AGREEMENT AND SPECIFICATIONS

LA MESA SEWER RELIEF LINE

BID NUMBER 08-22

VOLUME 1 OF 2

CONTRACT DOCUMENTS

April, 2022

el paso WATER

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CIP No. S040124
Eng. / Proj. ID 20-9028 /

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

PSB BID NO. 08-22

INFORMAL NOTICE

Sealed bids for construction of **LA MESA SEWER RELIEF LINE** will be received by the City of El Paso Water Utilities - Public Service Board at the Board's principal office located at 1154 Hawkins Boulevard or by mail to 1154 Hawkins Boulevard, El Paso, Texas, 79925 until May 20, 2022, 1:30 p.m. local time. **After 1:30 p.m., bids will not be accepted.** Bid Opening will occur at 2:00 p.m. and bids will be publicly opened and read aloud via the "GoToMeeting" format noted in Section 00020.

The work under this contract shall be for furnishing all labor, materials, transportation, and services for the construction and installation of the following work:

LA MESA AVE SEWER RELIEF LINE:

Approximately 1,658 linear feet of 18-inch diameter SDR-26 Polyvinyl Chloride (PVC) sanitary sewer main; installation of four (4) 48-inch diameter concrete manholes and one (1) 72-inch diameter concrete manhole each with Triplex Systems (or approved equal) interior cured-in-place liner; Trench Safety System; manhole connection inside TXDOT Right-of-Way (ROW); Traffic Control Measures within TXDOT ROW; protection and support of existing utilities; connection to an active manhole; installation of 112-feet of 30-inch diameter steel casing by boring method; pipeline route surface restoration including 8-inches of base course trench area backfill for El Paso County portion; small quantity of HMAC pavement removal and replacement; import approved backfill material; and all miscellaneous piping, fittings, and appurtenances necessary for the proper installation as required in the drawings and technical specifications.

Contract documents may be examined and obtained by accessing the following El Paso Water's website:
www.epwater.org/business_center/purchasing_overview/bids

If you have trouble accessing the Contract Documents, please contact the Purchasing Department of the El Paso Water Utilities, Public Service Board, at (915) 594-5628. Physical (hard) copies of the Contract Documents will **NO** longer be made available.

A pre-bid meeting will be held on May 4, 2022 at 10:00 a.m., local time *(see instructions at the end of Section 00020)*.

Each Bid shall be submitted in accordance with the Instructions to Bidders and be accompanied by a Bid Security in the amount of five percent of the amount bid.

The Successful Bidder states he or she must furnish a 100 percent (100%) Performance Bond and a 100 percent (100%) Payment Bond, in accordance with the Instructions to Bidders and the General Conditions.

Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque, sealed envelope marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), name and address of the Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. The Bid proposal package shall include one original, three copies and an electronic version of

the bid, containing a copy of the full bid package submitted, saved on a USB drive.

By submission of the bid, Bidder fully understands the requirements of the Contract Documents and agrees to comply with all requirements thereof.

Wages paid on this project shall be not less than the minimum prevailing wage rates listed in the Contract Documents, Section 00840, General Wage Requirements.

The El Paso Water Utilities (EPWU) adheres to the Cone of Silence policy which prohibits any communication regarding the bid between potential bidders (and subcontractors) and EPWU Board Members, Staff, and assigned Consulting Engineers. The provisions do not apply to oral communications with Purchasing Agent or Administrative Analyst, provided the communications is limited strictly to matters of process or procedure already contained in the solicitation document, oral communications at pre-bid conferences, or communications in writing (email preferred) submitted to the Administrative Analyst in response to inquiries regarding the bid. In addition to any other penalties provided by law, violation of the Cone of Silence by any bidder shall render that bidder's bid voidable. Any person having personal knowledge of a violation of these provisions shall report such violations to the EPWU General Counsel and/or the Purchasing Agent in writing.

