at each crossroads.
 2. At detours.
 3. At parking areas.

1.04 FLAGMEN

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic.
- B. Shall have radios or be within sight of each other as necessary to convey hand signals for the safe operation of directing traffic.
- C. Provide a Contractor representative who has been certified as a flagging instructor through courses offered by the Texas Engineering Extension Service, the American Traffic Safety Services Association, the National Safety Council, or other approved organizations.

1. Provide the certificate indicating course completion when requested. This representative is responsible for assuring that all on-site flaggers are qualified.
2. A qualified flagger must be independently certified by one of the organizations listed above or trained by the Contractor's certified flagging instructor.
 - a. Provide the Engineer with a current list of qualified flaggers before beginning flagging activities.
 - b. Use only flaggers on the qualified list.
 - c. Flaggers must be courteous and able to effectively communicate with the public. When directing traffic, flaggers must use standard attire, flags, signs, and signals and follow the flagging procedures set forth in the TMUTCD.

1.05 LIGHTING

- A. Provide flares and lights during periods of low visibility:
 1. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas.
- C. Provide illumination of flagmen for all work conducted during periods of darkness.

1.06 PUBLIC STREETS

- A. A minimum of twelve feet (12') shall be provided for the travelling public at all times.
- B. One-way traffic shall only be allowed when flagmen are utilized.

1.07 ACCESS CONTROL

- A. Access to private property shall be granted as much as is feasible.
- B. Contractor shall abandon work as directed to allow emergency vehicles access.

1.08 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Monitor parking of construction personnel's private vehicles
 1. Maintain free vehicular access to and through parking areas.
 2. Prohibit parking on or adjacent to access roads, on private property, or in undesignated areas.

1.09 HAUL ROUTES

- A. Consult with governing authorities; establish public thoroughfares that will be used as haul routes and site access. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to expedite traffic flow and to minimize interference with normal public traffic.

2.00 PRODUCTS

2.01 Traffic Control Devices

- A. All traffic control means, methods, and equipment shall comply with "Texas Manual on Uniform Traffic Control Devices", most recent edition.

3.00 EXECUTION (NOT USED)

END OF SECTION

01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain suitable barriers as required to prevent public entry and to protect the Work, existing facilities, trees, and plants from construction operations; remove when no longer needed or at completion of work.

1.02 RELATED DOCUMENTS

- A. Section 01 11 10: Summary of Work.
- B. Section 01 54 00: Construction Aids.
- C. Section 01 58 00: Project Identification.

2.00 PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used if suitable for the intended purpose but must not violate requirements of applicable codes and standards.

2.02 FENCING

- A. Materials to Contractor's option, minimum fence height six feet.

2.03 BARRIERS

- A. Materials to Contractor's option, as appropriate to serve required purpose.

3.00 EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by progress of construction.

3.02 FENCES

- A. Prior to start of work at the Project site, install enclosure fence with suitably locked entrance gates. Locate as shown on drawings.

3.03 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site that are designated to remain and those adjacent to site.
- B. Consult with Engineer and remove agreed-on roots and branches that interfere with construction
 - 1. Employ qualified tree surgeon to remove and to treat cuts.
- C. Provide temporary barriers to a height of six feet around each or each group of trees and plants.
- D. Protect root zones of trees and plants.

1. Do not allow vehicular traffic or parking.
 2. Do not store materials or products.
 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 4. Prevent ponding or continuous running water.
- E. Carefully supervise excavating, grading and filling, and subsequent construction operations to prevent damage.
 - F. Replace, or suitably repair, trees and plants designated to remain that are damaged or destroyed due to construction operations.

3.04 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed and when approved by the Engineer.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

END OF SECTION

01 57 00 TEMPORARY CONTROLS

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction as necessary to provide controls over environmental conditions at the construction site and related areas under Contractor's control; remove physical evidence of temporary facilities at completion of work.
- B. Construct temporary impounding works, channels, diversions, furnishing and operation of pumps, installing piping and fittings, and other construction for control of conditions at the Site. Remove temporary controls at the end of the Project.
- C. Provide a Storm Water Pollution Prevention Plan in accordance with TCEQ General Permit TXR150000, file required legal notices and obtain required permits prior to beginning any construction activity.
- D. Provide labor, materials, equipment, and incidentals necessary to prevent storm water pollution for the duration of the Project. Provide and maintain erosion and sediment control structures as required to preventive sediment and other pollutants from the Site from entering any storm water system, including open channels. Remove pollution control structures when no longer required to prevent storm water pollution.
- E. Cost for Temporary Controls as described in this section and provided by Suppliers and Subcontractors as described in this section are to be included in the Cost of Work.

1.02 RELATED DOCUMENTS

- A. Section 01 11 10: Summary of Work.
- B. Section 01 54 00: Construction Aids.
- C. Section 01 58 00: Project Identification.

1.03 SUBMITTALS

- A. Provide copies of notices, records and reports required the Contract Document or regulations as Record Data in accordance with Section 01 33 00 "Submittal Procedures."
- B. Provide documents requiring approval by the Owner or Engineer as Shop Drawings in accordance with Section 01 33 00 "Submittal Procedures."

1.04 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operation, and provide positive means to prevent airborne dust from dispersing into the atmosphere.

1.05 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties.
 - 1. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas and to direct drainage to proper runoff.
- B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and ground water.

- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

1.06 DEBRIS CONTROL

- A. Maintain all areas under Contractor's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, and along access roads and haul routes.
 - 1. Provide containers for deposit of debris as specified in Section 01 74 00: Cleaning and Waste Management.
 - 2. Prohibit overloading of trucks to prevent spillage on access and haul routes.
 - a. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collection and disposal of debris as specified in Section 01 74 00: Cleaning and Waste Management.
 - 1. Provide additional collections and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

1.07 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages and to remove contaminated soils or liquids.
 - 1. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 - 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.08 EARTH CONTROL

- A. Remove excess soil, spoil materials and other earth not required for backfill at the time of generation. Control stockpiled materials to eliminate interference with Contractor and Owner's operations.
- B. Dispose of excess earth off the Site. Pay cost for disposal unless otherwise noted. Provide written approval by the property owner for all disposal on private property, and approval by the Owner if such disposal affects the use of Site or other easements.

1.09 STORM WATER POLLUTION CONTROL

- A. Comply with the current requirements of TPDES General Permit No. TXR15000 (General Storm Water Permit) set forth by the Texas Commission on Environmental Quality for the duration of the Project.
- B. Develop Best Management Practices in accordance with local and state and industry guidelines.
- C. Submit copies of the reports to the Engineer as Record Data in accordance with Section 01 33 00: Submittal Procedures.

- D. Pay all costs associated with complying with the provisions of the General Storm Water Permit. Assume solely responsible for implementing, updating, and modifying the General Storm Water Permit per regulatory requirements the Storm Water Pollution Prevention Plan and Best Management Practices.
- E. Return any property disturbed by construction activities to either specified conditions or preconstruction conditions as set forth in the Contract Documents. Provide an overall erosion and sedimentation control system that will protect all undisturbed areas and soil stockpiles/spoil areas. Implement appropriate Best Management Practices and techniques to control erosion and sedimentation and maintain these practices and techniques in effective operating condition during construction. Permanently stabilize exposed soil and fill as soon as practical during the Work.
- F. Assume sole responsibility for the means, methods, techniques, sequences, and procedures for furnishing, installing, and maintaining erosion and sedimentation control structures and procedures and overall compliance with the General Storm Water Permit. Modify the system as required to effectively control erosion and sediment.
- G. Retain copies of reports required by the General Storm Water Permit for 3 years from date of final completion.

2.00 PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used if suitable for the intended purpose but must not violate requirements of applicable codes and standards.
- B. Provide materials that meet regulatory requirements.

3.00 EXECUTION

3.01 PROJECT REVIEW

- A. Prior to the preconstruction conference, the Contractor shall meet with the Engineer and go over in detail the expected problem areas in regard to erosion control work. Different solutions should be discussed so that the best method might be determined. It is the responsibility of the Contractor to develop an erosion control plan acceptable to the Engineer.

3.02 PRECONSTRUCTION CONFERENCE

- A. At the preconstruction conference, the Contractor shall submit for acceptance his schedule for accomplishing temporary and permanent erosion control work as is applicable for clearing and grubbing, grading, bridges and other structures at watercourses, construction and paving. He also shall submit for acceptance his proposed method for erosion control on haul roads and borrow pits and his plan for disposal of waste materials. No work shall be started until the erosion control schedules are submitted and the Engineer has accepted methods of operations.

3.03 CONSTRUCTION REQUIREMENTS

- A. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, the surface of erodible earth material exposed by excavation and borrow and fill operations and to direct the Contractor to provide immediate permanent or

- temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other water impoundment. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains and use of temporary mulches, mats, seeding or other control devices or methods to control erosion. Cut and fill slopes shall be seeded and mulched as the excavation proceeds to the extent directed by the Engineer.
- B. The Contractor shall be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in his accepted schedule. Temporary pollution control measures shall be used to correct conditions that develop during construction that were not foreseen during the design stage, that are needed prior to installation of permanent pollution control features, or that are needed temporarily to control erosion that develops during normal construction practices but that are not associated with permanent control features on the project.
 - C. Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, erosion control measures may be required between successive construction stages. Under no conditions shall the surface area of erodible earth material exposed at one time by clearing and grubbing exceed 750,000 square feet without approval of the Engineer.
 - D. The Engineer will limit the area of excavation, borrow and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent pollution control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.
 - E. Under no conditions shall the amount of surface area or erodible earth material exposed at one time by excavation or fill within the project area exceed 750,000 square feet without prior approval by the Engineer.
 - F. The Engineer may increase or decrease the amount of surface area of erodible earth material to be exposed at one time by clearing and grubbing, excavation, borrow, and fill operations as determined by his analysis of project conditions.
 - G. In the event of conflict between these requirements and pollution control laws, rules or regulations, or other federal, state, or local agencies, the more restrictive laws, rules and regulations shall apply.

END OF SECTION

01 60 00 PRODUCT REQUIREMENTS

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into the Work
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type, and quality specified or as specifically approved in writing by the Engineer.
 - 3. Manufactured and Fabricated Products
 - a. Design, fabricate, and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages to be interchangeable.
 - c. Two or more items of the same kind shall be identical and by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes, and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which it is designated or specified.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract.
- B. Section 01 11 10: Summary of Work.
- C. Section 01 33 00: Submittal Procedures.
- D. Section 01 74 00: Cleaning and Waste Management.

1.03 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, materials and equipment removed from the existing structure, if any, shall not be used in the completed Work.
- B. For material and equipment specifically indicated or specified to be reused in the Work:
 - 1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
 - 2. Arrange for transportation, storage, and handling of products that require off-site storage, restoration, or renovation. Pay all costs for such work.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Engineer.
 - 1. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition, and adjust products in strict accord with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.

2. Do not proceed with work without clear instructions.
- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange Product deliveries in accord with construction schedules, and coordinate to avoid conflict with work and conditions at the site.
 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging with identifying labels intact and legible. Note: A Material Safety Data Sheet (MSDS) is required for chemical products. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods that prevent soiling or damage to Products or packaging.

1.06 STORAGE AND PROTECTION

- A. Store Products in accord with manufacturer's instructions with seals and labels intact and legible. Note: A Material Safety Data Sheet (MSDS) is required for chemical products.
 1. Store products subject to damage by the elements in weather- tight enclosures.
 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior Storage
 1. Store fabricated products above the ground or on blocking or skids to prevent soiling or staining. Cover products that are subject to deterioration with impervious sheet coverings and provide adequate ventilation to avoid condensation.
 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions and free from damage and deterioration.
- D. Protection After Installation:
 1. Provide substantial coverings as necessary to protect installed Products from damage from traffic and subsequent construction operations. Remove when no longer needed.

1.07 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Products List
 1. Within 30 days after Contract Date, submit to Engineer a complete list of major Products proposed to be used with the name of the manufacturer and the installing Subcontractor.
- B. Contractor's Options
 1. For Products specified only by reference standard, select any Product meeting that standard.
 2. For Products specified by naming several Products or manufacturers, select any one of the products or manufacturers named that complies with the specifications.
 3. For Products specified by naming one or more Products or manufacturers or "or equal," Contractor must submit a request for substitutions for any Product or manufacturer not specifically named.

4. For Products specified by naming only one Product and manufacturer, there is no option.
- C. Substitutions
1. For a period of 30 days after Contract Date, Engineer will consider written requests from Contractor for substitution of Products.
 2. Submit a separate request for each Product, supported with complete data and with drawings and samples as appropriate, including:
 - a. Comparison of qualities of the proposed substitution with that specified.
 - b. Changes required in other elements of the Work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the Product specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance service and source of replacement materials.
 3. Engineer shall be the judge of the acceptability of the proposed substitution.
- D. Contractor's Representation
1. The request for a substitution constitutes a representation that Contractor
 - a. Has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified.
 - b. Will provide the same warranties or bonds for the substitution as for the Product specified.
 - c. Will coordinate the installation of an accepted substitution into the Work and make such other changes as may be required to make the Work.
 - d. Waives all claims for additional costs, under his responsibility, that may subsequently become apparent.
- E. Engineer will review requests for substitutions with reasonable promptness and notify Contractor, in writing, of the decision to accept or reject the requested substitution.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 77 00 CLOSEOUT PROCEDURES

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

Comply with requirements of the General Conditions and specified administrative procedures in closing out the Construction Contract.

1.02 RELATED REQUIREMENTS

Conditions of the Contract. Fiscal provisions, legal submittals, and additional administrative

Requirements and documents in Division 00.

Section 01 74 19: Construction Waste Management and Disposal.

Section 01 78 39: Projects Record Documents.

The respective sections of specifications: Closeout Submittals Required of Trades.

1.03 SUBSTANTIAL COMPLETION

A. When Contractor considers the Work substantially complete, he shall submit to Engineer

1. A written notice that the work, or designated portion therefore, is substantially complete.
2. A list of items to be completed or corrected.

B. Within a reasonable time after receipt of such notice, Engineer will make an inspection to determine the status of completion.

1. Should Engineer determine that the Work is not substantially complete
2. Engineer will promptly notify the Contractor in writing, giving the reasons therefore.
3. Contractor shall remedy the deficiencies in the Work and send a second written notice of substantial completion to the Engineer.
4. Engineer will reinspect the Work.

C. When the Engineer finds that the Work is substantially complete he will

1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed before final payment.
2. After consideration of any objections made by the Owner as provided in Conditions of the Contract, and when Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.04 FINAL INSPECTION

A. When Contractor considers the work complete, he shall submit written certification that

1. Contract Documents have been reviewed.
2. Work has been inspected for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents.
4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
5. Work is completed and ready for final inspection.

B. Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

C. Should Engineer consider that the Work is incomplete or defective

1. Engineer will promptly notify the Contractor in writing listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Engineer that the Work is complete.
 3. Engineer will reinspect the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, the Engineer shall request the Contractor to make closeout submittals.

1.05 REINSPECTION FEES

- A. Should Engineer perform reinspection due to failure of the Work to comply with the claims of status of completion made by the Contractor
- B. Owner will compensate Engineer for such additional service.
- C. Owner will deduct the amount of such compensation from the final payment to the Contractor

1.06 CLOSEOUT SUBMITTALS TO THE ENGINEER

- A. Record drawings per Section 01 78 39: Project Record Documents.
- B. Warranties and bonds.
- C. Evidence of payment or release of liens as required by the General Conditions.
- D. Consent of Surety to Final Payment.
- E. Shop drawings, record data, Operation and Maintenance Manuals, and other submittals as required by the Contract Documents.
- F. Evidence of final, continuing insurance, and bond coverage as required by the Contract Documents.

1.07 FINAL PAYMENT REQUEST

- A. Submit a preliminary final payment request. This request is to include adjustments to the Contract Amount for:
 1. Approved Change Orders.
 2. Allowances not previously adjusted by Change Order.
 3. Unit Prices.
 4. Deductions for defective work that has been accepted by the Owner.
 5. Penalties and bonuses.
 6. Deductions for liquidated damages.
 7. Deductions for re-inspection payments per Paragraph 1.05.
 8. Other adjustments.
- B. Engineer shall prepare a final Change Order, reflecting the approved adjustments to the contract amount which have not been covered by previously approved Change Orders.
- C. Submit the final application for payment per the General Conditions, including the final Change Order.

1.08 WARRANTIES, BONDS, AND SERVICES AGREEMENTS

- A. Provide warranties, bonds, and service agreements required by Section 01 33 00 or by the individual sections of the specifications.
- B. The date for the start of warranties, bonds, and service agreements is established per the General Conditions.

- C. Compile warranties, bonds, and service agreements and review these documents for compliance with the Contract Documents.
- D. Each document is to be signed by the respective manufacturer, supplier, and subcontractor.
- E. Each document is to include:
 - 1. The product or work item description.
 - 2. The firm, with the name of the principal, address, and telephone number.
 - 3. Scope of warranty, bond, or services agreement.
 - 4. Date, duration, and expiration date for each warranty, bond, and service agreement.
 - 5. Procedures to be followed in the event of a failure.
 - 6. Specific instances that might invalidate the warrant or bond.
- F. Submit two (2) copies of each document to the Engineer for review and transmittal to the Owner.
 - 1. Submit duplicate sets.
 - 2. Documents are to be submitted on 8-1/2" x 11" paper, punched for a standard three-ring binder.
 - 3. Submit each set in a commercial quality three-ring binder with a durable and cleanable plastic cover. The title "Warranties, Bonds, and Services Agreements", the project name and the name of the Contractor are to be typed and affixed to the cover.
- G. Submit warranties, bonds, and services agreements:
 - 1. At the time of final completion and before final payment.
 - 2. Within 10 days after inspection and acceptance for equipment or components placed in service during the progress of construction.

1.09 CLAIMS AND DISPUTES

- A. Claims and disputes must be resolved prior to recommendations of final payment acceptance and final payment by the Contractor will indicate that any outstanding claims or disputed issues have been resolved to the fullest satisfaction of the Contractor.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

01 78 39 PROJECT RECORD DOCUMENTS

1.00 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one record copy of
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other Modifications to the Contract.
 5. Engineer Field Orders or written instructions.
 6. Approved Shop Drawings, Product Data, and Samples.
 7. Field Test records.
 8. Construction photographs.
 9. Reference Standards as Necessary

1.02 RELATED REQUIREMENTS

- A. Section 01 33 00: Submittal Procedures.
- B. Section 01 32 33: Photographic Documentation

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 1. Provide files and racks for storage of documents.
 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI/CSC format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by Engineer.

1.04 MARKING DEVICES

- A. Provide felt-tip marking pens for recording information in the color code designated by Engineer.
- B. Mark additional work or information in erasable pencil.
- C. Use red for new or revised indication.
- D. Use purple for work deleted or not installed (lines to be removed).
- E. Highlight in yellow the items constructed per the plans.

1.05 RECORDING

- A. Label each document "PRODUCT RECORD" in neat, large printed letters.
- B. Record information concurrently with construction progress.
 1. Do not conceal any work until required information is recorded.
- C. Mark drawings to record actual construction, including the following:
 1. Depths of various elements of the foundation in relation to finished first floor datum or the top of walls.
 2. Horizontal and vertical locations of underground utilities and appurtenances constructed and existing utilities encountered during construction.

3. Location of internal utilities and appurtenances concealed in the construction. Make reference to permanent structure on the surface. Include the following equipment:
 4. Piping
 5. Ductwork
 6. Equipment and control devices requiring periodic maintenance or repair
 7. Valves, unions, traps, and tanks
 8. Services entrance
 9. Feeders
 10. Outlets changes of dimension and detail
 11. Changes made by Field Order and Change Order
 12. Details not on the original Contract Drawings. Include field verified dimensions and clarifications, interpretations, and additional information issued in response to RFI's.
- D. Mark specifications and addenda to identify products provided.
- E. Record manufacturer name, trade name, catalog number, and each supplier (with address and phone number) of each product and item of equipment actually installed.
- F. Record changes made by Field Order and Change Order.

1.06 SUBMITTAL

- A. Submit record documents to Engineer for review and acceptance 30 days prior to final completion of the project.
1. Provide one set of marked up drawings.
 2. Provide one set of specifications.
- B. Accompany submittal with transmittal letter in duplicate containing:
1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Title and number of each Record Document.
 5. Signature of Contractor or his authorized representative.
 6. Partial Payment Requests will not be recommended for payment if record documents are doing to be incomplete or not in order. Final payments will not be recommended without record documents.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION (NOT USED)

END OF SECTION

1.00 GENERAL

1.01 SUMMARY

A. Section Includes

1. Engineered soils and aggregates materials

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C33 Spec. for Concrete Aggregates.
2. ASTM C88 Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
3. ASTM C117 Test for Material Finer than No. 200 Sieve in Mineral Aggregates by Washing.
4. ASTM C131 Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
5. ASTM C136 Sieve Analysis of Fine and Coarse Aggregates.
6. ASTM C144 Spec. for Aggregate for Masonry Mortar.
7. ASTM C207 Spec. for Hydrated Lime for Masonry Purposes.
8. ASTM C535 Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
9. ASTM C602 Spec. for Agricultural Liming Materials.
10. ASTM D75 Sampling Aggregates.
11. ASTM D422 Particle Size Analysis of Soils.
12. ASTM D448 Spec. for Standard Sizes of Coarse Aggregate for Highway Construction.
13. ASTM D1140 Test for Amount of Material in Soils Finer than the No. 200 Sieve.
14. ASTM D1241 Spec. for Materials for Soil-Aggregate Subbase, Base, and Surface Courses.
15. ASTM D2216 Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil Aggregate Mixtures.
16. ASTM D2487 Classification of Soils for Engineering Purposes.
17. ASTM D4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity of Soils.
18. ASTM D5268 Standard Specification for Topsoil Used for Landscaping Purposes.

1.03 SUBMITTALS

- A. Provide test reports showing the results of required material testing.
- B. Provide topsoil analysis performed in accordance with ASTM D5268 and demonstrating the topsoil meets Soil Conservation Service specified soil types. Also, submit results of test for nutrient levels and provide recommendations for fertilizer type and application.
- C. Daily delivery tickets for each load of material delivered to the site.

1.04 QUALITY ASSURANCE

- A. An independent testing laboratory approved by the Owner shall be obtained by the Contractor and provide quality control testing.

2.00 PRODUCTS

2.01 ENGINEERED SOILS AND AGGREGATES (SOIL CLASS A)

A. General

1. Material shall be clean, sound, hard, dense, durable, field or quarry stone which is free from seams, cracks, or other structural defects. It shall be angular material from shot rock (blasted) or crushed rock having substantially all face of which have resulted from artificial crushing.
2. Loss due to sulfate soundness test shall not exceed 10 percent.
3. Loss due to abrasion test shall not exceed 40 percent.
4. Material shall not be frozen.

B. Gradation

1. Soil Class A-1 (Heavy Riprap Rock)

Size of Stone	% Total Weight Smaller Than the Given Size
500 lbs.	100
400 lbs.	90
150 lbs.	50
40 lbs.	20

2. Soil Class A-MR (Medium Riprap Rock)

Size of Stone	% Total Weight Smaller Than the Given Size
400 lbs.	100
200 lbs.	90
80 lbs.	50
15 lbs.	20

3. Soil Class A-2 (Light Riprap Rock)

Size of Stone	% Total Weight Smaller Than the Given Size
150 lbs.	100
60 lbs.	80
20 lbs.	20
2 lbs.	10

4. Soil Class A-3 (Breaker Run Rock or 6" Crushed Rock)

Sieve Size	% Passing by Weight
7-inch	100
6-inch	90
4-inch	75
3-inch	10

5. Soil Class A-4 (3 1/2-inch Crushed Rock – ASTM D448-No. 1)

Sieve Size	% Passing by Weight
4-inch	100
3 1/2-inch	90-100
2 1/2-inch	25-60
1 1/2-inch	0-15
3/4-inch	0-5

6. Soil Class A-5 (2 1/2-inch Crushed Rock – ASTM D448-No. 2)

Sieve Size	% Passing by Weight
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3-inch	100
2 1/2-inch	90-100
2-inch	35-70
1 1/2-inch	0-15
3/4-inch	0-5

7. Soil Class A-6 (1 1/2-inch Crushed Rock – ASTM D448-No. 4)

Sieve Size	% Passing by Weight
2-inch	100
1 1/2-inch	90-100
1-inch	20-55
3/4-inch	0-15
3/8-inch	0-5

8. Soil Class A-7 (3/4-inch Crushed Rock – ASTM D448-No. 67)

Sieve Size	% Passing by Weight
1-inch	100
3/4-inch	90-100
3/8-inch	20-55
No. 4	0-10
No. 8	0-5

9. Soil Class A-8 (3/8-inch Crushed Rock Chips – ASTM D448-No. 8)

Sieve Size	% Passing by Weight
1/2-inch	100
3/8-inch	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5

2.02 ENGINEERED SOILS AND AGGREGATES (SOIL CLASS B)

A. General

- Aggregate shall be hard, strong, durable particles free from seams, cracks, and other structural defects.
- Rounded to subangular.
- Free from organic impurities and debris.
- Material shall not be frozen.

B. Gradation

1. Soil Class B-1 (Coarse Aggregate – ASTM C33-No. 3)

Sieve Size	% Passing by Weight
2 1/2-inch	100
2-inch	90-100
1 1/2-inch	35-70
1-inch	0-15
1/2-inch	0-5

2. Soil Class B-2 (Coarse Aggregate – ASTM C33-No. 7)

Sieve Size	% Passing by Weight
3/4-inch	100
1/2-inch	90-100

$\frac{3}{8}$ -inch	40-70
No. 4	0-15
No. 8	0-5

3. Soil Class B-3 (Fine Aggregate – ASTM C33)

Sieve Size	% Passing by Weight
$\frac{3}{8}$ -inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10

4. Soil Class B-4 (Masonry Sand – ASTM C144)

Sieve Size	% Passing Natural Sand	% Passing Manufactured Sand
No. 4	100	100
No. 8	95-100	95-100
No. 16	70-100	70-100
No. 30	40-75	40-75
No. 50	10-35	20-40
No. 100	2-15	10-25
No. 200	---	0-10

2.03 ENGINEERED SOILS AND AGGREGATES (SOIL CLASS C)

A. General

1. Stone shall be hard, durable, granular material of uniform quality resulting from crushed rock or crushed bank run sand and gravel.
2. Material shall be free from clay lumps, organic matter, shale, excess elongated or flat pieces, and other deleterious substances.
3. Forty-five percent of the particles retained on a No.4 sieve shall have at least one fractured face.
4. Wear shall not exceed 50 percent.
5. Loss due to sulfate soundness test shall not exceed 18 percent by weight.
6. Total moisture content shall not exceed 7 percent.
7. Filler for blending shall have a maximum liquid limit of 25 percent and a maximum plasticity index of 6.
8. Material shall not be frozen.

B. Gradation

1. Soil Class C-1 (Crushed Stone)

Sieve Size	% Passing by Weight
$1\frac{1}{2}$ -inch	100
$\frac{3}{8}$ -inch	30-65
No. 4	25-55
No. 10	15-40
No. 200	2-12

2. Soil Class C-2 (Crushed Stone)

Sieve Size	% Passing by Weight
1-inch	100
³ / ₈ -inch	40-75
No. 4	25-60
No. 10	15-45
No. 16	3-12

3. Soil Class C-3 (Crushed Stone)

Sieve Size	% Passing by Weight
1-inch	100
³ / ₄ -inch	95-100
³ / ₈ -inch	50-90
No. 4	35-70
No. 10	15-55
No. 200	5-15

4. Soil Class C-4 (Crushed Gravel)

Sieve Size	% Passing by Weight
1 ¹ / ₂ -inch	100
1-inch	75-100
³ / ₈ -inch	45-75
No. 4	30-60
No. 10	20-45
No. 40	10-30
No. 200	3-10

5. Soil Class C-5 (Crushed Gravel)

Sieve Size	% Passing by Weight
1-inch	100
³ / ₈ -inch	50-85
No. 4	35-65
No. 10	25-50
No. 40	10-30
No. 200	3-10

6. Soil Class C-6 (Crushed Gravel)

Sieve Size	% Passing by Weight
1-inch	100
³ / ₄ -inch	95-100
³ / ₈ -inch	50-90
No. 4	35-70
No. 10	20-55
No. 200	8-15

2.04 BAND RUN SOILS

A. Soil Class D-1 and D-2

1. Materials shall be rounded or subangular material resulting from pit run or crushed material.
2. Materials shall be free from clay lumps, organic matter, and deleterious substances.
3. One hundred percent by weight shall pass a 3-inch sieve.

4. Maximum liquid limit shall be 25 percent and maximum plasticity index shall be 6.
5. Material shall not be frozen.
6. The portion of material which passes a No. 4 sieve shall conform to the following gradation:

Sieve Size	Maximum % By Weight Passing	
	Grade D-1	Grade D-2
No. 4	100	100
No. 40	75	---
No. 100	15	30
No. 200	8	15

B. Soil Class D-3 (Sand)

1. Well graded, unwashed bank run or crushed bank run which is free from clay lumps, organic matter, and other deleterious substances with gradation as follows:

Sieve Size	% Passing by Weight
$\frac{3}{4}$ -inch	100
No. 4	90-100
No. 10	45-90
No. 40	15-45
No. 200	0-10

C. Soil Class E-1 (Clay Soil)

1. Minimum 50 percent by weight passing the No. 200 sieve.
2. For the fraction passing the No. 40 sieve, the minimum plasticity index shall be 15.
3. Minimum Atterberg liquid limit of 30.
4. Free from organic material, boulders, cobbles, excessive amounts of gravel (greater than $\frac{1}{2}$ -inch), and other deleterious substances.

D. Soil Class F-1 (Topsoil)

1. Topsoil shall meet the definition and specification stated in ASTM D5268 and meets one of the following SCS (Soil Conservation Service) soil textures:
 - a. Loam.
 - b. Sandy loam.
 - c. Silt loam.
 - d. Silty clay loam.
 - e. Clay loam.
2. The topsoil shall consist of adequate mineral content to support the growth of the intended vegetation and shall not contain herbicides which would be detrimental for the intended use.
3. The topsoil shall have adequate fertility for quick establishment of vegetation.
4. The pH of the topsoil shall be between 6.0 and 7.0.
5. Topsoil shall be free from deleterious substances.
6. Pulverize and screen the topsoil such that 100 percent passes the 1-inch (25 mm) sieve and at least 90 percent passes the No. 10 (2.00 mm).

E. Soil Class G-1 (Clean Earth Fill)

1. Soil Class G-1 shall be any soil material excavated on the project site or obtained from borrow areas.
2. Soil materials unsuitable and, therefore, not approved for this classification are:
 - a. Soils with high organic contents such as: topsoil, peat, muck, organic silts, and clays, marls, etc.

- b. Manmade or rubble filled soils containing such materials as: foundry sand, fly ash cinders, asphalt, and concrete rubble, etc.
 - c. Silty soils such as: rock flour, loess, etc.
 - d. Soils with gravel larger than 3-inch.
 - e. Silty clay or clays with a high plasticity (CH soils as defined in ASTM D2487).
 - f. All soil contaminated with hazardous waste materials as defined by the EPA.
- F. Soils Class G-2 (Clean Earth Fill)
- 1. Same as G-1 above except shall not contain gravel larger than 1/2-inch.

2.05 MANUFACTURED AND SPECIAL SOILS

- A. Soil Class H-1 (Polymer Treated and Chemically Treated Bentonite)
- 1. Bentonite shall be defined as being largely composed of sodium montmorillonite (a clay mineral).
 - 2. Contain an optimum level of anionic or non-ionic or organic polymer to maximize wetting, expansion, and dispersing action in all types of soils.
 - 3. Shall be high swelling which is defined as the ability of 2 grams of the base bentonite, when mechanically reduced to -100 sieve, to swell in water to an apparent volume of 16.0 cc's, or more when added a little at a time to 100 cc's of distilled water in a graduate. Swelling action shall be indefinitely reversible.
 - 4. Shall have a colloid content exceeding 85 percent as measured by evaporating the suspended portion of a 2 percent solution after 24 hours of sedimentation in a graduated beaker.
 - 5. Shall have a mineralogical composition of 90 percent minimum montmorillonite with 10 percent maximum sediments of feldspar, micas, and unaltered volcanic ash.
 - 6. Material shall not be frozen.
- B. Soil Class H-1 (Polymer Treated Bentonite)
- 1. Have properties equal to American Colloid Company Volcloy SG-40 Federal Bentonite Fluid Stop 610, or equal.
- C. Soil Class H-2 (Chemically Treated Bentonite)
- 1. Be chemical treated to resist reaction and degradation from contact with the contaminant being stored.
 - 2. Have properties and composition equal to America Colloid Company Volcloy Saline Seal-100, Federal Bentonite Marine Seal 123, or equal.
- D. Soil Class J-1 (Agricultural Limestone)
- 1. Conform to ASTM C602.
 - 2. Ground or crushed limestone.
 - 3. Neutralization index of not less than 40 or more than 109.
 - 4. Meet the following gradation:
 - a. Passing a No. 4 sieve- 100 percent.
 - b. Passing a No. 10 sieve - 90 to 100 percent.
 - c. Passing a No. 50 sieve - 50 to 100 percent.
- E. Soil Class J-2 (Hydrated Lime)
- 1. Shall consist of essentially calcium, hydroxide or a mixture of calcium hydroxide, magnesium oxide, and magnesium hydroxide.
 - 2. Dry powder obtained by treating quick lime with enough water to satisfy its chemical affinity for water under the conditions of its hydration.
 - 3. Hydrated lime shall conform to the requirements of ASTM C207, Type Nor S.

2.06 SOURCE QUALITY CONTROL

- A. To establish acceptability of material, perform tests for each soils class in accordance to the following standards:
1. Soils Class A and C:
 - a. ASTM C88.
 - b. ASTM C131 (for coarse aggregates smaller than 1½ inches).
 - c. ASTM C136.
 - d. ASTM C535 (for coarse aggregates 1½ inches and larger).
 - e. ASTM C117 (use when aggregate contains materials finer than No. 200 sieve).
 2. Soils Class B:
 - a. ASTM C88.
 - b. ASTM C117.
 - c. ASTM C136.
 3. Soils Class D:
 - a. ASTM C117.
 - b. ASTM C136.
 - c. ASTM D1241.
 - d. ASTM D2487.
 4. Soils Class E:
 - a. ASTM C136 (test when gravel content is present).
 - b. ASTM D422.
 - c. ASTM D1140.
 - d. ASTM D2216.
 - e. ASTM D4318
 5. Soils Class F:
 - a. ASTM D2487.
 6. Soils Class G:
 - a. ASTM D2487.
- B. In addition to the above, furnish a soil analysis of Soil Class F:
1. Analyze for the following:
 - a. pH
 - b. Phosphorus
 - c. Potassium
 - d. Soluble Salts
 - e. Calcium
 - f. Magnesium
- C. Source sample all soils and aggregates in accordance with ASTM D75.
- D. Perform one (1) acceptable test for each type of material at each source.

3.00 EXECUTION

3.01 APPLICATION

- A. Use the soil classification as specified or stated on Drawings.
- B. Place material in accordance with the Drawings and appropriate Specification Sections for the type of work being performed.

END OF SECTION

1.00 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Excavating topsoil.
2. Excavating subsoil.
3. Cutting, grading, filling, rough contouring, compacting.
4. Exploratory Excavation

B. Related Sections:

1. Section 32 05 10 – Soils and Aggregates
2. Section 31 23 16 – Excavation

1.02 REFERENCES

A. American Association of State Highway and Transportation Officials:

B. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils using a 10-lb Rammer and a 18-in. Drop.

C. ASTM International:

D. ASTM C 117 – Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing

E. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

F. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).

G. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

H. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).

I. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

J. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

K. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).

L. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

M. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.03 QUALITY ASSURANCE

A. Perform Work in accordance with TxDOT Standard Construction Specifications.

2.00 PRODUCTS

2.01 Suitable on site material may be utilized as fill with approval of engineer.

3.00 EXECUTION

3.01 PREPARATION

- A. Call One-Call Utility locate not less than two full working days before performing any portion of the Work that involves any soil disturbance.
- B. Request underground utilities to be located and marked within and surrounding construction areas.
- C. Verify all utility companies have responded before commencing Work.
- D. Identify required lines, levels, contours, and datum.
- E. Protect utilities indicated to remain from damage.
- F. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- G. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.02 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials for use in finish grading.
- B. Stockpile in area designated on site and protect from erosion.
- C. Remove excess topsoil not intended for reuse, from site, after Owner permission.