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

LA MESA SEWER RELIEF LINE

Bid Number 08-22

CITY OF EL PASO, TEXAS

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SECTION 00020

INVITATION TO BID

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The work under this contract shall be for furnishing all labor, materials, transportation, and services for the construction and installation of the following work:

Approximately 1,658 linear feet of 18-inch diameter SDR-26 Polyvinyl Chloride (PVC) sanitary sewer main; installation of four (4) 48-inch diameter concrete manholes and one (1) 72-inch diameter concrete manhole each with Triplex Systems (or approved equal) interior cured-in-place liner; Trench Safety System; manhole connection inside TXDOT Right-of-Way (ROW); Traffic Control Measures within TXDOT ROW; protection and support of existing utilities; connection to an active manhole; installation of 112-feet of 30-inch diameter steel casing by boring method; pipeline route surface restoration including 8-inches of base course trench area backfill for El Paso County portion; small quantity of HMAC pavement removal and replacement; import approved backfill material; and all miscellaneous piping, fittings, and appurtenances necessary for the proper installation as required in the drawings and technical specifications.

Contract documents may be examined and obtained by accessing the following El Paso Water's website:
www.epwater.org/business_center/purchasing_overview/bids

If you have trouble accessing the Contract Documents, please contact the Purchasing Department of the El Paso Water Utilities, Public Service Board, at (915) 594-5628. Physical (hard) copies of the Contract Documents will **NO** longer be made available.

A pre-bid meeting will be held on May 4, 2022 at 10:00 a.m., local time. *(see instructions at the end of this Section 00020)*.

Each Bid shall be submitted in accordance with the Instructions to Bidders and be accompanied by a Bid Security in the amount of five percent of the amount bid.

The Successful Bidder must furnish a 100 percent (100%) Performance Bond and a 100 percent (100%) Payment Bond, in accordance with the Instructions to Bidders and the General Conditions.

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By submission of the bid, Bidder states he or she fully understands the requirements of the Contract Documents and agrees to comply with all requirements thereof.

Wages paid on this project shall be not less than the minimum prevailing wage rates listed in the Contract Documents.

The El Paso Water Utilities (EPWU) adheres to the Cone of Silence policy which prohibits any communication regarding the bid between potential bidders (and subcontractors) and EPWU Board Members, Staff, and assigned Consulting Engineers. The provisions do not apply to oral communications with Purchasing Agent or Administrative Analyst, provided the communications is limited strictly to matters of process or procedure already contained in the solicitation document, oral communications at pre-bid conferences, or communications in writing (email preferred) submitted to the Administrative Analyst in response to inquiries regarding the bid. In addition to any other penalties provided by law, violation of the Cone of Silence by any bidder shall render that bidder's bid voidable. Any person having personal knowledge of a violation of these provisions shall report such violations to the EPWU General Counsel and/or the Purchasing Agent in writing.

PRE-BID MEETING INSTRUCTIONS

The Pre-Bid Meeting will be held via Microsoft Teams. Please join the meeting from your computer, tablet, or smartphone using the link below:

08-22 La Mesa Sewer Relief Line
Wednesday May 4th, 2022, at 10:00 a.m. (MDT)

https://teams.microsoft.com/dl/launcher/launcher.html?url=%2F_%23%2Fl%2Fmeetup-join%2F19%3Ameeting_OTU3ZGU3ZTctOTk1NS00MGVmLWJlNjctMDUwMTQ2NTMxODFk%40thread.v2%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%25223eebb7d9-9c59-4af3-aca0-00b46518374d%2522%252c%2522Oid%2522%253a%25221d9476a7-a662-4af1-b311-607a42bb7d97%2522%257d%26CT%3D1649108055608%26OR%3DOutlook-Body%26CID%3D1EDA14C1-D0A5-4EB9-AF2A-15EF35367FBE%26anon%3Dtrue&type=meetup-join&deeplinkId=0c09ca42-c791-4a41-8bd2-4e72639346bc&directDl=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true

BID OPENING INSTRUCTIONS

Bid Openings are now to be broadcast through "GoToMeeting" format.
To view Bid Opening Click the link below:

08-22 La Mesa Avenue Sewer Main Extension
Fri, May 20, 2022, 2:00 PM - 2:30 PM (MDT)

Please join my meeting from your computer, tablet or smartphone.
https://meet.goto.com/917491109

You can also dial in using your phone.
United States (Toll Free): 1 866 899 4679
United States: +1 (571) 317-3116
Access Code: 917-491-109

SECTION 00100

INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS *(Revised 3/18/96, 9/9/96, 4/21/97, 7/13, 10/16/20)*

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 ed.) have the meanings assigned to them in the General Conditions. The term "Bidder" means the entity (such as a corporation, partnership, or sole proprietor) that submits a Bid directly to Owner, as distinct from a sub-bidder, who submits a Bid to a Bidder. The term "Successful Bidder" means the lowest, responsible, and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, the Bid Bond or other Bid Security, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids). Other terms are defined in this Section 00100.

Other terms used in the Bidding Documents and not defined elsewhere have the following meanings which are applicable to both the singular and plural thereof:

Texas Resident Bidder - A bidder whose principal place of business is in this state and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Nonresident Bidder - A bidder whose principal place of business is not in this state but excludes a Contractor whose ultimate parent company or majority owner has its principal place of business in this state.

EPCWID #1 - El Paso County Water Improvement District #1 which authorizes dewatering into its facilities under certain terms and conditions and with whom the Owner has negotiated specific basic fees and procedures.

NADB – North American Development Bank

2. COPIES OF BIDDING DOCUMENTS *(Revised 10/16/20)*

2.1 Complete sets of the Bidding Documents stated in the Advertisement or Invitation to Bid may be obtained by accessing the following El Paso Water Utilities – Public Service Board (EPWU-PSB) website:

https://www.epwater.org/business_center/purchasing_overview/bids/construction

If you have trouble accessing the Contract Documents, please contact the Purchasing Department of the EPWU-PSB at (915) 594-5628. Physical (hard) copies of the Contract Documents will no longer be made available.

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

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

3. DETERMINING LOWEST RESPONSIBLE, RESPONSIVE BIDDER *(Revised 9/2/92, 2/25/94, 1/10/95. 5/22/95, 3/18/96, 9/9/96, 4/17/97, 6/17/97, 9/26/97, 12/10/97, 6/3/99, /10/99, 12/17/99, 3/13/00, 8/19/04, 1/18/10, 1/12/11,7/18/11, 11/2/16, 1/11/17, 9/27/17, 11/9/17, 7/23/18, 1/17/19, 10/16/20, 3/4/22)*

To demonstrate that the Bidder is responsible and able to perform the Work, each Bidder must be prepared to submit written evidence, such as financial data, previous experience, present commitments, and other data as may be called for below (or in the Supplementary Instructions). Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to Award of the Contract.

In determining the lowest responsible, responsive Bidder, in addition to price, the following elements will be considered:

(a) the quality, availability, and adaptability of the supplies, materials, equipment, or contractual services, to the particular use required;
(b) the number and scope of conditions attached to the bid;
(c) the ability, capacity, and skill of the entity to perform the contract or to provide the service required;
(d) whether the bidder can perform the contract and provide the service promptly, or within the time required, without delay or interference;
(e) the character, responsibility, integrity, reputation, and experience of the bidder;
(f) the quality of performance of previous services, or contracts;
(g) the previous and existing compliance by the bidder with laws relating to the contract or service;
(h) any previous or existing noncompliance by the bidder with specifications, or requirements relating to time of submission of specified data such as samples, models, drawings, certificates, or other information;
(i) the sufficiency of the financial resources and ability of the bidder to perform the contract or to provide the service;
(j) the ability of the bidder to provide maintenance, repair parts, and service for the use of the subject of the contract during the required one-year warranty period.
(k) the ability of the bidder to provide competent personnel for the job, as demonstrated by a listing of the names and the skills of experienced personnel who are currently employed by the bidder and who will be available for performing this work;
(l) the experience of the bidder in performing work similar in type, size and complexity to this project, as demonstrated by a listing of projects, with verifiable references (names, addresses, phone numbers, etc.), successfully completed.

MINIMUM GENERAL REQUIREMENTS - ALL CONSTRUCTION PROJECTS

QUALIFYING PROJECTS

Bidders on Qualifying Projects must provide a Safety Record consisting of: (1) copies of the bidder's OSHA Forms 300, 300A, and 301 for the last three calendar years (January – December); (2) the Establishment Search Results from the Occupational Safety and Health Administration's website (https://www.osha.gov/pls/imis/establishment.html); and (3) a completed and signed Contractor Pre-Qualification Form (Section 00301). A Qualifying Project is a project with a value greater than $100,000 or one that the Chief Technical Officer and Vice President of Operations and Technical Services determine poses a significant hazard.