3.03 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.
- B. Excavate and process wet material to obtain optimum moisture content.
- C. When excavating through roots, perform Work by hand and cut roots with sharp axe.
- D. Stockpile excavated material in area designated on site.
- E. Benching Slopes: Horizontally bench existing slopes greater than 1: 4 to key placed fill material to slope to provide firm bearing.
- F. Stability: Replace damaged or displaced subsoil as specified for fill.

3.04 FILLING

- A. Place fill to contours and elevations with specified materials.
- B. Place fill in continuous layers as follows:
- C. Maximum 8 inches compacted depth.
- D. Compact uniformly to minimum 95 percent of maximum density as determined in accordance with ASTM D 1557.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Make grade changes gradual. Blend slope into level areas.
- G. Repair or replace items indicated to remain which are damaged by excavation or filling.

3.05 EXPLORATORY EXCAVATION

- A. Obtain authorization from Engineer prior to performing exploratory excavation.
- B. Excavate to the extent directed by Engineer to uncover the necessary conditions to allow work to proceed.
- C. Perform repairs as directed by Engineer to all underground facilities damaged during exploratory excavation.
- D. Backfill according to Section.31 23 17.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus one inch from original elevations.

3.07 FIELD QUALITY CONTROL

- A. Owner's representative will perform in place compaction tests in accordance with the following:
- B. Density Tests: ASTM D2922.
- C. Moisture Tests: ASTM D3017.
- D. Frequency of testing to be determined by Engineer.
- E. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.08 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

31 23 13 SUBGRADE PREPARATION

1.00 GENERAL

1.01 WORK INCLUDED

- A. Finish grading of roadway subgrade and subgrade preparation
- B. Dust alleviation and control
- C. Cleanup and disposal
- D. Provision of all materials, equipment, and apparatus not specifically mentioned herein or noted on the plans, but which are obviously necessary to complete the work specified

1.02 RELATED WORK (Not used)

1.03 MEASUREMENT AND PAYMENT

- A. Except as provided, roadway subgrade preparation shall be paid for under other items of work and no additional compensation shall be made therefore.

1.04 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
- B. TxDOT Standard Specifications – 200 Sections shall govern all work.

1.05 QUALITY ASSURANCE

- A. Notify Engineer when subgrade is ready for compaction or proof-rolling or whenever compaction or proof-rolling is resumed after a period of extended inactivity.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Prepare subgrade when unfrozen.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION

3.01 GENERAL

- A. Perform Moisture-Density Control within top six inches (6") of finished elevations and grades.
- B. Keep subgrade free of water, debris, and foreign matter during compaction or proof-rolling.
- C. Bring subgrade to proper grade and cross-section and uniformly compact surface.
- D. Do not use sections of prepared ground surface as haul roads. Protect prepared subgrade from traffic.
- E. Maintain prepared ground surface in finished condition until next course is placed.

3.02 COMPACTION

- A. Achieve a minimum 95% of the maximum density determined by TxDOT Tex-113-E.

3.03 MOISTURE CONDITIONING

- A. Dry Subgrade: Add water, then mix to make moisture content uniform throughout.

- B. Wet Subgrade: Aerate material by blading, discing, harrowing, or other methods, to hasten drying process.

3.04 TESTING

- A. Perform in-field testing in accordance with TxDOT Tex-115-E
- B. Proof-roll subgrade with equipment to detect soft or loose subgrade or unsuitable material, as determined by Engineer.

3.05 CORRECTION

- A. Soft or Loose Subgrade:
- B. Adjust moisture content and recompact, or
- C. Over excavate as specified in Section 31 23 16, Excavation, and replace with suitable material, as specified in Section 31 23 23, Fill and Backfill.
- D. Unsuitable Material: Over excavate as specified in Section 31 23 16, Excavation, and replace with suitable material, as specified in Section 31 23 23, Fill and Backfill.

END OF SECTION

31 23 16 EXCAVATION

1.00 GENERAL

1.01 SECTION INCLUDES

- A. Excavation and disposal of excavated materials.
- B. Protection of existing facilities, utilities, and structures affected by excavation.

1.02 DEFINITIONS

- A. Incidental Excavation: Excavation done for CONTRACTOR'S benefit, excavation error, dewatering of Excavation, slough, or over-break.
- B. Unclassified Excavation: The excavation of all materials encountered regardless of the nature, size, or manner in which they are removed. Presence of isolated boulders or Rock fragments will not be sufficient cause to change classification of surrounding materials.

1.03 STORAGE AND HANDLING

- A. Stockpile excavated material to cause a minimum of inconvenience to public and provide for emergency services as necessary.
- B. Provide free access to all existing fire hydrants, water and gas valves, and meters.
- C. Provide free flow of storm water in all gutters, conduits, and natural water courses.
- D. Utilize traffic control signs, markers, and procedures in product storage and handling activities.
- E. Promptly remove other material from site.

1.04 SITE CONDITIONS

- A. Prior to excavation, photograph existing surfaces along which work may take place in order to determine, after construction is completed, whether any damage to existing improvements occurred prior to construction operations.
- B. Perform Incidental Excavation at no additional cost City

1.05 WATER QUALITY

- A. Obtain all discharge permits, easements, or other necessary approvals from regulatory agencies for disposal of waters from excavations. Comply with all laws and requirements related to water quality.
- B. Institute erosion control measures as necessary

2.00 PRODUCTS

2.01 Not Used

3.00 EXECUTION

3.01 PREPARATION

- A. Call One-Call prior to performing excavation
- B. Contact other affected utilities who do not belong to one-call center.

3.02 PROTECTION

- A. Support and protect from damage any existing facility and structure that is adjacent to, exists in, passes through, or passes under the site.

3.03 TOPSOIL

- A. Excavate topsoil only to depth that will preserve topsoil quality.
- B. Do not mix topsoil with subsoil during stockpiling or spreading.

3.04 LANDSCAPE SPRINKLER SYSTEMS

- A. Protect existing landscape sprinkler systems.
- B. When disturbance of existing sprinkler system is required, interrupt and repair system so operation of system is maintained.

3.05 SHORING

- A. Slope, shore, sheet, brace or otherwise support Excavations over 4 feet deep
- B. When soil conditions are unstable, Excavations shallower than 4 feet deep must also be sloped, supported or shored.

3.06 DEWATERING

- A. Keep Excavation free from surface and ground water. Should groundwater be encountered, the CONTRACTOR shall provide sufficient well points, sumps, pumps, hoses, generators, and other necessary equipment to maintain a static water level 1 foot below the bottom of the excavation depths shown on the plans or directed by the City representative at no additional cost to City
- B. If ground water table is in the intended construction operations, dewater Excavations. Bring the presence of groundwater to the attention of the City representative immediately.
- C. If there are no olfactory or visual indications of contamination in the water, discharge according to requirements of Federal, State or local agency having jurisdiction.

3.07 GENERAL EXCAVATION REQUIREMENTS

- A. Excavate topsoil from areas to be re-landscaped or re-graded and other marked areas.
- B. Excavate site to line and grade indicated.
- C. Carefully excavate soils in vicinity of buried utility marks placed by the one-call center.
- D. Where soil has been softened or eroded by flooding or hardened by drying during unfavorable weather, rework all damaged areas or replace with approved material at no additional cost to City.
- E. Notify City representative of unexpected subsurface conditions.
- F. Underpin adjacent structure, service utilities and pipe chases that may be damaged by Excavation work.
- G. Protect Excavation walls as required. If conditions permit, slope Excavation Sides to maintain a safe and clean working area. Remove loose materials.
- H. Where the City representative deems Subgrade material to be susceptible to be unsatisfactory, excavate additional depth. Excavating additional depths up to 1 foot shall be at no additional cost to City.

3.08 ROADWAY EXCAVATION

- A. Standard procedures:
- B. Finish excavation to reasonably smooth and uniform surface.
- C. Provide and maintain satisfactory access to roads, streets, and adjacent property during all phases of construction according to the Traffic Control Plan.
- D. Remove material in all cut sections to the depth indicated. When necessary to obtain compaction, scarify to a 6 inch depth and compact to at least 98% of maximum laboratory density.
- E. Excavate and waste unsuitable material.
- F. Use suitable granular material encountered in excavation to construct the top layers of embankment, for finishing the roadbed, or for backfill when directed by the City representative.
- G. When practical, haul the granular material directly from the excavation to the final position on the roadbed.

3.09 TRENCH EXCAVATION

- A. Conform to current OSHA requirements in all trenches.
- B. Grade bottom of Trenches to provide uniform bearing surface.
- C. If necessary, make bellholes and depressions required to complete joining of pipe or box.
- D. Limit width of Trench excavations to the dimensions suitable for worker access per pipe manufacturer's recommendation. Provide enough space for compaction equipment. Notify City representative if excavation operations exceed any indicated line and grade limits.
- E. Do not place trench spoils, bedding materials, or pipe in locations or adjacent to improvements which will damage or stain improvements.
- F. In public thoroughfares and regardless of Trench depth, limit length of open Trenches to 40 lineal feet whenever excavation is not taking place, except as approved by City representative. Provide barricading, Section 01 55 26. Protect Trenches over night.

3.10 EXTRA EXCAVATION (OVER EXCAVATION)

- A. If unstable material is encountered at the bottom of any Excavation, the CONTRACTOR shall excavate additional material and backfill with suitable material until the excavation is stabilized.
- B. The Volume of Extra Excavation will be determined by the method of average-end-areas in the original position.

3.11 TOLERANCE

- A. Grading: Top surface of Subgrade = plus or minus 1 inch.

END OF SECTION

1.00 GENERAL

1.01 DESCRIPTION:

- A. This section specifies performance of dewatering required to lower and control ground water table levels and hydrostatic pressures to permit excavation, backfill, and construction to be performed in dry conditions. Control of surface water shall be considered as part of the work under this specification.

1.02 SUMMARY:

- A. The work to be completed by the Contractor includes, but is not necessarily limited to the following:
 - 1. Implementation of the Erosion and Sedimentation Control Plan.
 - 2. Dewater excavations, including seepage and precipitation.
- B. The Contractor shall be responsible for providing all materials, equipment, labor, and services necessary for care of water and erosion control. Excavation work shall not begin before the Erosion and Sedimentation Control Plan is in place.

1.03 REQUIREMENT:

- A. Dewatering system shall be of sufficient size and capacity necessary to lower and maintain ground water table to an elevation at least 1 foot below lowest foundation subgrade or bottom of pipe trench and to allow material to be excavated, piles to be driven, and concrete placed, in a reasonably dry condition. Materials to be removed shall be sufficiently dry to permit excavation to grades shown and to stabilize excavation slopes where sheeting is not required. Operate dewatering system continuously until backfill work has been completed.
- B. Reduce hydrostatic head below any excavation to the extent that water level in the construction area is a minimum of 1 foot below prevailing excavation surface.
- C. Prevent loss of fines, seepage, boils, quick conditions or softening of foundation strata.
- D. Maintain stability of sides and bottom of excavation.
- E. Construction operations are performed in dry conditions.
- F. Control of surface and subsurface water is part of dewatering requirements. Maintain adequate control so that:
 - 1. The stability of excavated and constructed slopes are not adversely affected by saturated soil, including water entering prepared subbase and subgrades where underlying materials are not free draining or are subject to swelling or freeze-thaw action.
 - 2. Erosion is controlled.
 - 3. Flooding of excavations or damage to structures does not occur.
 - 4. Surface water drains away from excavations.
 - 5. Excavations are protected from becoming wet from surface water, or insure excavations are dry before additional work is undertaken.
- G. Permitting Requirements: The contractor shall comply with and obtain the required State and County permits where the work is performed.

1.04 RELATED WORK:

- A. Materials testing and inspection during construction: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Safety Requirements: Section 00 72 00, GENERAL CONDITIONS, Article, ACCIDENT PREVENTION.
- C. Submittal requirements as specified in Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- D. Protection of existing utilities, fire protection services, existing equipment, roads, and pavements: Section 01 00 00, GENERAL REQUIREMENTS.
- E. Subsurface Investigation: Section 01 00 00, GENERAL REQUIREMENTS, Article 1.11, PHYSICAL DATA.
- F. Excavation, backfilling, site grade and utilities: Section 31 20 00, EARTH MOVING.

1.05 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Drawings and Design Data:
 - 1. Submit drawings and data showing the method to be employed in dewatering excavated areas 30 days before commencement of excavation.
 - 2. Material shall include: location, depth and size of wellpoints, headers, sumps, ditches, size and location of discharge lines, capacities of pumps and standby units, and detailed description of dewatering methods to be employed to convey the water from site to adequate disposal.
 - 3. Include a written report outlining control procedures to be adopted if dewatering problem arises.
 - 4. Capacities of pumps, prime movers, and standby equipment.
 - 5. Design calculations proving adequacy of system and selected equipment. The dewatering system shall be designed using accepted and professional methods of design and engineering consistent with the best modern practice. The dewatering system shall include the deep wells, wellpoints, and other equipment, appurtenances, and related earthwork necessary to perform the function.
 - 6. Detailed description of dewatering procedure and maintenance method.
 - 7. Materials submitted shall be in a format acceptable for inclusion in required permit applications to any and all regulatory agencies for which permits for discharge water from the dewatering system are required due to the discharge reaching regulated bodies of water.
- C. Inspection Reports.
- D. All required permits.

2.00 PRODUCTS (NOT USED)

3.00 EXECUTION

3.01 INSTALLATION:

- A. Install a dewatering system to lower and control ground surface water in order to permit excavation, construction of structure, and placement of backfill materials to be performed under dry conditions. Make the dewatering system adequate to pre-drain the water-bearing strata above and below the bottom of structure foundations, utilities and other excavations.

- B. In addition, reduce hydrostatic pressure head in water-bearing strata below structure foundations, utility lines, and other excavations, to extent that water levels in construction area are a minimum of // 300 mm (1 foot) // below prevailing excavation surface at all times.

3.02 OPERATION:

- A. Prior to any excavation below the ground water table, place system into operation to lower water table as required and operate it continuously 24 hours a day, 7 days a week until utilities and structures have been satisfactorily constructed, which includes the placement of backfill materials and dewatering is no longer required.
- B. Place an adequate weight of backfill material to prevent buoyancy prior to discontinuing operation of the system.

3.03 WATER DISPOSAL:

- A. Dispose of water removed from the excavations in such a manner as:
 - 1. Will not endanger portions of work under construction or completed.
 - 2. Will cause no inconvenience to Government or to others working near site.
 - 3. Will comply with the stipulations of required permits for disposal of water.
 - 4. Will Control Runoff: The Contractor shall be responsible for control of runoff in all work areas including but not limited to: excavations, access roads, parking areas, laydown, and staging areas. The Contractor shall provide, operate, and maintain all ditches, basins, sumps, culverts, site grading, and pumping facilities to divert, collect, and remove all water from the work areas. All water shall be removed from the immediate work areas and shall be disposed of in accordance with applicable permits.
- B. Excavation Dewatering:
 - 1. The Contractor shall be responsible for providing all facilities required to divert, collect, control, and remove water from all construction work areas and excavations.
 - 2. Drainage features shall have sufficient capacity to avoid flooding of work areas.
 - 3. Drainage features shall be so arranged and altered as required to avoid degradation of the final excavated surface(s).
 - 4. The Contractor shall utilize all necessary erosion and sediment control measures as described herein to avoid construction related degradation of the natural water quality.
- C. Dewatering equipment shall be provided to remove and dispose of all surface and ground water entering excavations, trenches, or other parts of the work during construction. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein, is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

3.04 STANDBY EQUIPMENT:

- A. Provide complete standby equipment, installed and available for immediate operation, as may be required to adequately maintain de-watering on a continuous basis and in the event that all or any part of the system may become inadequate or fail.

3.05 CORRECTIVE ACTION:

- A. If dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system (loosening of the foundation strata, or instability of slopes, or damage to foundations or structures), perform work necessary for reinstatement of foundation soil

and damaged structure or damages to work in place resulting from such inadequacy or failure by Contractor, at no additional cost to Government.

3.06 DAMAGES:

A. Immediately repair damages to adjacent facilities caused by dewatering operations.

3.07 REMOVAL:

A. Insure compliance with all conditions of regulating permits and provide such information to the Resident Engineer. Obtain written approval from Resident Engineer before discontinuing operation of dewatering system.

END OF SECTION

31 23 23 FILL

1.00 GENERAL

1.01 SECTION INCLUDES

- A. Backfilling and compacting for utilities.

1.02 RELATED SECTIONS

- A. Section 31 23 16, EXCAVATION
- B. Section 31 23 33, TRENCHING AND BACKFILLING

1.03 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO T180–10.....Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54 kg (10 lb) Rammer and a 457 mm (18 in) Drop
- B. ASTM International (ASTM):
 - 1. ASTM C136–06Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
 - 2. ASTM D698–07e1Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))
 - 3. ASTM D1556–07Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
 - 4. ASTM D1557–09Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))
 - 5. ASTM D2167–08Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
 - 6. ASTM D2487–11Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 - 7. ASTM D6938–10Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- C. Town of Pecos City Subdivision Regulations

1.04 SUBMITTALS

- A. See Section 01 34 00, SUBMITTAL PROCEDURES; for submittal procedures.
- B. Samples: 10 lb (4.5 kg) sample of each type of fill; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source.
- D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- E. Compaction Density Test Reports.

2.00 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill – Fill Type: Subsoil excavated on-site.
 - 1. Graded.

- 2. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
- B. Structural Fill – Fill Type 1–1/2" minus crushed rock
- C. Concrete for Fill: Lean concrete.
- D. Granular Fill – Gravel: Pit run washed stone; free of shale, clay, friable material and debris.
 - 1. Graded in accordance with ASTM C136, within the following limits:
 - a. 2 inch (50 mm) sieve: 100 percent passing.
 - b. 1 inch (25 mm) sieve: 95 percent passing.
 - c. 3/4-inch (19 mm) sieve: 95 to 100 percent passing.
- E. Granular Fill – Pea Gravel: Natural stone; washed, free of clay, shale, and organic matter.
 - 1. Grade in accordance with ASTM D2487, Group Symbol GM.
- F. Sand – Fill Type: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.
 - 1. Graded in accordance with ASTM C136; within the following limits:
 - a. No. 4 (4.75 mm) sieve: 100 percent passing.
 - b. No. 14 (1.40 mm) sieve: 10 to 100 percent passing.
 - c. No. 50 (300 micro m) sieve: 5 to 90 percent passing.
- G. Topsoil: See Section 32 91 19.