EPWU will deem a bidder not responsible if the bidder (1) fails to provide a complete Safety Record; (2) received within the last three calendar years (January – December) six or more serious violations, one or more willful violations, or a single repeat of a serious violation; or (3) has experienced a workplace

fatality in the last three calendar years (January – December), unless the bidder can demonstrate that the factors that caused the fatality were outside the bidder's control. A bidder, however, may fail the above criteria but still be deemed responsible if (1) no other appropriate bidder can be found; (2) the bidder is approved by the Chief Technical Officer and the Vice President of Operations and Technical Services; and (3) the bidder agrees to implement the special safety procedures (which might include a requirement to work only with trained EPWU personnel present) that the Vice President of Operations and Technical Services establishes for the project.

PROJECTS WITH VALUE LESS THAN $1,000,000:

The Bidder, or at least two *Key Personnel employed by the Bidder, must demonstrate **Successful Completion of a project similar in nature and scope to this project within the past five years and a similar project with a value of at least one-third the value bid for this project.

PROJECTS WITH VALUE BETWEEN $1,000,000 AND $3,000,000:

The Bidder, **or** at least three *Key Personnel employed by the Bidder, must demonstrate **Successful Completion of one project similar in nature and scope to this project within the past five years and one similar project with a value of at least 50% of the value bid for this project.

PROJECTS WITH VALUE BETWEEN $3,000,000 AND $6,000,000:

The Bidder must demonstrate a minimum of four years of experience in projects similar in nature and scope to this project. At least four *Key Personnel employed by the Bidder must have a minimum of five years of experience in similar construction projects. The Bidder must demonstrate **Successful Completion during the last five years of at least one project comparable in nature and scope to this project and one similar project with a dollar value of at least 60% of the value bid for this project. The Bidder must have an employee, to be dedicated to this project, who is experienced in scheduling, with demonstrated ability in employing scheduling techniques similar to those to be used for this project.

PROJECTS WITH VALUE BETWEEN $6,000,000 AND $15,000,000:

The Bidder must have a minimum of five years of experience in projects similar in nature and scope to this project. At least four of the Bidder's *Key Personnel must have a minimum of five years of experience in similar construction projects. The Bidder must demonstrate **Successful Completion of at least two projects similar in nature and scope to this project and one similar project with a dollar value of at least 75% of the value bid for this project, both within the past five years. The Bidder must demonstrate that it has an experienced employee who will serve as the scheduler; who is dedicated to this project; who has successfully employed scheduling techniques appropriate for this project. At least two *Key Personnel for this project must have completed at least two projects, similar in scope and nature to the project being bid, as an employee of the Company bidding this project.

* KEY PERSONNEL: Defined as individuals who will be directly assigned to this project which includes, but is not limited to, the Bidder's Project Manager, the Project Superintendent, the Scheduler, the Bidder's Construction Engineer, and Supervisory personnel such as the Foremen who will be directly assigned to this project as well as similar Subcontractor Key Persons. Resumes of Key Personnel must be submitted and accepted by the Owner in order for Bidder to receive the Award.

** SUCCESSFUL COMPLETION: Defined as completion of a project on time, which generally means no more than thirty days later than the original contract time allocated. It also means within budget, which generally means within 5% of the original contract price. If there is any project submitted by the Bidder as qualifying, but which does not meet these requirements, in order to be fully responsive, the Bidder is required to submit detailed information on that project demonstrating what caused the increases to cost or

time. The name and telephone numbers of the Design Engineer and the Client are to be provided for evaluation as to whether the project may be considered "successful". For any project where liquidated damages were assessed, the Bidder will not be considered to have been on time.

BIDDER MUST MEET THE FOLLOWING MINIMUM PROJECT SPECIFIC CRITERIA IN ORDER TO QUALIFY FOR AWARD OF THE BID:

1. Key Personnel required to be assigned full-time to this project includes: **Project Manager, Scheduler, Project Superintendent, and Foreman.** Key Personnel are to provide evidence of their ability to maintain good and professional communication with engineer, Owner, governmental agencies, and respond quickly to project demands and emergencies.

2. **Project involves the installation of a large diameter sewer pipe. Bidder must demonstrate successful completion of two projects requiring this expertise.** The Project Manager, the Superintendent and the Foreman assigned to the project must demonstrate successful completion of at least two projects similar in nature and scope described, within the past five years, including experience installing 18-inch and larger diameter pipe.

3. The project requires the **Project Manager**, the **Superintendent,** and the **Foremen** to demonstrate successful completion of two similar sanitary sewer or water utility projects which employed traffic control in accordance with TXDOT standards and within TXDOT Right-of-Way. Projects must demonstrate successful coordination with TXDOT officials for traffic control permit, set-up, implementation, and monitoring.