2.02 SOURCE QUALITY CONTROL

- A. See Section 01 45 00, QUALITY REQUIREMENTS; for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

3.00 EXECUTION

3.01 PREPARATION

- A. Scarify subgrade surface to a depth of 6 inches to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.02 FILLING

- A. Fill to contours and elevations indicated.
- B. Fill up to subgrade elevations unless otherwise indicated.
- C. Employ a placement method that does not disturb or damage other work.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches depth.
- G. Correct over-excavated areas.
- H. Compaction to density.

3.03 TOLERANCES

- A. Top Surface of Filling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.04 FIELD QUALITY CONTROL

- A. Perform compaction density testing on compacted fill in accordance with TxDOT standard tests
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- C. Frequency of Tests: 1 per 10,000 square feet.
- D. Proof roll compacted fill

END OF SECTION

31 32 19.13 GEOGRID SOIL STABILIZATION

1.00 GENERAL

1.01 SCOPE

- A. Work includes furnishing and installing Geogrid reinforcement at the lines and grades designated on the construction drawings and as specified herein.

1.02 APPLICABLE SECTION OF RELATED WORK

- A. 31 05 16 Aggregates for Earthwork
- B. 31 05 19 Geosynthetics for Earthwork
- C. 31 23 13 Subgrade Preparation
- D. 31 23 23 Fill

1.03 REFERENCE STANDARDS

- A. See specific Geogrid manufacturer's reference standards

1.04 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall check the Geogrid upon delivery to assure that the proper material has been received.
- B. Geogrid shall be stored above -10° F (-23° C).
- C. Contractor shall prevent excessive mud, cementitious material, or other foreign materials from coming in contact with the Geogrid material.
- D. Material shall be stored in a secure location.

2.00 PRODUCTS

2.01 PRODUCTS

- A. Geogrid shall be "Triax" Triaxial Geogrid as manufactured by Tensar International Corporation.

3.00 EXECUTION

3.01 INSTALLATION

- A. Triaxial geogrid shall be placed flat against grade and secured to prevent buckling, shifting, or other displacement
- B. JOINTS
 - 1. Geogrid shall be secured at joints utilizing plastic zip ties or other approved material
 - 2. Alternatively, joints may have a minimum of one foot (1') overlap.

END OF SECTION

1.00 GENERAL

1.01 DESCRIPTION

- A. This section shall cover site work concrete constructed upon the prepared subgrade and in conformance with the lines, grades, thickness, and cross sections shown on the Drawings.
- B. Construction shall include the following:
 - 1. Curb, gutter
 - 2. Vehicular Pavement

1.02 RELATED WORK

- A. Section 00 72 00, GENERAL CONDITIONS.
- B. Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES
- C. Section 01 45 29, TESTING LABORATORY SERVICES.
- D. Section 03 30 00, CAST-IN-PLACE CONCRETE.
- E. Section 05 50 00, METAL FABRICATIONS.
- F. Section 31 20 00, EARTHWORK.

1.03 DESIGN REQUIREMENTS

- A. Design all elements with the latest published version of applicable codes.

1.04 WEATHER LIMITATIONS

- A. Hot Weather: Follow the recommendations of ACI 305 or as specified to prevent problems in the manufacturing, placing, and curing of concrete that can adversely affect the properties and serviceability of the hardened concrete. Methods proposed for cooling materials and arrangements for protecting concrete shall be made in advance of concrete placement and approved by Engineer.
- B. Cold Weather: Follow the recommendations of ACI 306 or as specified to prevent freezing of concrete and to permit concrete to gain strength properly. Use only the specified noncorrosive, non-chloride accelerator. Do not use calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions. Methods proposed for heating materials and arrangements for protecting concrete shall be made in advance of concrete placement and approved by Engineer.

1.05 SELECT SUBBASE MATERIAL JOB MIX

- A. The Contractor shall retain a testing laboratory to design a select subbase material mixture and submit a job mix formula to the Engineer, in writing, for approval. The formula shall include the source of materials, gradation, plasticity index, liquid limit, and laboratory compaction curves indicating maximum density at optimum moisture. Cost of the testing laboratory to be included in the Contractor's cost of project.

1.06 SUBMITTALS

- A. Contractor shall submit the following.
 - 1. Manufacturers' Certificates and Data certifying that the following materials conform to the requirements specified.
 - a. Expansion joint filler

- b. Hot poured sealing compound
 - c. Reinforcement
 - d. Curing materials
2. Jointing Plan for all concrete areas.
 3. Concrete Mix Design.
 4. Concrete Test Reports
 5. Construction Staking Notes from Surveyor.
 6. Data and Test Reports: Select subbase material.
 - a. Job mix formula.
 - b. Source, gradation, liquid limit, plasticity index, percentage of wear, and other tests as specified and in referenced publications.

1.07 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Refer to the latest edition of all referenced Standards and codes.
 1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. M147-65-UL Materials for Aggregate and Soil Aggregate Subbase, Base and Surface Courses (R 2004)
 - b. M148-05-UL Liquid Membrane Forming Compounds for Curing Concrete (ASTM C309)
 - c. M171-05-UL Sheet Materials for Curing Concrete (ASTM C171)
 - d. M182-05-UL Burlap Cloth Made from Jute or Kenaf and Cotton Mats
 2. American Society for Testing and Materials (ASTM):
 - a. A82/A82M-07 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
 - b. A185/185M-07 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
 - c. A615/A615M-12 Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
 - d. A653/A653M-11 Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process
 - e. A706/A706M-09b Standard Specification for Low Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
 - f. A767/A767M-09 Standard Specification for Zinc Coated (Galvanized) Steel Bars for Concrete Reinforcement
 - g. A775/A775M-07b Standard Specification for Epoxy Coated Reinforcing Steel Bars
 - h. A820/A820M-11 Standard Specification for Steel Fibers for Fiber Reinforced Concrete
 - i. C31/C31M-10 Standard Practice for Making and Curing Concrete Test Specimens in the field
 - j. C33/C33M-11a Standard Specification for Concrete Aggregates
 - k. C39/C39M-12 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - l. C94/C94M-12 Standard Specification for Ready Mixed Concrete
 - m. C143/C143M-10a Standard Test Method for Slump of Hydraulic Cement Concrete
 - n. C150/C150M-12 Standard Specification for Portland Cement

- o. C171-07 Standard Specification for Sheet Materials for Curing Concrete
 - p. C172/C172M-10 Standard Practice for Sampling Freshly Mixed Concrete
 - q. C173/C173M-10b Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
 - r. C192/C192M-07 Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
 - s. C231/C231M-10 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
 - t. C260/C260M-10a Standard Specification for Air Entraining Admixtures for Concrete
 - u. C309-11 Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete
 - v. C494/C494M-12 Standard Specification for Chemical Admixtures for Concrete
 - w. C618-12 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 - x. C666/C666M-03(2008) Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
 - y. D1751-04(2008) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
 - z. D4263-83(2012) Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - aa. D4397-10 Standard Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications
3. American Welding Society (AWS):
- a. D1.4/D1.4M (2005) Structural Welding Code Reinforcing Steel

2.00 PRODUCTS

2.01 GENERAL

- A. Concrete Type: Concrete shall be as per Table 1 – Concrete Type, air entrained.

TABLE I – CONCRETE TYPE

	Concrete Strength		Non-Air-Entrained	Air-Entrained	
	Min. 28 Day Comp. Str. Psi (MPa)	Min. Cement lbs/cu. yd. (kg/m ³)	Max. Water Cement Ratio	Min. Cement lbs/cu. yd. (kg/m ³)	Max. Water Cement Ratio
Type A	5000 (35) ^{1,3}	630 (375)	0.45	650 (385)	0.40
Type B	4000 (30) ^{1,3}	550 (325)	0.55	570 (340)	0.50
Type C	3000 (25) ^{1,3}	470 (280)	0.65	490 (290)	0.55
Type D	3000 (25) ^{1,2}	500 (300)	*	520 (310)	*

1. If trial mixes are used, the proposed mix design shall achieve a compressive strength 1200 psi (8.3 MPa) in excess of the compressed strength. For concrete strengths above 5000 psi (35 Mpa), the proposed mix design shall achieve a compressive strength 1400 psi (9.7 MPa) in excess of the compressed strength.
2. For concrete exposed to high sulfate content soils maximum water cement ratio is 0.44.
3. Determined by Laboratory in accordance with ACI 211.1 for normal concrete or ACI 211.2 for lightweight structural concrete.

- B. Maximum Slump: Maximum slump, as determined by ASTM C143 with tolerances as established by ASTM C94, for concrete to be vibrated shall be as shown in Table II.

TABLE II – MAXIMUM SLUMP – INCHES (MM)

TYPE	MAXIMUM SLUMP*
Curb & Gutter	3 inches (75 mm)
Pedestrian Pavement	3 inches (75 mm)
Vehicular Pavement	2 inches (50 mm) (Machine Finished) 4 inches (100 mm) (Hand Finished)
Equipment Pad	3 to 4 inches (75 to 100 mm)
* For concrete to be vibrated: Slump as determined by ASTM C143. Tolerances as established by ASTM C94.	

2.02 REINFORCEMENT

- A. The type, amount, and locations of steel reinforcement shall be as shown on the drawings and in the specifications.

2.03 SELECT SUBBASE (WHERE REQUIRED)

- A. Subbase material shall consist of select granular material composed of sand, sand gravel, crushed stone, crushed or granulated slag, with or without soil binder, or combinations of these materials conforming to AASHTO M147, as follows.

GRADE REQUIREMENTS FOR SOILS USED AS SUBBASE MATERIALS,
BASE COURSES AND SURFACES COURSES

AASHTO M147		Percentage Passing by Mass					
Sieve	Size	Grades					
(mm)	(in)	A	B	C	D	E	F
50	2	100	100				
25	1		75-95	100	100	100	100
9.5	3/8	30-65	40-75	50-85	60-100		
4.47	No. 4	25-55	30-60	35-65	50-85	55-100	70-100
2.00	No. 10	15-40	20-45	25-50	40-70	40-100	55-100
0.425	No. 40	8-20	15-30	15-30	25-45	20-50	30-70
0.075	No. 200	2-8	5-20	5-15	5-20	6-20	8-25

- B. Materials meeting other gradations than that noted will be acceptable whenever the gradations are within a tolerance of three to five percent, plus or minus, of the single gradation established by the job mix formula, or as recommended by the geotechnical engineer and approved by the Engineer.
- C. Subbase material shall produce a compacted, dense graded course, meeting the density requirement specified herein.

2.04 FORMS

- A. Use metal or wood forms that are straight and suitable in cross section, depth, and strength to resist springing during depositing and consolidating the concrete, for the work involved.
- B. Do not use forms if they vary from a straight line more than 1/8 inch (3 mm) in any ten foot (3000 mm) long section, in either a horizontal or vertical direction.
- C. Wood forms should be at least 2 inches (50 mm) thick (nominal). Wood forms shall also be free from warp, twist, loose knots, splits, or other defects. Use approved flexible or curved forms for forming radii.

2.05 CONCRETE CURING MATERIALS

- A. Concrete curing materials shall conform to one of the following:
 - 1. Burlap having a weight of seven ounces (233 grams) or more per yard (square meter) when dry.
 - 2. Impervious Sheeting conforming to ASTM C171.

2.06 EXPANSION JOINT FILLERS

- A. Material shall conform to ASTM D1751-04.

3.00 EXECUTION

3.01 SUBGRADE PREPARATION

- A. Prepare, construct, and finish the subgrade as specified in Section 31 20 00, EARTHWORK.
- B. Maintain the subgrade in a smooth, compacted condition, in conformance with the required section and established grade until the succeeding operation has been accomplished.

3.02 SETTING FORMS

- A. Base Support:
 - 1. Compact the base material under the forms true to grade so that, when set, they will be uniformly supported for their entire length at the grade as shown.
 - 2. Correct imperfections or variations in the base material grade by cutting or filling and compacting.
- B. Form Setting:
 - 1. Set forms sufficiently in advance of the placing of the concrete to permit the performance and approval of all operations required with and adjacent to the form lines.
 - 2. Set forms to true line and grade and use stakes, clamps, spreaders, and braces to hold them rigidly in place so that the forms and joints are free from play or movement in any direction.
 - 3. Forms shall conform to line and grade with an allowable tolerance of 1/8 inch (3 mm) when checked with a straightedge and shall not deviate from true line by more than 1/4 inch (6 mm) at any point.
 - 4. Do not remove forms until removal will not result in damaged concrete or at such time to facilitate finishing.
 - 5. Clean and oil forms each time they are used.
 - 6. Make necessary corrections to forms immediately before placing concrete.
 - 7. When any form has been disturbed or any subgrade or subbase has become unstable, reset and recheck the form before placing concrete.

3.03 EQUIPMENT

- A. The Engineer shall approve equipment and tools necessary for handling materials and performing all parts of the work prior to commencement of work.
- B. Maintain equipment and tools in satisfactory working condition at all times.

3.04 PLACING REINFORCEMENT

- A. Reinforcement shall be free from dirt, oil, rust, scale or other substances that prevent the bonding of the concrete to the reinforcement. All reinforcement shall be supported for proper placement within the concrete section.
- B. Before the concrete is placed, the Engineer shall approve the reinforcement placement, which shall be accurately and securely fastened in place with suitable supports and ties. The type, amount, and position of the reinforcement shall be as shown on the Drawings.

3.05 PLACING CONCRETE GENERAL

- A. Obtain approval of the Engineer before placing concrete.
- B. Remove debris and other foreign material from between the forms before placing concrete.
- C. Before the concrete is placed, uniformly moisten the subgrade, base, or subbase appropriately, avoiding puddles of water.
- D. Convey concrete from mixer to final place of deposit by a method which will prevent segregation or loss of ingredients. Deposit concrete so that it requires as little handling as possible.
- E. While being placed spade or vibrate and compact the concrete with suitable tools to prevent the formation of voids or honeycomb pockets. Vibrate concrete well against forms and along joints. Over vibration or manipulation causing segregation will not be permitted. Place concrete continuously between joints without bulkheads.
- F. Install a construction joint whenever the placing of concrete is suspended for more than 30 minutes and at the end of each day's work.
- G. Workmen or construction equipment coated with foreign material shall not be permitted to walk or operate in the concrete during placement and finishing operations.
- H. Cracked or Chipped Concrete Surfaces and Bird Baths. Cracked or chipped concrete and bird baths will not be allowed. Concrete with cracks or chips and bird baths will be removed and replaced to the nearest joints, and as approved by the Engineer, by the Contractor with no additional cost to the Government.

3.06 PLACING CONCRETE FOR CURB AND GUTTER, PEDESTRIAN PAVEMENT, AND EQUIPMENT PADS

- A. Place concrete in the forms in one layer of such thickness that, when compacted and finished, it will conform to the cross section as shown.
- B. Deposit concrete as near to joints as possible without disturbing them but do not dump onto a joint assembly.
- C. After the concrete has been placed in the forms, use a strike off guided by the side forms to bring the surface to the proper section to be compacted.
- D. Consolidate the concrete thoroughly by tamping and spading, or with approved mechanical finishing equipment.
- E. Finish the surface to grade with a wood or metal float.
- F. All Concrete pads and pavements shall be constructed with sufficient slope to drain properly.

3.07 PLACING CONCRETE FOR VEHICULAR PAVEMENT

- A. Deposit concrete into the forms as close as possible to its final position.

- B. Place concrete rapidly and continuously between construction joints.
- C. Strike off concrete and thoroughly consolidate by a finishing machine, vibrating screed, or by hand finishing.
- D. Finish the surface to the elevation and crown as shown.
- E. Deposit concrete as near the joints as possible without disturbing them but do not dump onto a joint assembly. Do not place adjacent lanes without approval by the Engineer.

3.08 CONCRETE FINISHING GENERAL

- A. The sequence of operations, unless otherwise indicated, shall be as follows:
 - 1. Consolidating, floating, straight-edging, troweling, texturing, and edging of joints.
 - 2. Maintain finishing equipment and tools in a clean and approved condition.

3.09 CONCRETE FINISHING CURB AND GUTTER

- A. Round the edges of the gutter and top of the curb with an edging tool to a radius of 1/4 inch or as otherwise detailed.
- B. Float the surfaces and finish with a smooth wood or metal float until true to grade and section and uniform in textures.
- C. Finish the surfaces, while still wet, with a bristle type brush with longitudinal strokes.
- D. Immediately after removing the front curb form, rub the face of the curb with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Brush the surface, while still wet, in the same manner as the gutter and curb top.
- E. Except at grade changes or curves, finished surfaces shall not vary more than 1/8 inch for gutter and 1/4 for top and face of curb, when tested with a 10 foot straightedge.
- F. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints.
- G. Correct any depressions which will not drain. See Article 3.6, Paragraph H, above.
- H. Visible surfaces and edges of finished curb, gutter, and/or combination curb and gutter shall be free of blemishes, form marks, and tool marks, and shall be uniform in color, shape, and appearance.

3.10 CONCRETE FINISHING PEDESTRIAN PAVEMENT

- A. Finish the surfaces to grade and cross section with a metal float, troweled smooth and finished with a broom moistened with clear water.
 - 1. Brooming shall be transverse to the line of traffic.
 - 2. Finish all slab edges, including those at formed joints, carefully with an edger having a radius as shown on the Drawings.
 - 3. Unless otherwise indicated, edge the transverse joints before brooming. The brooming shall eliminate the flat surface left by the surface face of the edger. Execute the brooming so that the corrugation, thus produced, will be uniform in appearance and not more than 1/16 inch in depth.
 - 4. The completed surface shall be uniform in color and free of surface blemishes, form marks, and tool marks. The finished surface of the pavement shall not vary more than 3/16 inch when tested with a 10 foot straightedge.
 - 5. The thickness of the pavement shall not vary more than 1/4 inch (6 mm).
 - 6. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints at no additional cost to the Owner.