4. **The project involves the installation of casing and gravity pipe via boring method. Bidder must demonstrate successful completion of two projects requiring boring expertise.** The Project Manager, the Superintendent and the Foreman or sub-contractor personnel assigned to this project must demonstrate successful completion of at least two projects similar in nature and scope described, within the past five years, including experience with boring installations at the depth and conditions required in this project.

5. **Project involves the installation of cured-in-place (CIP) liner system for interior of manholes as per specifications.** The Bidder or its subcontractor must demonstrate successful completion of two similar installations of CIP liner systems for manholes in accordance with the specifications.

EPWU CIP FUNDED PROJECTS
GOOD FAITH EFFORTS
TO OBTAIN MINORITY PARTICIPATION IN THIS PROJECT

The Utility's policy for its projects is to encourage the participation of Small Locally-Owned Businesses (SLBE), Minority Business Enterprises (MBE), and Women-Owned Business Enterprises (WBE). The utility's minimum goals for this project are:

25% FOR SMALL LOCALLY-OWNED BUSINESSES
10% FOR MINORITY-OWNED BUSINESSES
7% FOR WOMEN-OWNED BUSINESSES

The bidder must meet each of these three goals or demonstrate at the time of making the bid that he or she has made a good faith effort to meet each of the three goals in order to qualify for award of this project. The definition of a "Good Faith Effort" is described below. If the bidder fails to meet the goals, *and also fails to provide evidence that a good faith effort has been made to meet each goal*, the Owner reserves the right to request additional information from the bidder as support to Good Faith Effort documentation. The bidder may meet the requirement in one of three ways:

1. If goals in each category are fully achieved, bidder to provide all details of the actual participation in the Bid Proposal Form, Section 00300, where space has been provided for bidder's use.

2. If goals are partially achieved in each of the categories, bidder to provide the details of the actual participation in the Bid Proposal Form, and to provide evidence of the Good Faith Effort to meet each goal, as part of the bid proposal, at the time the bid is submitted.

3. If goals are not achieved, bidder to provide evidence of a demonstrated Good Faith Effort, as defined below, as part of the bid proposal, at the time the bid is submitted.

Although a single prime contractor, a subcontractor, or a supplier may be a Small Locally-Owned Business and also a Minority Business or a Woman-Owned Business, each firm will be counted in only one category (SLBE, MBE, or WBE) for purposes of meeting these goals.

DEFINITIONS *(Revised 7/28/14, 10/16/20, 3/4/22)*

GOOD FAITH EFFORT: Documentation that minority firms were given a genuine opportunity to participate. Evidence of a Good Faith Effort must include copies of a reasonable number of letters sent to bona fide firms in each of the categories described showing the full details of the work solicited to be performed by the minority firm; copies of certified mail/return receipts, facsimile or e-mail confirmations of receipt, copies of responses to the letters, and copies of correspondence with the Chamber of Commerce, Small Business Administration, Minority Business Development Agency, MBE and WBE associations, and/or newspaper or trade magazine notices. Facsimile and e-mail confirmations of receipt must show sufficient information to identify the company name to which the solicitation was sent. Sample solicitation letters are included in Section 00310. The Owner's Purchasing Department has a listing of qualified firms in each of these categories, which are available on the Owner's website, https://www.epwater.org/business_center/purchasing_overview/become_a_hub_vendor. Additional sources for locating Small Locally-Owned Business Enterprises, Minority-Owned Business Enterprises, and Women-Owned Business Enterprises: Texas Comptroller of Public Accounts http://www.window.state.tx.us/procurement/prog/hub/hub-reporting/, El Paso Hispanic Chamber of Commerce Minority Business Enterprise Center, https://ephcc.org/blog/other-resources/procurement-opportunities/.

SMALL LOCALLY-OWNED BUSINESS ENTERPRISE (SLBE): A business corporation, partnership, joint venture, sole proprietorship, or other legal entity formed for the purpose of making a profit, has been located within the County of El Paso for at least twelve months and is 51% or more owned by residents of El Paso County; furthermore, that business must employ fewer than 100 employees or have annual gross sales of less than $7,000,000 and is not a subsidiary of a business which would not meet these guidelines.

MINORITY-OWNED BUSINESS ENTERPRISE (MBE): A business that is at least 51% owned and controlled by one or more citizens or lawful permanent residents of the United States who are either African American, Hispanic American, Asian American, Native American, or Service Disabled Veteran.

WOMEN-OWNED BUSINESS ENTERPRISE (WBE): A business that is at least 51% owned and controlled by one or more citizens or lawful permanent resident of the United States who are non-minority females.

The form entitled "Minority Certification and Participation Summary", which is located at the end of Section 00300, Bid Form, should be completed and submitted by the Successful Bidder within ten days of Notice of Award.

It is mandatory that bidder submit with his or her bid a fully executed bid proposal (including the tabulation of proposed subcontractors and suppliers), an original bid bond, the certificate of insurance availability, and minority participation categories reflecting bidder has met minority participation goals OR evidence of bidder's good faith effort to do so. Failure to submit these items with the bid will result in a finding that the bid is non-responsive and the bid will be disqualified.

Evidence of bidder's good faith effort *or* evidence of *full* participation in each category is also required at the time of bid. Owner reserves the right to request additional information from the bidder as support to good faith effort documentation.

Bidders shall furnish a financial statement or other evidence of the Bidder's financial sufficiency to perform the contract, a sworn statement of his or her experience record, and a listing of the equipment available to him or any other statement or documentation required by the Owner or Owner's consultant as to his or her capability to complete the Work. The Post-Bid/Pre-Award Checklist and the Qualifications Statement may require submittal of additional documentation. PLEASE REVIEW THE CHECKLISTS PROVIDED AT THE END OF THIS SECTION 00100.

To assist the Owner in evaluating the Bidder's responsibility, the lowest responsive Bidder is required to complete and submit the "Qualification and Financial Disclosure Statement" found at the end of Section 00100 within five calendar days of the consulting Engineer's request. The Engineer will submit this document and any additional information received as requested by the consulting Engineer, to the Owner as an attachment to his or her Recommendation of Award.

The Checklists found at the back of this Section are provided to assist the Bidder in fulfilling these requirements.

The Purchasing Department will evaluate the responsiveness of the Bidder's submittal. Purchasing Agent will forward the bids and results of the Purchasing Department's evaluation to the consulting Engineer for further evaluation of responsiveness, qualifications of the Bidder and other related conditions of this Bid. Engineer will forward the results of the evaluation to the Owner in writing. Owner will review Engineer's evaluation and present its recommendation to the Public Service Board for award.

Bidder is required to submit information regarding his or her status as a "RESIDENT" or "NONRESIDENT" as shown on the spaces provided in the proposal form.

A "Nonresident Bidder" will not be awarded the Contract if the state of his or her principal place of business assesses a penalty against out-of-state bidders unless his or her bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located.

The terms "Texas Resident Bidder" and "Nonresident Bidder" shall the meanings set forth for those terms in Chapter 2252 of the Texas Government Code.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE *(Revised 3/18/96, 4/21/97, 1/18/10, 1/12/11, 4/13, 10/16/20)*

4.1 It is the responsibility of each Bidder, before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, and to determine the character of equipment and facilities needed preliminary to and during the prosecution of the Work, (c) consider federal, state and local laws and regulations that may affect cost progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents.

When information as to soil conditions, test borings, and existing underground and overhead utility locations is shown on the Plans, Specifications, Drawings, or in preliminary reports prepared by the Engineer or under the Engineer's direction, such information was obtained for the Owner. The correctness of such information is not guaranteed by the Owner or by the Engineer and in no event shall be considered as a part of the contract, an inducement to bidding, or a factor for computation of bids. If such information is used by the Bidder in preparing a proposal, the Bidder must assume all risks that conditions encountered in performing the Work may be different from the approximation shown. Owner hereby grants reasonable access to Bidder and/or his employees or contractors to examine the work site over which Owner has ownership or control.

4.2 Reference is made to the Supplementary General Conditions for identification of:

4.2.1 Those reports of explorations and tests of subsurface conditions at the site which have been utilized by Engineer in preparation of the Contract Documents.

4.2.2 Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents.

Copies of such reports and drawings will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents. Technical data has been identified and established in the Supplementary General Conditions.

4.2.3 See SC 18.13. Those certain dewatering issues, procedures, payment terms, submittal requirements, and close out terms which are the responsibility of the Bidder and which may impact Bidder's pricing of this Bid.