- B. Steps: The method of finishing the steps and the sidewalls is similar to above except as herein noted.
1. Remove the riser forms one at a time, starting with the top riser.
 2. After removing the riser form, rub the face of the riser with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Use an outside edger to round the corner of the tread; use an inside edger to finish the corner at the bottom of the riser.
 3. Give the risers and sidewall a final brush finish. The treads shall have a final finish with a stiff brush to provide a non slip surface.
 4. The texture of the completed steps shall present a neat and uniform appearance and shall not deviate from a straightedge test more than 3/16 inch (5 mm).

3.11 CONCRETE FINISHING FOR VEHICULAR PAVEMENT

- A. Accomplish longitudinal floating with a longitudinal float not less than 10 feet long and 6 inches wide, properly stiffened to prevent flexing and warping. Operate the float from foot bridges in a sawing motion parallel to the direction in which the pavement is being laid from one side of the pavement to the other, and advancing not more than half the length of the float.
- B. After the longitudinal floating is completed, but while the concrete is still plastic, eliminate minor irregularities in the pavement surfaces by means of metal floats, 5 feet in length, and straightedges, 10 feet in length. Make the final finish with the straightedges, which shall be used to float the entire pavement surface.
- C. Test the surface for trueness with a 10 foot straightedge held in successive positions parallel and at right angles to the direction in which the pavement is being laid and the entire area covered as necessary to detect variations. Advance the straightedge along the pavement in successive stages of not more than one half the length of the straightedge. Correct all irregularities and refinish the surface.
- D. The finished surface of the pavement shall not vary more than 1/4 inch in both longitudinal and transverse directions when tested with a 10 foot straightedge.
- E. The thickness of the pavement shall not vary more than 1/4 inch.
- F. When most of the water glaze or sheen has disappeared and before the concrete becomes non-plastic, give the surface of the pavement a broomed finish with an approved fiber broom not less than 18 inches wide. Pull the broom gently over the surface of the pavement from edge to edge. Brooming shall be transverse to the line of traffic and so executed that the corrugations thus produced will be uniform in character and width, and not more than 1/8 inch in depth. Carefully finish the edge of the pavement along forms and at the joints with an edging tool. The brooming shall eliminate the flat surface left by the surface face of the edger.
- G. The finish surfaces of new and existing abutting pavements shall be flush and in alignment at their juncture.

3.12 CONCRETE FINISHING EQUIPMENT PADS

- A. After the surface has been struck off and screeded to the proper elevation, provide a smooth dense float finish, free from depressions or irregularities.
- B. Carefully finish all slab edges with an edger having a radius as shown in the Drawings.
- C. After removing the forms, rub the faces of the pad with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The finish surface of the pad shall not vary more than 1/8 inch when tested with a 10 foot straightedge.

D. Correct irregularities exceeding the above. See Article 3.6, Paragraph H, above.

3.13 JOINTS – GENERAL

- A. Place joints, where shown on the Shop Drawings and Drawings, conforming to the details as shown, and perpendicular to the finished grade of the concrete surface.
- B. Joints shall be straight and continuous from edge to edge of the pavement.

3.14 CONTRACTION JOINTS

- A. Cut joints to depth as shown with a grooving tool or jointer of a radius as shown or by sawing with a blade producing the required width and depth.
- B. Construct joints in curbs and gutters by inserting 1/8 inch (3 mm) steel plates conforming to the cross sections of the curb and gutter.
- C. Plates shall remain in place until concrete has set sufficiently to hold its shape and shall then be removed.
- D. Finish edges of all joints with an edging tool having the radius as shown.
- E. Score pedestrian pavement with a standard grooving tool or jointer.

3.15 EXPANSION JOINTS

- A. Use a preformed expansion joint filler material of the thickness as shown to form expansion joints.
- B. Material shall extend the full depth of concrete, cut and shaped to the cross section as shown, except that top edges of joint filler shall be below the finished concrete surface where shown to allow for sealing.
- C. Anchor with approved devices to prevent displacing during placing and finishing operations.
- D. Round the edges of joints with an edging tool.
- E. Form expansion joints as follows:
 - 1. Without dowels, about structures and features that project through, into, or against any site work concrete construction.
 - 2. Using joint filler of the type, thickness, and width as shown.
 - 3. Installed in such a manner as to form a complete, uniform separation between the structure and the site work concrete item.

3.16 CONSTRUCTION JOINTS

- A. Locate longitudinal, transverse, and construction joints between slabs of vehicular pavement as shown on the Shop Drawing jointing plan and Drawings.
- B. Place transverse construction joints of the type shown, where indicated and whenever the placing of concrete is suspended for more than 30 minutes.
- C. Use a butt type joint with dowels if the joint occurs at the location of a planned joint.
- D. Use keyed joints with tiebars if the joint occurs in the middle third of the normal joint interval.

3.17 FORM REMOVAL

- A. Forms shall remain in place at least 12 hours after the concrete has been placed. Remove forms without injuring the concrete.
- B. Do not use bars or heavy tools against the concrete in removing the forms. Promptly repair any concrete found defective after form removal.

3.18 CURING OF CONCRETE

- A. Cure concrete by one of the following methods appropriate to the weather conditions and local construction practices, against loss of moisture, and rapid temperature changes for at least seven days from the beginning of the curing operation. Protect unhardened concrete from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready to install before actual concrete placement begins. Provide protection as necessary to prevent cracking of the pavement due to temperature changes during the curing period. If any selected method of curing does not afford the proper curing and protection against concrete cracking, remove and replace the damaged pavement and employ another method of curing as directed by the Engineer.
- B. Burlap Mat: Provide a minimum of two layers kept saturated with water for the curing period. Mats shall overlap each other at least 150 mm (6 inches).
- C. Impervious Sheeting: Use waterproof paper, polyethylene coated burlap, or polyethylene sheeting. Polyethylene shall be at least 4 mils (0.1 mm) in thickness. Wet the entire exposed concrete surface with a fine spray of water and then cover with the sheeting material. Sheets shall overlap each other at least 12 inches (300 mm). Securely anchor sheeting.
- D. Liquid Membrane Curing:
 - 1. Apply pigmented membrane forming curing compound in two coats at right angles to each other at a rate of 200 square feet per gallon (5 m²/L) for both coats.
 - 2. Do not allow the concrete to dry before the application of the membrane.
 - 3. Cure joints designated to be sealed by inserting moistened paper or fiber rope or covering with waterproof paper prior to application of the curing compound, in a manner to prevent the curing compound entering the joint.
 - 4. Immediately re-spray any area covered with curing compound and damaged during the curing period.

3.19 CLEANING

- A. After completion of the curing period:
 - 1. Remove the curing material (other than liquid membrane).
 - 2. Sweep the concrete clean.
 - 3. After removal of all foreign matter from the joints, seal joints as specified.
 - 4. Clean the entire concrete of all debris and construction equipment as soon as curing and sealing of joints has been completed.

3.20 PROTECTION

- A. The contractor shall protect the concrete against all damage prior to final acceptance by the Owner. Remove concrete containing excessive cracking, fractures, spalling, or other defects and reconstruct the entire section between regularly scheduled joints, when directed by the Engineer, and at no additional cost to the Government. Exclude traffic from vehicular pavement until the concrete is at least seven days old, or for a longer period of time if so directed by the Engineer.

3.21 FINAL CLEAN UP

- A. Remove all debris, rubbish and excess material from the Station.

END OF SECTION

32 11 23 AGGREGATE BASE COURSES

1.00 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Aggregate base course.
- B. Related Sections:
 - 1. Section 31 22 13 – Rough Grading.
 - 2. Section 31 23 17 – Trenching.
 - 3. Section 31 23 19 – Dewatering.
 - 4. Section 31 25 13 – Erosion Controls.
 - 5. Section 32 11 23 – Prepared Subbase.
 - 6. Section 32 12 16 – Asphalt Paving.
 - 7. Section 32 13 13 – Concrete Paving

1.02 REFERENCES

- A. ASTM International:
 - 1. ASTM C 117 – Standard Test Method for Materials Finer than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
 - 2. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
 - 4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.03 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Materials Source: Submit name and location of aggregate materials suppliers.
- C. Manufacturer's Certificate: Certify materials meet or exceed specified requirements.

1.04 QUALITY ASSURANCE

- A. Furnish each material from single source throughout the Work.

2.00 PRODUCTS

2.01 AGGREGATE MATERIALS

- A. Base Aggregate: The class shall be as specified on the project plans and pay items.

3.00 EXECUTION

3.01 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify subbase has been inspected, gradients and elevations are correct.

3.02 PREPARATION

- A. Complete the work of section 32 11 16 Subbase Courses.
- B. Correct irregularities in subbase gradient and elevation by scarifying, reshaping, and re-compacting.
- C. Do not place fill on soft, muddy, or frozen surfaces.

3.03 AGGREGATE PLACEMENT

- A. Place aggregate in equal thickness layers to total compacted thickness indicated on Drawings. Maximum Layer Compacted Thickness: 6 inches.
- B. Roller compact aggregate to 98 percent maximum density as defined in accordance with ASTM D 1557.
- C. Level and contour surfaces to elevations, profiles, and gradients indicated.
- D. Maintain optimum moisture content of fill materials to attain specified compaction density.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
- F. No displacement (pumping) of subgrade soils shall be visually observed when loaded by heavy equipment traffic.

3.04 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Maximum Variation From Flat Surface: 1/2 inch measured with 10 foot straight edge.
- C. Maximum Variation From Thickness: 1/2 inch.
- D. Maximum Variation From Elevation: 1/2 inch.

3.05 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Contractor's representative will perform laboratory testing of material to determine gradation in accordance with ASTM C117 and ASTM C136.
- C. Contractor's representative will perform laboratory testing of material to determine gradation in accordance with ASTM C117 and ASTM C136.
- D. Contractor's representative will perform testing to determine maximum density in accordance with ASTM D 1557.
- E. Contractor's representative will perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- F. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- G. Frequency of Tests: One set of tests every 2,500 square feet or portion thereof, at locations directed by Engineer.
- H. Owner may retain a third-party representative to verify testing results at their own cost. When verification tests indicate Work does not meet specified requirements, Contractor's representative and Owner's representative shall both pull new samples and retest until specifications are met.

END OF SECTION

32 12 13.16 ASPHALTIC TACK COATS

1.00 GENERAL

1.01 SUMMARY

- A. Description: This Section includes the furnishing and application of asphaltic tack coats as shown on the drawings and as specified herein.

1.02 REFERENCES

- A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
- B. AASHTO M 82 (1975; R 2008) Standard Specification for Cut- Back Asphalt (Medium-Curing Type)
- C. AASHTO T 102 (2009) Spot Test of Asphaltic Materials
- D. AASHTO T 40 (2002; R 2006) Sampling Bituminous Materials
- E. ASTM INTERNATIONAL (ASTM)
- F. ASTM D 140/D 140M (2009) Sampling Bituminous Materials
- G. ASTM D 2027 (2010) Cutback Asphalt (Medium-Curing Type)
- H. ASTM D 2995 (1999; R 2009) Determining Application Rate of Bituminous Distributors
- I. ASTM D 977 (2005) Emulsified Asphalt

1.03 SYSTEM DESCRIPTION

A. General Requirements

- 1. Plant, equipment, machines and tools used in the work are subject to approval and shall be maintained in a satisfactory working condition at all times. Calibrated equipment such as asphalt distributors, scales, batching equipment, spreaders and similar equipment, should have been recalibrated by a calibration laboratory within 12 months prior to commencing work.

B. Bituminous Distributor

- 1. Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 650 psi of tire width to prevent rutting, shoving or otherwise damaging the base surface or other layers in the pavement structure. Design and equip the distributor to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 2.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than plus or minus 5 percent, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the bituminous material during the heating process.

C. Heating Equipment for Storage Tanks

- 1. The equipment for heating the bituminous material shall be steam, electric, or hot oil heaters. Provide steam heaters consisting of steam coils and equipment for producing steam, so designed that the steam cannot get into the material. Fix an armored thermometer to the tank with a temperature range from 40 to 400 degrees F so that the temperature of the bituminous material may be determined at all times.

D. Power Brooms and Power Blowers

1. Use power brooms and power blowers suitable for cleaning the surfaces to which the bituminous coat is to be applied.

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

1. Product Data

- a. Weigh tickets and delivery tickets, during progress of the work.
- b. Documentation indicating distance between manufacturing facility and the project site.
- c. Sampling and Testing
- d. Copies of all test results for emulsified asphalt, and bituminous materials, within 24 hours of completion of tests. Certified copies of the manufacturer's test reports indicating temperature viscosity relationship for cutback asphalt, compliance with applicable specified requirements, not less than 30 days before the material is required in the work.

B. DELIVERY, STORAGE, AND HANDLING

1. Inspect the materials delivered to the site for contamination and damage. Unload and store the materials with a minimum of handling.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Apply bituminous coat only when the surface to receive the bituminous coat is dry. Apply bituminous coat only when the atmospheric temperature is 60 degrees F or above.

2.00 PRODUCTS

2.01 TACK COAT

- A. Provide asphalt conforming to ASTM D 2027 or AASHTO M82 Grade MC-70.
- B. Cutback Asphalt
- C. Provide cutback asphalt conforming to ASTM D 2027, Grade MC-70.
- D. Emulsified Asphalt
- E. Provide emulsified asphalt conforming to ASTM D 977, Type SS-1. Dilute the emulsified asphalt with equal parts of water. The base asphalt used to manufacture the emulsion shall show a negative spot when tested in accordance with AASHTO T 102 using standard naphtha.

3.00 EXECUTION

3.01 PREPARATION OF SURFACE

- A. Immediately before applying the bituminous coat, remove all loose material, dirt, clay, or other objectionable material from the surface to be treated by means of a power broom or blower supplemented with hand brooms. The surface shall be dry and clean at the time of treatment.

3.02 APPLICATION RATE

- A. The exact quantities within the range specified, which may be varied to suit field conditions, will be determined by the Engineer.
- B. Tack Coat
- C. Apply bituminous material for the tack coat in quantities of not less than 0.10 gallon nor more than 0.30 gallon per square yard of pavement surface.
- D. Surface shall have a minimum of 90% coverage. Streaks or impartial coverage will require re-application, not to exceed the maximum gallons per square yard.

3.03 APPLICATION TEMPERATURE

- A. Viscosity Relationship
- B. Asphalt application temperature shall provide an application viscosity between 10 and 60 seconds, Saybolt Furol, or between 20 and 120 centistokes, kinematic. Furnish the temperature viscosity relation to the Engineer.

3.04 APPLICATION

A. General

- 1. Following preparation and subsequent inspection of the surface, apply the bituminous tack coat with the Bituminous Distributor at the specified rate with uniform distribution over the surface to be treated. Properly treat all areas and spots missed by the distributor with the hand spray. Until the succeeding layer of pavement is placed, maintain the surface by protecting the surface against damage and by repairing deficient areas at no additional cost to the City. If required, spread clean dry sand to effectively blot up any excess bituminous material. No smoking, fires, or flames other than those from the heaters that are a part of the equipment are permitted within 25 feet of heating, distributing, and transferring operations of bituminous material other than bituminous emulsions. Prevent all traffic, except for paving equipment used in constructing the surfacing, from using the underlying material, whether primed or not, until the surfacing is completed. The bituminous coat shall conform to all requirements as described herein.

B. Tack Coat

- 1. Apply tack coat at the locations shown on the drawings. Apply the tack coat when the surface to be treated is dry. Immediately following the preparation of the surface for treatment, apply the bituminous material by means of the bituminous distributor, within the limits of temperature at the rates described above. Apply the bituminous material so that uniform distribution is obtained over the entire surface to be treated. Treat lightly coated areas and spots missed by the distributor with the bituminous material. Following the application of bituminous material, allow the surface to cure without being disturbed for period of time necessary to permit setting of the tack coat. Apply the bituminous tack coat only as far in advance of the placing of the overlying layer as required for that day's operation. Maintain and protect the treated surface from damage until the succeeding course of pavement is placed.

C. CURING PERIOD

- 1. Following application of the bituminous material and prior to application of the succeeding layer of pavement, allow the bituminous coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the

succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas.

3.05 SAMPLING AND TESTING

- A. Perform sampling and testing by an approved commercial testing laboratory or by facilities furnished by the Contractor. No work requiring testing will be permitted until the facilities have been inspected and approved.
- B. Sampling
 - 1. The samples of bituminous material, unless otherwise specified, shall be in accordance with ASTM D 140/D 140M or AASHTO T 40. Sources from which bituminous materials are to be obtained shall be selected and notification furnished the Engineer within 15 days after the award of the contract.
- C. Calibration Test
 - 1. Furnish all equipment, materials, and labor necessary to calibrate the bituminous distributor. Calibration shall be made with the approved job material and prior to applying the bituminous coat material to the prepared surface. Calibrate the bituminous distributor in accordance with ASTM D 2995.

3.06 TRAFFIC CONTROLS

- A. Keep traffic off surfaces freshly treated with bituminous material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

END OF SECTION

32 12 16.13 PLANT-MIX ASPHALT PAVING

1.00 GENERAL

1.01 SUMMARY

A. Materials, testing and Equipment for the installation of Hot Mix Asphalt Pavement (HMAC).

1.02 RELATED REQUIREMENTS

- A. The General Conditions, the Supplementary Conditions, and Division 01 Specifications apply to each specification section.
- B. Division 31 of these specifications
- C. Division 32 of these specifications
- D. Applicable Standards:
- E. Texas Department of Transportation (TxDOT):
- F. 2004 Standard Specifications for Construction of Highways, Streets and Bridges.
- G. Item 247 Flexible Base.
- H. Item 276 Cement Treatment (Plant-Mixed).
- I. Item 292 Asphalt Treatment (Plant-Mixed).
- J. Item 300 Asphalt, Oils, and Emulsions.
- K. Item 310 Prime Coat.
- L. Item 340 Dense-Graded Hot-Mix Asphalt.
- M. Test Procedures:
- N. TEX-120-E Soil-Cement Testing.
- O. TEX-204-F Design of Bituminous Mixtures.
- P. ASTM International (ASTM):
- Q. D7113 Density of Bituminous Paving Mixtures In Place by the Electromagnetic Surface Contact Methods
- R. D2950 Density of Bituminous Concrete in Place by Nuclear Methods c.D2726 Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures

1.03 DEFINITIONS

A. Hot Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definition of terms.

1.04 SECTION REQUIREMENTS

- A. Submittals: Product Data and hot-mix asphalt design mixes for each mix to be used
- B. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.
- C. Qualification Data: for each qualified Manufacturer and Installer.

2.00 PRODUCTS

A. MATERIALS

- 1. Flexible Base: TxDOT Item 247, Type A, Grade 2.
- 2. Asphalt Treated Base: TxDOT Item 292, Grade 1.
- 3. Cement Treated Base: TxDOT Item 276, Strength M.
- 4. Prime Coat: TxDOT Item 310.TxDOT Item 300, MC-30.

5. Tack Coat: TxDOT Item 300, RC 250 cutback asphalt, or Asphalt emulsion: SS-1h or CSS-1h per TxDOT Item 300.
6. Asphaltic Concrete: TxDOT Item 340, Type D HMA.
 - a. The hot mix asphaltic concrete pavement coarse aggregate shall be so crushed that a minimum of 80% of particles retained on #4 sieve shall have more than one crushed face when tested in accordance with test method Tex-413A (Particle Count). For Type "D" surface material, the asphaltic material shall form from 5 to 8 percent of the mixture by weight. For Type "C" surface material, the asphaltic material shall form from 4 to 7 percent of the mixture by weight. For Type "B" base material, the asphaltic material shall form from 3.5 to 7 percent of the mixture by weight. For both surface and base material, the asphalt content used shall be that percent required to obtain optimum density. This percent asphalt shall be obtained from a mix design performed according to Texas Department of Transportation 2004 Standard Specifications. The actual asphaltic material contained in the delivered mix shall be within a $\pm 0.50\%$ tolerance of the content specified in the mix design.

B. QUALITY ASSURANCE

1. Manufacturer Qualifications: Paving-mix manufacturer must be registered with and approved by authorities from TxDOT
2. Submit a TxDOT approved mix design for asphaltic concrete (TxDOT Test Method TEX-204-F) to the engineer a minimum of three days prior to paving. Do not use more than 20% Reclaimed Asphalt Pavement (RAP) in mix.
3. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the 2004 Edition TxDOT Standard Specifications for asphalt paving work.
4. Measurement and payment provisions, as well as safety program submittals included in standard specifications do not apply to this work.

3.00 EXECUTION

3.01 PROJECT CONDITIONS

- A. Environmental Conditions: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before the time required for adequate cure, or if the following conditions are not met:
 - B. Prime Coat: Minimum surface temperature of 60 deg F.
 - C. Tack Coat: Minimum surface temperature of 60 deg F.
 - D. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement
 - E. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement

3.02 EQUIPMENT

- A. General- All equipment shall be kept in proper working conditions. All equipment is subject to approval before use.
- B. Rollers shall be of sufficient size and weight to obtain proper compaction without overworking the asphalt and causing the asphaltic matrix to deteriorate. Steel wheel and

pneumatic tire rollers will be permitted. Pneumatic tire rollers shall be discontinued if excessive pickup of fines by roller tires occurs.

- C. Paver shall be self-propelled and capable of performing this work in three or fewer passes. Asphalt shuttle-buggies are permitted, however asphalt windrows are prohibited. Paver shall have a heated screed and shall be capable of adjusting pavement thickness while in motion.
- D. Trucks shall be of sufficient quality and quantity to continuously haul and supply asphalt to the paver during paving operations. Overweight loads are prohibited. Local roads shall not be used as a haul route.

3.03 PAVING

- A. The contractor shall arrange their paving to provide hot joints wherever possible. Where it is necessary to leave a cold joint, the edge will be squared vertically and horizontally and compacted. Joints shall be staggered so that they fall at least 12" from the previous joint. At the seams where the new HMAC meets the existing HMAC, concrete headers, valley gutters, or curb & gutter, a tack coat (RC-250) shall be applied to the seams at a rate of 0.05 Gal/SY.
- B. Asphalt laid adjacent to gutter lines shall meet the existing grade unless the engineer waives this requirement. All driveway and intersections shall have asphalt laid in such a way as to prevent bumps or dragging.
- C. Turn-out paving at driveways and intersections shall be allowed as indicated by the city representative.
- D. Transitions to existing pavement shall be constructed according to the plans.
- E. Milling work at intersections with other hard surface roadways will include the entire width of the traveled area.
- F. Uniformly compact the pavement to the density requirements of the specification. Use the control strip method given in Tex-207-F, Part IV, to establish the rolling pattern. Do not use pneumatic-tire rollers if excessive pickup of fines by roller tires occurs. Unless otherwise directed, use only water or an approved release agent on rollers, tamps, and other compaction equipment. Where specific air void requirements are waived, furnish and operate compaction equipment as approved. Use tamps to thoroughly compact the edges of the pavement along curbs, headers, and similar structures and in locations that will not allow thorough compaction with rollers. The Engineer may require rolling with a trench roller on widened areas, in trenches, and in other limited areas.
- G. Complete all compaction operations before the pavement temperature drops below 160°F, unless otherwise allowed. The Engineer may allow compaction with a light finish roller operated in static mode for pavement temperatures below 160°F.
- H. Allow the compacted pavement to cool to 160°F or lower before opening to traffic, unless otherwise directed. When directed, sprinkle the finished mat with water or limewater to expedite opening the roadway to traffic.
- I. When installing Type "D" surface on a Type "C" coarse surface, or when installing Type "C" coarse surface on Type "B" base, a tack coat (RC-250) shall be applied on the previously constructed HMAC if the HMAC has been in place for over 3 days, or if required by the Engineer. The tack coat shall be applied at a rate not to exceed 0.05 Gal/SY and rolled with a pneumatic roller. Tack coat shall be considered incidental to other bid items. When installing Type "C" HMAC on a flexible base, or when

- installing Type "B" HMAC on subgrade, a prime coat (MC-30 or AE-P (EPRI or equal)) shall be applied at a rate of 0.25 Gal/SY to the base material or subgrade material.
- J. Type "D", Type "C", and Type "B" HMAC will be installed with an approved HMAC laying machine, unless otherwise approved by the Engineer. A motor grader is not approved to install HMAC. The Contractor shall use 2" thick, compacted Type "D" HMAC when constructing Hot Mix pavements unless shown otherwise on the Plans. Refer to TxDOT Item 340 for HMAC.
 - K. Storage of the completed mix upon the ground will not be permitted at the mixing plant or the job site. Any mix that comes into contact with earth or other objectionable foreign matter shall be rejected.
 - L. Tickets shall be supplied to the Owner and or Engineer upon request and must show the following: Date and Time of Material Origin, Name and Location of Plant and type of material installed.
 - M. Do NOT pave over utility covers. Any utilities which are covered during paving operations and not corrected prior to the cooling of the mat shall result in liquidated damages of \$500.00 per incident.
 - N. Should conflicts arise between standard specifications of government agencies mentioned herein and Contract Documents, Contract Documents shall govern.
 - O. All work under this contract shall be done within street right-of-way. Upon completion of the project, the contractor shall leave all areas within the right-of-way free from tack coat spills, surplus asphaltic concrete from the paving operation or from cleaning of paving machine, and/or any other debris associated with the paving operation. It will be the responsibility of the contractor to restore any items (i.e. curbs, sidewalks, driveways, shrubbery, mailboxes, utility facilities, etc.) within the right-of-way damaged due to the paving process.
 - P. Contractor shall provide all traffic control necessary for the safety of the public.

3.04 INSTALLATION TOLERANCES

- A. Thickness: Compact the base material and each pavement course to achieve the thickness specified within the following tolerances.
- B. Base Material: plus or minus 3/4 IN.
- C. Base Course of Asphaltic Concrete: plus or minus 1/2 IN.
- D. Surface Course: plus or minus 1/4 IN.
- E. Surface Smoothness: Compact the base material and each pavement course to produce a surface smoothness within the following tolerances:
- F. Base Material: plus or minus 1/2 IN.
- G. Base Course: plus or minus 1/4 IN.
- H. Surface Course: plus or minus 1/8 IN.
- I. Crowned Surface: plus or minus 1/4 IN when measured with a crown template set centered and at a right angle to the crown.

3.05 FIELD QUALITY CONTROL

- A. General:
 - 1. All testing must be performed under observation by the City of Kilgore.
 - 2. Provide all testing that are referred to in TxDOT items as being performed by Engineer.

3. Test compaction density and moisture content of Flexible Base and Cement Treated Base in place according to ASTM D1556, ASTM D2167, ASTM D2937, and ASTM D6938 as applicable.
4. Testing Interval: one test per 1,000 SY per lift of base in place.
5. Remove and replace base materials where test results indicate that it does not comply with specified requirements.
6. In-Place Asphalt paving mixture Testing:
7. Interval: One test per 1,000 SY minimum per lift installed and compacted.
8. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D3549.
9. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances. Spot checks may be conducted by using a 10-foot straightedge applied transversely or longitudinally to paved areas.
10. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END OF SECTION

1.00 GENERAL

1.01 SCOPE OF WORK

- A. Work to be performed under this section includes furnishing all labor, materials, equipment, tools and implements, transportation, supplies and supervision for placing reinforcing steel and finished portland cement concrete on approved subgrade to the lines and grades specified by the engineer. Concrete thicknesses and extents shall be as per the plans. Unless specified, all work herein is incidental to prescribed bid items.

1.02 GENERAL: Applicable items for construction under this inspection includes, but is not limited to the following:

- A. DOUBLE GUTTERS
- B. CURB AND GUTTER
- C. SIDEWALK
- D. DRIVEWAYS
- E. PCC PAVEMENT

1.03 REFERENCES

- A. ACI 305: Hot Weather Concreting.
- B. ACI 306: Cold Weather Concreting.
- C. APWA Plan No. 261: Manual of Standard Plans for Concrete Pavement Joints.
- D. ASTM A 307: Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- E. ASTM C 39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- F. ASTM C 78: Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
- G. ASTM C 150: Standard Specification for Portland Cement.
- H. ASTM C 172: Standard Method of Sampling Freshly Mixed Concrete.
- I. ASTM D 3549: Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
- J. ASTM D 5249: Standard Specification for Backer Material for Use with Cold- and Hot- Applied Joint Sealants in Portland-Cement and Asphalt Joints.
- K. ASTM E 950: Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference.
- L. ASTM E 1274: Standard Test Method for Measuring Pavement Roughness Using a Profilograph.

1.04 SHOP DRAWINGS AND SUBMITTALS:

- A. GENERAL: Materials shall not be placed prior to engineer approval. Submit additional information as requested by the engineer.
- B. Contractor shall submit a mix designs for concrete, including any additives or modifiers, a minimum of three working days before any concrete is placed.
- C. Contractor shall submit documentation that all reinforcing steel to be used meets the criteria of ASTM 616, Grade 60 new billet steel bars.
- D. Submit additional information for the following: joint seal and backer rod, curing compound, evaporation retardant.

1.05 QUALITY CONTROL: If, in the judgment of the engineer, the quality of materials is questionable, the engineer may conduct testing to verify material quality. Payment for this testing shall be as follows:

- A. If material is found to be within specifications, testing shall be at the expense of the owner.
- B. If material is found to be outside of specifications, testing shall be at the expense of the Contractor, with all monies subtracted from the total due to the contractor. Contractor shall remove and replace all materials deemed to be outside of the specified parameters at their own cost.
- C. Costs associated with additional or third party testing requested by the Contractor for verification purposes shall be borne by the Contractor.
- D. Installations not meeting specifications, as deemed by the engineer, shall be removed and replaced at the Contractor's expense and to the Engineer's satisfaction.
- E. Do not change concrete Supplier until the City representative accepts new source and new mix design.
- F. Remove product found defective after installation and install acceptable product at no additional cost to City.
- G. Foreman of paving crew has completed at least three (3) projects of similar size and nature

1.06 SUBMITTALS

- A. Before delivery.
 - 1. Traffic control plan, Section 01 55 26.
 - 2. Joint layout plan.
 - 3. Concrete Mix Design
 - 4. Concrete Batch Tickets
 - 5. Make and model name of paving machine.
 - 6. Proof of profilograph calibration and profilograph operator certification.
 - 7. Manufacturer's recommended installation procedures for joint sealing material which, when accepted by the City representative, will become the basis for accepting or rejecting actual installation procedures used in the Work.
- B. After delivery.
 - 1. Profile deviation report.
 - 2. Ride index report.
 - 3. Upon request of the City representative, submit a written quality control inspections and testing report describing source and field quality control activities and test results conducted by the Contractor and their Supplier.

1.07 NOTICE

- A. Send written notice to residents and businesses within affected area at least 3 days before start of paving. Should work not occur on specified day, send a new notice.
- B. Indicate paving time and when new surface can be used.
- C. Warn of potential vehicle tow away and other construction issues affecting neighborhood.

- 1. ACCEPTANCE (NOT APPLICABLE)

- B. General:

- 1. Acceptance is by Lot. Lot size is specified below.
 - 2. Opening a paved surface to traffic does not constitute acceptance.

- C. Concrete Mix:

1. Testing Frequency: Section 03 30 05. Sample per ASTM C 172.
 2. Temperature, Slump, Air: Lot size is 1 random batch. Reject noncomplying batches until
- D. 2 consecutive batches are compliant then continue in random batch testing for acceptance.
- D. Installation:
1. Placement, finishing and protection
 2. verify grade, cross slope, finish and dimensions. b. No standing water in curb and gutter.
 3. Thickness. Lot size is 1,000 square yards.
 - a. Thickness will be determined on ASTM D 3549 cored or sawed specimens.
- E. Acceptance will be based on the average of all Lot thickness tests.
- F. b. When any thickness measurement is less than specified by more than 1 inch, the actual thickness of the Pavement will be determined by taking additional cores at intervals less than 10 feet parallel to the centerline in each direction from the affected location, until in each direction a core is found which is not deficient by more than 1 inch.
- G. c. Payment will not be made for areas deficient in thickness by more than 1 inch.
- H. Deficient areas shall be removed and replaced.
1. Roughness: "Must grind" bumps are removed and tolerance for profile roughness index is not exceeded.

2.00 PRODUCTS

2.01 CONCRETE: Concrete shall be TxDOT Class C with a minimum 3600 psi at 28 days, or as shown on plans, entrained with 3-6% air.

2.02 STEEL: Reinforcing Steel shall be Grade 60.

2.03 OTHER: Other materials are described in their respective sections.

3.00 EXECUTION

3.01 CONSTRUCTION METHODS: Backfilling of curb and gutter or sidewalk is required and shall be completed to an acceptable condition as determined by the Engineer. Private property shall be restored to an as-good or better condition than they were prior to construction. Seeding, sodding or other landscape maintenance required as a result of operations shall be performed by the Contractor and are incidental to other bid items. All forms and associated debris shall be completely removed from the project prior to acceptance by the Engineer.

3.02 PLACING AND REMOVING FORMS: Forms shall be placed and staked so as to be capable of resisting the pressure of concrete placed against them and shall resist vibration and other forces resulting from normal concrete placement activities. Forms shall be jointed neatly and tightly and set with exactness to the established grade and alignment.

- A. Form Settling: Forms which settle more than one-eighth of an inch (1/8") under finishing operations shall result in operations being stopped until the forms are rest to the line and grade prescribed to provide the specified concrete thicknesses.
- B. Forms: Forms shall be cleaned prior to each use. Any form oil used shall be pre-approved by the engineer.

- C. Removal of Forms: Forms shall remain in place until the concrete has taken its final set. At the time of removal of the forms, all exposed concrete surfaces shall be treated with an approved curing agent.

3.03 REINFORCING STEEL, REINFORCING MESH, STEEL TIES, DOWEL BARS

- A. Reinforcement shall be of the size and spacing indicated on the plans.
- B. Reinforcing steel and reinforcing mesh shall be supported by approved chairs, generally which shall be plastic, prior to placing concrete.
 - 1. Disturbed chairs shall be reset prior to placing concrete.
 - 2. Manually lifting reinforcement or otherwise manipulating steel during pours shall be cause for rejection.
 - 3. All reinforcing bars and mats shall be installed in the slab at the required depth below finished surface.
- C. Steel shall be clean and free from rust in the form of scaling or flaking.
- D. Dowel bars shall be placed parallel to the horizontal plane of the subgrade and shall be parallel to the direction of traffic or as designated on the plans. Dowel bars at headers shall be supported until final concrete set to prevent movement dips or rises.
- E. Dowel bars placed in continuous slabs shall be placed utilizing baskets or in the case of slipform paving, an automatic dowel inserter.
- F. Ties shall be placed, at a minimum, at every other intersection.
- G. A minimum of three inches (3") cover shall be maintained at all concrete edges.
- H. Reinforcing steel shall have a minimum one foot (1') lap, tightly secured at both ends to prevent flexing.

3.04 MIXING AND PLACING: Concrete delivery trucks shall be capable of agitating the concrete and adding additional water to the mix as required to obtain a uniform mix and proper slump according to the mix design. Place agitated concrete within 60 minutes after batching. In hot weather or under conditions causing quick setting of the concrete, times may be reduced by the engineer. Time limitations may be extended if the Contractor can demonstrate that the concrete can be properly placed, consolidated and finished without the use of additional water. A copy of each batch ticket for each delivery truck must be available upon request.

- A. Concrete shall be thoroughly mixed prior to placement. Concrete shall not be re-tempered.
- A. Partial loads shall not be re-tempered. Re-tempered loads shall be subject to rejection by the engineer, at the contractor's cost.
- B. Concrete temperature shall be between 40 and 95 degrees Fahrenheit. Operations shall cease should concrete temperatures fall outside this range until corrective measures are taken.
- C. Subgrade shall be moistened prior to placing concrete to minimize absorption of water from fresh concrete.
- D. Concrete shall be consolidated so as to remove any honeycombing or weakened sections.
- E. Unconsolidated sections shall be subject to rejection by the engineer, and shall, be replaced at the contractors cost.
- F. Concrete shall be placed, consolidated and finished to the required dimensions, thickness and grade.
- G. Valve covers, manholes, etc. shall be treated so as to prevent bonding with concrete.
- H. Concrete shall not be placed on frozen subgrade, as determined by the engineer. Do not place concrete when the ambient temperature in the shade is below 40°F and falling unless approved. Concrete may be placed when the ambient temperature in the shade is above 35°F and rising or above 40°F.