4.3 Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner does not assume responsibility for the accuracy or completeness thereof.

4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes

in the Contract Documents due to differing conditions appear in Paragraphs 5.03 and 5.04 of the General Conditions, and as may be amended in the Supplementary General Conditions.

4.5 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.6 Each Bidder will be required to get permission from property owners to obtain access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition and to the satisfaction of the Engineer, upon completion of such explorations. Owner hereby grants reasonable access to Bidder and/or his employees or contractors to examine the work site over which Owner has ownership or control.

4.7 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

4.8 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey to Bidder the understanding of all terms and conditions for performance and furnishing of the Work.

5. INTERPRETATIONS AND ADDENDA *(Revised 10/16/20, 3/4/22)*

5.1 Pursuant to the Cone of Silence policy, all questions about the meaning or intent of the Contract Documents are to be directed to the Purchasing/Contracts Department *(see Purchasing Contacts on EPWU website: https://www.epwater.org/business_center/purchasing_overview/bids/construction)*. Interpretations or clarifications considered necessary by EPWU staff, Engineer, or Consultant in response to such questions will be issued by Addenda and will be posted on the EPWU website. Bidder will be responsible to check the website regularly for any addenda or additional information for the project. Questions received less than ten (10) days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications, either by EPWU staff, Engineer, or Consultant will be without legal effect.

5.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer, with Owner’s approval.

6. BID SECURITY *(Revised 10/12/92, 2/25/93, 1/10/95, 5/22/95, 1/18/10, 7/13, 1/17/19, 10/16/20, 3/4/22)*

6.1 Each Bid must be accompanied by an original and notarized Bid security made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified or

cashier's check or a Bid Bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions and Paragraph 6.01 of the Supplementary General Conditions.

6.2 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security and insurance, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security, insurance, and other required contract documents within ten days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the ninety-first day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven days after the Bid opening.

The Bidder agrees by signing this Bid that he fully understands the requirements of the bid documents.

An incentive payment is available in the amount of $100 per day, up to a maximum of $300, for the Bidder's successful efforts in expediting delivery of fully compliant documents in a time period shorter than the 10-day maximum called out in the Notice of Award.

Should the Bidder fail to return the Agreements, acceptable Bonds, Insurance Certificates and insurance policies within ten days of receipt of the documents, the Utility may charge excess costs generated by such delay at the rate of $100 for each day of delay. In the event more than two reviews of insurance submittals are required by the Utility's Risk Manager, the Successful Bidder will additionally reimburse the Utility for those costs at the rate of $150 per hour which will apply to each fifteen-minute fraction thereof charged by the Risk Manager. These reimbursed costs will be deducted from the Bidders first Application for Payment or, in the event a Bid Bond is forfeited, such expenses may be reimbursed from the proceeds of the Bid Bond as part of the excess costs or re-procurement.

7. CONTRACT TIME

The number of Calendar Days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Agreement. Completion within this time is of the essence in the performance of this contract.

8. LIQUIDATED DAMAGES *(Revised 3/18/96, 10/16/20)*

Provisions for liquidated damages, if any, are set forth in the Agreement and in the Supplementary General Conditions SC-11.11.

9. SUBSTITUTE OR "OR EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor is acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the date of the Notice to Proceed. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraphs 7.05 and 7.06 of the General Conditions and may be supplemented in the General Requirements.

10. SUBCONTRACTORS, SUPPLIERS AND OTHERS *(Revised 10/12/92, 9/9/96, 12/10/97, 12/17/99, 7/13, 10/16/20)*

10.1 The Bidder is required to identify all Subcontractors and Suppliers; to provide the value of each proposed subcontract or purchase order; and to report their own and their subcontractor's business classification (Small Locally-Owned Business Enterprise, Minority Business Enterprise, Woman-Owned Business Enterprise, or Other). The Bidder shall submit with his or her Bid a list of all proposed Subcontractors and Suppliers. Space for this submittal is provided within the Bid Proposal, Section 00300. Use additional sheets as necessary. The Bidder is required to submit the MWBE Certification and Participation Summary Form with his or her Bid. If requested by Engineer or by Owner, Bidder shall provide an experience statement with pertinent information regarding similar projects and other evidence of qualifications for each such Subcontractor, Supplier, person, or organization. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, either Owner or Engineer may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute, in which case the apparent Successful Bidder shall submit an acceptable substitute, that Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution and Owner may consider such price adjustment in evaluating Bids and making the Contract Award.