- I. Concrete shall be protected from freezing at all times. When temperatures warrant protection against freezing, protect the pavement with an approved insulating material capable of protecting the concrete for the specified curing period. Concrete poured when predicted low temperatures are to fall below 40 degrees Fahrenheit shall be protected by use of plastic, burlap, or curing blankets, as approved by the Engineer and in addition to curing compounds. Submit for approval proposed measures to protect the concrete from anticipated freezing weather for the first 72 hr. after placement. Repair or replace all concrete damaged by freezing.

3.05 SPREADING AND FINISHING:

- A. Concrete shall be uniformly loaded into forms, limiting the amount of shoveling or raking required. Concrete shall be consolidated by means of vibrators directly following placement. Vibrating screeds may be used in addition to, but not in place of concrete vibrators.
- B. Provide mechanically operated vibratory equipment capable of adequately consolidating the concrete. Provide immersion vibrators on the paving equipment at sufficiently close intervals to provide uniform vibration and consolidation of the concrete over the entire width and depth of the pavement and in accordance with the manufacturer's recommendations.
- C. Provide immersion vibrator units that operate at a frequency in air of at least 8,000 cycles per minute. Provide enough hand-operated immersion vibrators for timely and proper consolidation of the concrete along forms, at joints and in areas not covered by other vibratory equipment. Surface vibrators may be used to supplement equipment mounted immersion vibrators. Provide tachometers to verify the proper operation of all vibrators. Concrete shall not be over-consolidated.
- D. Flatwork shall be finished with approved self-propelled machines except in areas inaccessible to a finish machine at which time hand finishing will be allowed.
- E. Curb and gutters shall be finished either by self-propelled machines or by hand, but shall be uniform in all dimensions regardless of methods used.
- F. Water shall not be used as a finishing agent or evaporation retardant. Water shall be permitted for tool cleaning. The following are approved evaporation retardants:
 - Con-Film (BASF)
 - Sikafilm (Sika)
 - Sealtight EVAPRE (W.R. Meadows)
- G. Evaporation retardants shall be applied as per the manufacturer's recommendations, but at no time shall it be permitted to pool. Finishing agent is to be applied in a fine mist by use of a liquid sprayer or atomizer. Use of water as a finishing agent shall subject the concrete to rejection by the engineer.
- H. All concrete surfaces shall receive a carpet drag or brooming perpendicular to the direction of travel in order to provide sufficient friction. Smooth surfaces shall be ground by approved methods to the satisfaction of the engineer. Contractor is not required to broom curb faces or top of curb face.
- I. A smooth ride shall be provided on all pavements. Bumps or irregularities felt while travelling at or below design speeds shall be corrected by the Contractor, incidental to the placement of the concrete. Any irregularities in finished surfaces, including bumps and dips shall be ground to the satisfaction of the engineer and at the Contractor's cost.
- J. All irregularities greater than 0.25" shown by use of a 10 foot straightedge shall be ground at the Contractor's cost.

3.06 JOINTS

- A. GENERAL: Joints shall be spaced evenly and in accordance with the below recommendations, unless otherwise specified in the plans. Joints may be tooled utilizing an 1/8" or smaller radius or saw-cut. Contractor shall be fully responsible for determining the proper time to apply sawed joints. Saw joints shall be to the width and depth provided in the plans. Any damage to concrete as a result of sawing operations shall be corrected at the Contractor's cost.
- B. SIDEWALK: Maximum spacing of joints shall be 7.5 feet.
- C. CURB: Maximum spacing of joints shall be 15 feet, or the maximum specified for adjacent PCCP. Curb joints shall match PCCP joint spacing. No joints shall be placed in integral curbs on CRCP.
- D. CONCRETE PAVEMENT: Joint spacing shall not exceed 15 feet.

3.07 JOINT SEALING: Joints shall be sealed by hot pour or silicone to prevent water intrusion. Joints shall utilize backer rod. Sealing operations are incidental to concrete placement. Joints shall be cleaned and sealed prior to releasing traffic to concrete.

3.08 EXPANSION JOINTS: Expansion joints shall be placed at all cold joints and as indicated on the plans. Expansion joints shall be placed every 200 feet for sidewalk, curb and gutter and PCCP.

- A. Expansion joints shall be 1/2" fiberboard.

3.09 CURING

- A. GENERAL: Failure to provide proper curing shall be considered sufficient cause for immediate suspension of paving operations. Concrete shall be cured by one of two methods: Moistened burlap or chemical curing compound.
- B. Moistened Burlap: Burlap shall be placed over the entire area and maintained moist with water throughout the curing period. Burlap is to be placed following initial concrete set.
- B. Water ponding shall be avoided.
- C. Curing Compound: Curing compounds shall meet the requirements of ASTM C309-11, and shall be ASTM Type I, Class B. Curing Compounds shall be clear. White compounds may be considered for PCCP and at the discretion of the engineer. The following compounds are approved for use:
 - a. Dayton Superior, Clear Resin Cure J11W
 - b. W.R. Meadows 1100-Clear, Resin-based, water-based Concrete Curing Compound
- 1. Curing Compound installation: Immediately upon finishing concrete surfaces, concrete shall be covered with a continuous and uniform water impermeable coating. Upon removing forms, the sides of slabs shall also be completely treated. Solution shall be applied under pressure from a spray nozzle. Rates of application shall be as per Manufacturer's recommendations.
- 2. Curing Compound performance: When thoroughly dry, compound shall provide a continuous and flexible membrane, free from cracks and pinholes, and shall not disintegrate, check, peel or crack during the curing period. If for any reason the seal is broken during the curing period, it, shall be immediately repaired with additional sealing solution.
- D. If the selected method of curing does not afford the desired results, the Engineer reserves, the right to order that another method of curing be instituted, with no consideration of, additional compensation.

3.10 TOLERANCES (NOT APPLICABLE)

- A. Grade: 1/8 inch in 10 feet parallel to centerline.
- B. Cross Slope: 1/4 inch in 10 feet perpendicular to centerline except at cross section grade, breaks. Cross slopes for sidewalks and ADA landings must be between 1.5% and 2.0%.
- C. Thickness: Not less than 1/4 inch deficient.
- D. Roughness:

Table I – Roughness Tolerance						
Speed and Traffic Class		Profile Roughness Index, (PRI) Inches / Mile				Profile Deviation Inches/25 feet Maximum
		IRI		IRI		
		Min	Max	Min	Max	
0 to 29 mph	I or II	---	---	---	---	0.4
	III or IV	129	177	46	66	0.4
30 to 44 mph	I or II	90	115	35	50	0.4
	III or IV	70	90	21	35	0.4
45 mph +	+ All Classes	---	70	---	21	0.3

NOTES

- (a) Use a zero blanking band
- (b) As a minimum, trace right wheel path in direction of travel
- (c) Traffic class defined in Table 3, Article 32 12 05
- (d) IRI (International Roughness Index), ASTM E 950
- (e) PI (Profile Index), ASTM E 1274

1. Profile Deviation: Begin traces 50 feet before edge of new pavement and end traces 50 feet after edge of new pavement. Areas exceeding profile deviation tolerance are “must grind” areas.
2. Profile Roughness Index: (PRI)
 - a. Lot is 0.1 lane mile (528 feet long one lane wide). Add segments shorter than 250 feet to preceding Lot. Treat partial segments longer than 250 feet as a Lot.
 - b. Exclude from the Lot are turn lanes, parking lanes, medians, Street Fixtures, crowns of intersecting streets, bridge decks, grades greater than 8 percent, and vertical curves less than 1,000 feet radius (including super-elevation transitions).

3.11 OPENING PAVEMENT TO TRAFFIC: Concrete may be opened to traffic upon reaching 80% of the concrete mix design strength. When it is necessary to provide traffic access across new pavement, the Contractor shall, at their own expense, construct suitable and substantial crossings over the concrete adequate to support the traffic and protect the concrete.

3.12 TRAFFIC ACCESS: Paving operations shall not impede traffic without the proper use of flaggers or other approved traffic control devices. Workers shall not stand, kneel or otherwise work in live lanes of traffic, including float work. Homeowners and business owners and patrons shall be granted reasonable access. Access shall be restored as soon as it is feasible while maintaining concrete integrity.

3.13 HEADER:

- A. Headers shall be placed at any time at which placed concrete has ceased to be plastic and workable, at the end of the day's work and at locations described on the plans.
- B. Load transfer devices shall be installed at all header joints.
- C. Dowels or other approved load transfer devices shall be installed properly at all headers.

3.14 PROTECTION OF WORK: Contractor shall be responsible to take all reasonable measures to protect work from vandalism, damage from vehicles or equipment and all other construction activities prior to Owner acceptance of the work.

3.15 OTHER: Forms, stakes, and/or other debris shall not be permitted in concrete structures and shall be removed prior to or during paving operations.

3.16 PROTECTION AND REPAIR

- A. General: All expenses are at no cost to City.
- B. Protection: Section 03 30 10 and as follows.
 - 1. Do not allow steel wheel rollers or steel wheel vehicles on the concrete Pavement. Keep traffic and construction equipment off at least 10 days after concrete placement or until 100 percent of the design strength has been achieved and verified by either Maturity meter or concrete cylinders.
 - 2. If construction traffic is permitted, keep Pavement clean. Remove surface stains and spillage of materials as they occur.
 - 3. Remove saw-cut dust immediately. Protect neighborhood, storm drains and downstream fish habitat.

END OF SECTION

SECTION 33 11 13 – PUBLIC UTILITY PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for public utility lines including waterlines, sanitary sewer lines, and storm sewer lines.
2. Tapping sleeves and valves.
3. Underground pipe markers.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. All items including but not limited to materials, equipment, overhead, coordination, testing, labor, and supervision required for a complete and operable project shall be included in the bid for the project. All measurement and payment shall be based on the items of work that are specifically listed in the Bid Proposal. Any items not specifically listed in the Bid Proposal shall be considered subsidiary to unit cost items within the Bid Proposal and no additional payment shall be made for subsidiary items.

1.3 REFERENCE STANDARDS

A. American Society of Mechanical Engineers:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

B. ASTM International:

1. ASTM A36 - Standard Specification for Carbon Structural Steel.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
4. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³)).
5. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
6. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
7. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
8. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
9. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
10. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
11. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.
8. AWWA C200 - Steel Water Pipe, 6 In. (150 mm) and Larger.
9. AWWA C203 - Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot-Applied.
10. AWWA C205 - Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. (100 mm) and Larger - Shop Applied.
11. AWWA C206 - Field Welding of Steel Water Pipe.
12. AWWA C207 - Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In. (100 mm Through 3,600 mm).
13. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings.
14. AWWA C213 - Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.
15. AWWA C300 - Reinforced Concrete Pressure Pipe, Steel-Cylinder Type.
16. AWWA C301 - Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.
17. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.
18. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
19. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
20. AWWA C606 - Grooved and Shouldered Joints.
21. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
22. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
23. AWWA C702 - Cold-Water Meters - Compound Type.
24. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
25. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
26. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.
27. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm) for Water Transmission and Distribution.
28. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on pipe materials, pipe fittings, valves, and accessories.
- C. Shop Drawings: Indicate piping layout, including piping specialties.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

F. Preconstruction Photographs:

1. Submit digital files of colored photographs of Work areas and material storage areas.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Valves: Mark valve body with manufacturer's name and pressure rating.
- B. Perform Work according to city standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store valves in shipping containers with manufacturer's labeling in place and inspect for damage.
- B. Block individual and stockpiled pipe lengths to prevent moving.
- C. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
- D. Store polyethylene and PVC materials out of sunlight.
- E. Do not use chains to handle any PVC materials.

1.8 EXISTING CONDITIONS

- A. Field Measurements:
 1. Verify field measurements prior to fabrication.
 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 WATER AND SANITARY SEWER PIPING

- A. Ductile-Iron Pipe:
 1. Comply with AWWA C151.
 2. Bituminous Outside Coating: Comply with AWWA C151.
 3. Pipe Class:

- a. Comply with AWWA C151.
 - b. Class 250.
4. Fittings:
- a. Material: Ductile iron, AWWA C110.
 - b. Compact Fittings: Comply with AWWA C153.
 - c. Coating and Lining:
5. Joints:
- a. Mechanical and Push-on Joints: Comply with AWWA C111.
 - b. Flanged Joints: Comply with AWWA C115 ASME B16.1.
 - c. Restrained Joints: Boltless, push-on type, joint restraint independent of joint seal.
6. Jackets: Comply with AWWA C105, polyethylene jacket Double layer, half lapped, 10-mil polyethylene tape.
- B. PVC: Waterline less than 4" diameter
1. Schedule 40
 2. Color: Blue
 3. Fittings: Ductile iron AWWA C110
 4. Joints: Gasket
- C. PVC: Waterline 4" diameter and greater
1. Comply with AWWA C900 and AWWA C905, Class. (Schedule 40 for 2")
 2. Color: Blue
 3. Fittings: Ductile iron AWWA C110
 4. Joints:
 - a. Comply with ASTM D3139 and ASTM F477.
 - b. Seals: PVC flexible elastomeric.
 - c. Restrained joints required within all casing pipe or when indicated on drawings.
 - d. Solvent-cement couplings are not permitted.
- D. PVC: Gravity Sewer and forcemain
1. Forcemain comply with D2241 160 psi pressure rating minimum.
 2. Gravity Sewer comply with ASTM D3034, SDR-26 for 160 psig pressure rating.
 3. Gravity services shall be minimum 4" diameter.
 4. Fittings: Ductile Iron AWWA C110.
 5. Color: Green
 6. Joints:
 - a. Comply with ASTM D3139 ASTM F477.
 - b. Seals: PVC flexible elastomeric.
 - c. Solvent-cement couplings are not permitted.
- E. Steel Pipe:
1. Comply with AWWA C200.
 2. Type: Fabricated pipe.
 3. Minimum Wall Thickness:

- a. Pipe Diameters up to 8 Inches: 0.375 inches.
 - b. Pipe Diameters Greater than 8 Inches: 0.50 inches.
4. Fittings and Special Sections: Comply with AWWA C208.
 5. Flanges:
 - a. Comply with AWWA C207, Class D.
 - b. Type: Slip-on.
 6. Field Welding Materials:
 - a. Pipe: Comply with AWWA C206.
 - b. Joints: Comply with AWWA C205.
 7. Interior Cement Mortar Lining: Comply with AWWA C205.
 8. Buried Steel Pipe Exterior Lining:
 - a. Comply with AWWA C213; fusion-bonded epoxy coating.

F. Concrete Pipe:

1. Comply with AWWA C301.
2. Type: Prestressed concrete cylinder pipe.
3. Fittings:
 - a. Comply with AWWA C300.
 - b. Provide adaptors for concrete-to-iron pipe connections.
4. Joints:
 - a. Comply with AWWA C300.
 - b. Type: Rubber gasket.
5. Exterior Mortar Coating: Comply with AWWA C301.

G. Polyethylene Pipe:

1. Comply with AWWA C901.
2. Fittings:
 - a. Comply with AWWA C901.
 - b. Type: Molded.
3. Joints: Butt fusion.

2.2 STORM SEWER PIPING

A. Reinforced Concrete Pipe:

1. Comply with ASTM C76. Minimum Class III with Wall Type A unless otherwise noted in plans. Mesh or Bar reinforced.
2. Fittings: Reinforced Concrete
3. Joints: Conform to ASTM C443 rubber compression gasket.

B. Polyethylene Pipe: N-12 WT IB Pipe

1. Manufacturer: ADS Pipe or prior approved equal
2. Pipe: Comply with ASTM F2648
3. Joint: Bell and Spigot with gasket for water tight connection.
 - a. Comply with ASTM 3212 and ASTM C969
4. Only allowed in no traffic areas. Areas of traffic or beneath roadways will require reinforced concrete pipe.

2.3 TAPPING SLEEVES AND VALVES

A. Tapping Sleeves:

1. Manufacturers:
 - a. Furnish materials according to city standards.
2. Description:
 - a. Material: Ductile iron or cast iron.
 - b. Type: Dual compression.
 - c. Outlet Flange Dimensions and Drilling: Comply with ASME B16.1, Class 250 and MSS SP-60.

B. Tapping Valves:

1. Manufacturers:
 - a. Furnish materials according to city standards.
2. Description:
 - a. Comply with AWWA C500.
 - b. Type: Double disc with non-rising stem.
 - c. Inlet Flanges: Comply with ASME B16.1, Class 250 and MSS SP-60.
 - d. Mechanical Joint Outlets: Comply with AWWA C111.
3. Mark manufacturer's name and pressure rating on valve body.

2.4 VALVES AND FIRE HYDRANTS

- A. Valves: As specified in Section 40 05 23.15 – Resilient Seated Gate Valves.
- B. Fire Hydrants: As specified in Section 33 12 19 - Water Utility Distribution Fire Hydrants.

2.5 AIR RELEASE VALVES

- A. Description: Cast-iron body, stainless-steel float. Sized and manufacturer according to plan drawings.

2.6 UNDERGROUND PIPE MARKERS

A. Trace Wire:

1. 0.5" wide layer of aluminum foil bonded between two pieces of polyethylene film.
2. Dimensions shall not be less than 5.5 mils thick or 2" wide.
3. Sanitary sewer shall be green and shall have the wording "Caution Sanitary Sewer Line Buried Below".
4. Waterlines shall be blue and shall have the wording "Caution Waterline Buried Below"

2.7 PIPE SUPPORTS AND ANCHORING

- A. Metal for Pipe Support Brackets: Structural steel galvanized thoroughly coated with bituminous paint.
- B. Metal Tie Rods and Clamps or Lugs: Galvanized steel sized according to NFPA 24, thoroughly coated with bituminous paint.

2.8 CONCRETE ENCASEMENT AND CRADLES

A. Concrete:

1. As specified in Section 03 30 00 - Cast-in-Place Concrete.
2. Reinforced
3. Compressive Strength: 3,600 psi at 28 days.
4. Finish: Rough troweled.

- B. Concrete Reinforcement: As specified in Section 03 20 00 - Concrete Reinforcing.

2.9 FINISHES

- A. Steel: Hot-dip galvanized after fabrication, according to ASTM A123.

2.10 ACCESSORIES

- A. Concrete for Thrust Restraints: As specified in Section 03 30 00 - Cast-in-Place Concrete.
- B. Bolt, Lugs, and Brackets: Stainless Steel

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Preconstruction Site Photos:
 - 1. Take photographs along centerline of proposed pipe trench; minimum one photograph for each 50 feet of pipe trench.
 - 2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing Site features.
 - 3. Include Project description, date taken, and sequential number on back of each photograph.
- C. Pipe Cutting:
 - 1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
 - 2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
 - 3. Grind edges smooth with beveled end for push-on connections.
- D. Remove scale and dirt on inside and outside before assembly.
- E. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

- A. Existing Utilities & structures:
 - 1. Utilities shown on plans were taken from field surveys following a utilities locate call by the engineer. The completeness of the accuracy of this data is not guaranteed. The contractor is responsible for verifying the location and depth of all underground utilities and structures and protecting them from damage during construction. Any damage to existing utilities that are caused by the contractor's operations shall be repaired by the contractor. Repairs will be made immediately and entirely at the contractor's expense. Contact Texas One Call system 1-800-245-4545 at least 48 hours before soil disturbing activities.
 - 2. All structures damaged to facilitate construction including but not limited to roads, sidewalks, driveways, culverts, fences, retaining walls, pipes, etc. will be repaired immediately. This work will be considered subsidiary to the unit prices in the bid form.
 - 3. Contractor shall protect/shore all existing structures from damage including retaining walls and foundations.
 - 4. Existing waterlines shall remain in service during construction. Water shall be turned off for the tie-ins at a schedule which limits service loss to the greatest extent possible. All down time shall be scheduled with the engineer and approved by the city. Whenever possible, tie-ins shall be installed through use of tapping sleeves, in order to limit service loss. The contractor shall give 24 hr notice to all affected customers. Notice shall be in the form of a pre-approved door hanger listing the time of service loss, a 24 hour phone number, and an estimated time of restored service. The contractor shall not leave the jobsite until all services are restored. Specific areas requiring shutdown of large service areas or sensitive customers may require off peak work (night or weekend). A minimum 72 hour notice will be required to schedule this work.
 - 5. Sewer lines shall remain in service during construction. Contractor shall be responsible for construction sequencing and/or bypass pumping as required to provide uninterrupted service.

6. City utility department will be responsible for operating all existing valves as necessary. Contractor shall not operate any valves without city approval.

B. Bedding:

1. Excavation:

- a. Excavate pipe trench per OSHA requirements.
 - b. Hand trim excavation for accurate placement of pipe to elevations as indicated on Drawings.
2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
 3. Provide sheeting and shoring as needed.
 4. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 8 inches compacted depth, and compact to 95 percent modified proctor maximum density.

C. Service Connections

1. Water and sanitary sewer services shown are existing locations identified during a field survey. All water and sanitary sewer services, including but not limited to: new services to be reconnected, and existing services to be relocated, that do not conform with city standards, shall be installed in accordance with water service installation details.
2. In multiple locations, existing meters are cast in pavement structures. This may include concrete, HMAC, or brick. All necessary pavement cuts to make connections to these meters will be made with clean saw cut lines, and pavement structure shall be repaired after connection to new service line.
3. Contractor shall furnish and install new service lines from connection all the way to the meter including coppersetter and connect to existing water service line. If meter box is damaged or made of corrugated metal or concrete, it shall be replaced. Faulty or damaged meters shall be replaced. All required meters shall be provided by the city and installed by the contractor. Contractor shall purchase and install the meter boxes. Replaced water meters are to be tagged with location and turned in to the city

D. General Piping Installation:

1. Install pipe according to AWWA C600 or AWWA C605. All utility lines must be installed in accordance with the TCEQ standards.
2. Field verify exact locations and depth of all existing utilities and structures prior to beginning soil disturbing activities. All crossing waterlines are to be connected to the proposed waterlines. Any utilities found that are not shown in the plans shall be reported to the engineer immediately.
3. Handle and assemble pipe according to manufacturer instructions and as indicated on Drawings. Chains will not be allowed to move and place piping.
4. Where existing utilities are encountered, separation distances as stipulated by the TCEQ shall be maintained. The contractor shall immediately notify the engineer of any conflict between existing utility lines and proposed utility lines. There shall be a minimum of 9' horizontal separation between all water and wastewater lines. Where the nine foot separation distance cannot be achieved, the following criteria shall apply. (A) parallel lines where a potable waterline parallels a wastewater line and the wastewater line is not leaking, the potable waterline shall be located at least two feet above the wastewater line, measured vertically, and at least four feet away measured horizontally, from the wastewater line. Every effort shall be exerted not to disturb the bedding and backfill of the existing line, (B) Crossing line where a potable waterline crosses a non-pressure rated wastewater line, one segment of the waterline pipe shall be centered over the

wastewater line such that the joints of the waterline pipe are equidistant and at least nine feet horizontally from the centerline of the wastewater line.

E. Water Piping Installation

1. Existing waterlines to be taken out of service shall be cut, capped, and abandoned in place. All existing gate valves located on abandoned waterlines shall be taken out of service by using one of the following methods.
 - a. If existing valve is located near area where existing line is to be cut, capped, and abandoned in place, the gate valve shall be removed.
 - b. If existing valve is located in pavement, or not in an area not immediately adjacent to a spot where the existing waterline is to be unearthed and taken out of service, the contractor shall fill valve flush with 4,000 psi grout and abandoned in place.
2. Install ductile-iron piping and fittings according to AWWA C600.
3. Route pipe in straight line; re-lay pipe that is out of alignment or grade.
4. High Points:
 - a. Install pipe with no high points.
5. Bearing:
 - a. Install pipe to have bearing along entire length of pipe.
 - b. Excavate bell holes to permit proper joint installation.
 - c. Do not lay pipe in wet or frozen trench.
6. Prevent foreign material from entering pipe during placement.
7. Install pipe to allow for expansion and contraction without stressing pipe or joints.
8. Close pipe openings with watertight plugs during Work stoppages.
9. Install access fittings to permit disinfection of water system.
10. Cover:
 - a. Measure depth of cover from final surface grade to top of pipe barrel.
 - b. Minimum cover for water lines is dependent on line diameter size described below or as required to clear existing utilities, whichever is greater.
 - 1) 8" or smaller = 4' cover
 - 2) 10-12" = 4.5-5.0'
 - 3) 16" or greater = 6.0'
11. Pipe Markers:
 - a. Install trace wire continuous over top of pipe buried 6 to 12 inches above piping.
 - b. Installation Standards: Install Work according to city standards.
12. Tracer wire shall be brought up into each cleanout or manhole for sewer lines and each valve box on waterlines

F. Sanitary Sewer Piping Installation

1. Separation distances as described above must be maintained according to TCEQ standards.

2. Proposed sewer lines replacing existing sewer lines shall be installed to match existing sanitary sewer grades as called out on plans. Contractor shall field verify all existing grades prior to construction.
3. The contractor shall install and maintain water tight plugs in all connections to the city's sanitary sewer system until the project is accepted by the city.
4. All sanitary sewer piping shall be tested and tv inspected per the technical specifications.
5. Minimum cover for all sanitary sewer piping shall be 5 feet beneath street and 3.5 feet for all other locations (unless otherwise noted on plans).
6. Existing manholes and sewer lines to be abandoned shall be plugged with Class B concrete and abandoned in place.
7. Service taps shall be adjusted as necessary with new cleanouts and connected to new sewer line in accordance with the plans and specifications.
8. Sanitary sewer service lines shall be:
 - a. Installed on a constant downhill slope of a $\frac{1}{4}$ " per foot (2%), or greater, from the cleanout to the city's sewer main.
 - b. Installed with a minimum cover of 36"
 - c. Tested for leakage with air or water prior to backfilling and prior to connection to the city sewer main.
 - d. Installed with strict accordance with the pipe manufacturer's recommendations. Cleanouts shall be installed at all bends, and at the property line.
 - e. Contractor shall reconnect all existing service connections to new sanitary sewer in accordance with details and specs.
9. Unless specifically detailed on plans, all piping interconnections and connections to structures shall match flowline to flowline.

G. Storm Sewer Piping Installation

1. Unless specifically detailed on plans, all piping interconnections and connections to structures shall match soffit to soffit.
2. Storm Sewer lines shall be installed to match grades as called out on plans Contractor shall field verify all existing grades prior to construction.
3. Existing storm sewer lines to be abandoned shall be plugged with Class B concrete and abandoned in place.
4. Storm sewer lines shall be:
 - a. Installed on a constant downhill slope.
 - b. Installed with strict accordance with the pipe manufacturer's recommendations.
 - c. Contractor shall reconnect all existing interconnections to new storm sewer at constant slope with matching soffits.
5. All storm sewer shall be TV inspected upon completion.

H. Polyethylene Encasement:

1. Encase all ductile iron, cast iron, steel fittings or piping in polyethylene where indicated on Drawings to prevent contact with surrounding backfill material.
2. Comply with AWWA C105.
3. Terminate encasement 3 to 6 inches above ground where pipe is exposed.

I. Thrust Restraints: For waterline piping only.

1. Provide valves, tees, bends, caps, and plugs with concrete thrust blocks.
2. Pour concrete thrust blocks against undisturbed earth.

3. Locate thrust blocks at each elbow or change of pipe direction to resist resultant force and to ensure that pipe and fitting joints will be accessible for repair.
4. Install tie rods, clamps, setscrew retainer glands, or restrained joints.
5. Protect metal-restrained joint components against corrosion by applying poly-wrap.
6. Do not encase pipe and fitting joints to flanges.
7. Install thrust blocks, tie rods, and joint restraint at dead ends of water main.

J. Backfilling:

1. Backfill around sides and to top of pipe with cover fill in minimum lifts of 8 inches, tamp in place, and compact to 95 percent modified proctor maximum density.
2. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment.
3. Maintain optimum moisture content of bedding material to attain required compaction density.

K. Disinfection of Potable Water Piping System:

1. As specified in AWWA B300 and AWWA C651.

3.4 TOLERANCES

- A. Install pipe to indicated elevation within tolerance of 5/8 inch.

3.5 FIELD QUALITY CONTROL

- A. Test piping in accordance with "33 01 30.13 – Pipe and Manhole Testing"
- B. Compaction Testing per "Section 31 23 17 – Trenching"
- C. All utility installations, connections, and structures shall not be backfilled prior to inspection by the owner or engineer.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

END OF SECTION

SECTION 33 12 19 - WATER UTILITY DISTRIBUTION FIRE HYDRANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire hydrants.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. All items including but not limited to materials, equipment, overhead, coordination, testing, labor, and supervision required for a complete and operable project shall be included in the bid for the project. All measurement and payment shall be based on the items of work that are specifically listed in the Bid Proposal. Any items not specifically listed in the Bid Proposal shall be considered subsidiary to unit cost items within the Bid Proposal and no additional payment shall be made for subsidiary items.

1.3 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C502 - Dry-Barrel Fire Hydrants.
2. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.
3. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.

B. National Fire Protection Association:

1. NFPA 291 - Recommended Practice for Fire Flow Testing and Marking of Hydrants.

1.4 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

- B. Coordinate Work of this Section with owner, engineer, and utilities within construction area.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit manufacturer's latest published literature, including illustrations, installation and maintenance instructions, and parts lists.

- C. Shop Drawings: Submit description of proposed installation.

- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.
2. Submit manufacturer's approval of installer.

1.6 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of fire hydrants and service valves.

C. Operation and Maintenance Data: Submit data for hydrants.

1.7 QUALITY ASSURANCE

A. Perform Work according to local and state standards

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 5 years' documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Prepare hydrants and accessories for shipment according to AWWA standards and seal hydrant and ends to prevent entry of foreign matter.

C. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

D. Storage:

1. Store materials in areas protected from weather, moisture, or potential damage.
2. Do not store materials directly on ground.

E. Handle materials in a way that prevents damage to interior and exterior surfaces.

PART 2 - PRODUCTS

2.1 FIRE HYDRANTS

A. Manufactured by Mueller Super Centurion or prior approved equal.

B. Dry-Barrel Breakaway Type:

1. Comply with AWWA C502.
2. Body: Cast iron.
3. Valve: Compression type.
4. Burial Depth: As indicated on Drawings.
5. Inlet Connection Size: 6 inches.
6. Valve Opening: 5-1/4 inches in diameter.
7. End Connections: Mechanical joint.
8. Bolts and Nuts: Stainless steel.
9. Interior Coating: Comply with AWWA C550.
10. Direction of Opening: Counterclockwise unless otherwise indicated.

C. Hose Connections:

1. One pumper, two hose nozzles.
2. Obtain thread type and size from local fire department.
3. Attach nozzle caps by separate chains.

D. Finishes:

1. Primer and two coats of enamel.
2. Color: According to fire department requirements.

2.2 ACCESSORIES

- A. Concrete for Thrust Restraints: Concrete 3,000 psi unreinforced.
- B. Aggregate: Aggregate for hydrant drainage shall be pea gravel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify exact location and size of hydrants from Drawings.
- C. Obtain clarification and directions from Engineer prior to execution of Work.
- D. Verify that invert elevations of existing work are as indicated on Drawings prior to excavation and installation of fire hydrants.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures, utilities, and landscape in immediate or adjacent areas.
- C. Identify required lines, levels, contours, and datum locations.

- D. Locate, identify, and protect from damage utilities to remain.
- E. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
 - 1. Notify Engineer not less than 3 days in advance of proposed utility interruption.

3.3 INSTALLATION

- A. Perform trench excavation, backfilling, and compaction as specified in Section 31 23 17 - Trenching.
- B. Fire Hydrants, valves, and leads are not drawn to scale in the drawings. Final position to be staked by the city or city's representative.
- C. Provide support blocking and drainage gravel while installing fire hydrants; do not block drain hole.
- D. Set fire hydrants plumb with pumper nozzle facing roadway.
- E. Set fire hydrants with centerline of pumper nozzle 18 inches above finished grade, and with safety flange not more than 6 inches nor less than 2 inches above grade.
- F. Paint hydrants according to color scheme of local authorities having jurisdiction. This includes the installation of a blue reflective pavement marker at center of street near each new fire hydrant assembly.
- G. After hydrostatic testing, flush hydrants and check for proper drainage.
- H. Disinfection of Water Piping System:
 - 1. Flush and disinfect system as specified in Section 33 13 00 - Disinfecting of Water Utility Distribution.

3.4 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- B. Pressure test water distribution system according to technical specifications

SECTION 33 13 00 - DISINFECTING OF WATER UTILITY DISTRIBUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Disinfection of potable water distribution and transmission system.
2. Testing and reporting of results.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- #### A. All items including but not limited to materials, equipment, overhead, coordination, testing, labor, and supervision required for a complete and operable project shall be included in the bid for the project. All measurement and payment shall be based on the items of work that are specifically listed in the Bid Proposal. Any items not specifically listed in the Bid Proposal shall be considered subsidiary to unit cost items within the Bid Proposal and no additional payment shall be made for subsidiary items.

1.3 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA B300 - Hypochlorites.
2. AWWA B302 - Ammonium Sulfate.
3. AWWA B303 - Sodium Chlorite.
4. AWWA C651 - Disinfecting Water Mains.

1.4 SUBMITTALS

- #### A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- #### B. Product Data: Submit procedures, proposed chemicals, and treatment levels.
- #### C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- #### D. Certify that cleanliness of water distribution system meets or exceeds specified requirements.
- #### E. Certify that water conforms or fails to conform to bacterial standards of authority having jurisdiction.
- #### F. Certify that water conforms to quality standards of authority having jurisdiction.
- #### G. Test and Evaluation Reports: Indicate testing results comparative to specified requirements.
- #### H. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- #### I. Qualifications Statements:
1. Submit qualifications for water treatment firm and testing firm.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Disinfection Report:
 - 1. Type and form of disinfectant used.
 - 2. Date and time of disinfectant injection start and time of completion.
 - 3. Test locations.
 - 4. Name of person collecting samples.
 - 5. Initial and 24-hour disinfectant residuals in treated water in ppm for each outlet tested.
 - 6. Date and time of flushing start and completion.
 - 7. Disinfectant residual after flushing in ppm for each outlet tested.
- C. Bacteriological Report:
 - 1. Date issued, project name, and testing laboratory name, address, and telephone number.
 - 2. Time and date of water sample collection.
 - 3. Name of person collecting samples.
 - 4. Test locations.
 - 5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
 - 6. Coliform bacteria test results for each outlet tested.
 - 7. Submit bacteriologist's signature and authority associated with testing.

1.6 QUALITY ASSURANCE

- A. Perform Work according to AWWA C651.

1.7 QUALIFICATIONS

- A. Testing Firm: Company specializing in testing and examining potable water systems, certified or approved by State of Texas.

PART 2 - PRODUCTS

2.1 DISINFECTION CHEMICALS

- A. Chemicals:
 - 1. Hypochlorite: Comply with AWWA B300.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that piping system has been cleaned, inspected, and pressure tested.

- C. Perform scheduling and disinfecting activity with startup, water pressure testing, adjusting and balancing, and demonstration procedures, including coordination with related systems.

3.2 INSTALLATION

- A. Provide and attach required equipment to perform Work of this Section.
- B. Perform disinfection of water distribution system and installation of system and pressure testing as specified in Section 33 11 16 - Site Water Utility Distribution Piping.
- C. Inject treatment disinfectant into piping system.
- D. Maintain disinfectant in system for 24 hours.
- E. Flush, circulate, and clean until required cleanliness is achieved using municipal domestic water.
- F. Replace permanent system devices that were removed for disinfection.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- C. Disinfection, Flushing, and Sampling:
 - 1. Disinfect pipeline installation according to AWWA C651.
 - 2. Use of liquid chlorine is not permitted.
 - 3. Upon completion of retention period required for disinfection, flush pipeline until chlorine concentration in water leaving pipeline is no higher than that generally prevailing in existing system or is acceptable for domestic use.
 - 4. Disposal:
 - a. Legally dispose of chlorinated water.
 - b. When chlorinated discharge may cause damage to environment, apply neutralizing chemical to chlorinated water to neutralize chlorine residual remaining in water.
 - 5. After final flushing and before pipeline is connected to existing system or placed in service, employ an approved independent testing laboratory to sample, test, and certify that water quality meets quality standards of authority having jurisdiction.

END OF SECTION