10.2 No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

10.3 The Bidder shall submit a Final Report of total payments made to each subcontractor and supplier, as part of the required close out documents.

This submittal shall be made as a condition precedent to Final Payment.

11. BID FORM *(Revised 10/16/20)*

11.1 The Bid Form is included with the Bidding Documents.

11.2 All blanks on the Bid Form must be completed in ink. Bids which do not have all blanks filled in or completed may be rejected at the Owner's option by Owner or Purchasing Agent.

11.3 Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal if any must be affixed and officer’s signature must be attested by the secretary or an assistant secretary. The corporate address, state of incorporation, and state of principal place of business must be shown below the signature.

11.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title and authority to sign must appear under the signature and the official address of the partnership must be shown below the signature.

11.5 All names must be printed below the signature.

11.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

11.7 The address and telephone number for communications with Bidder regarding the Bid must be shown.

12. SUBMISSION OF BIDS *(Revised 10/16/20, 3/4/22)*

Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque, sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), name and address of the Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. The Bid proposal packet shall include one original, three copies and an electronic version of the bid, containing a full copy of the full bid package submitted, saved on a USB drive.

Any questions or clarifications pertaining to the bid documents, requirements, specifications, or terms and conditions of the bid or contract documents should be addressed via the Addendum process described above in Section 5. Any extraneous documentation, letters, explanations, limitations, commentary, conditions, or the like submitted with a Bid will ***NOT*** be considered or incorporated as the basis of any award. Bidder agrees to be held solely to the terms and conditions of these Bid documents; General and Supplementary Conditions (as may be amended from time to time); and any other documents identified by EPWU.

13. MODIFICATION AND WITHDRAWAL OF BIDS

13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

13.2 If, within twenty-four 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 the mistake is clerical; that the mistake is so serious that enforcement of the Bid would be unconscionable; and that the mistake has occurred despite the exercise of ordinary care; that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

14. OPENING OF BIDS

Bids will be opened and (unless obviously nonresponsive) 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.

15. BIDS TO REMAIN SUBJECT TO ACCEPTANCE *(Revised 12/10/97, 1/18/10, 7/13, 10/16/20)*

All Bids will remain subject to acceptance for a minimum of 90 days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date. In the case of State, Federal, or NADBank-funded projects, all Bids will remain subject to acceptance for 90 days or such reasonable time as the funding agency may require.

16. AWARD OF CONTRACT *(Revised 3/18/96, 12/10/97, 10/9/98, 1/18/10, 10/16/20)*

16.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work and the right to disregard all immaterial, nonconforming, nonresponsive, unbalanced, or conditional Bids. Also, Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to the Bidder, whether because the Bid is not responsive, or the Bidder is not responsible because the Bidder is deemed to be unqualified or of doubtful financial ability or fails to meet any other pertinent criteria established by Owner under Paragraph 3 hereof. Discrepancies in 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. Any bids submitted in which there is a material failure to comply with the Bid requirements or specifications will be rejected and the contract will be awarded to the lowest responsible Bidder conforming to the specifications unless the Owner decides to reject all Bids.

16.2 In evaluating Bids, Owner will consider the responsiveness of the Bid, responsibility of the Bidders, 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.

16.3 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary General Conditions or other sections of this bid document. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award or as a substitute.

16.4 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

16.5 If the contract is to be awarded, it will be awarded to the lowest Bidder whose responsibility has been evaluated in accordance with these Instructions to Bidders.

16.6 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within 90 days after the day of the Bid opening. In the case of State or Federally-funded projects, Owner will give the Successful Bidder a Notice of Award within 90 days after the day of the Bid opening, or such reasonable time as the funding agency may require.

17. CONTRACT SECURITY *(Revised 9/17/93; 3/18/96, 7/13, 10/16/20, 3/4/22)*

Paragraph 6.01 of the General Conditions and the Supplementary General Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required Performance and Payment Bonds and the Certificate of Insurance and insurance policies. A Payment Bond must be provided for contracts more than $50,000 in value. If the contract requires an expenditure of less than $100,000, the Owner reserves the right to waive the requirement for a Performance Bond, provided that payment is not due to the Contractor until the Work is completed and accepted by the Owner. Any provision in any bond furnished in attempted compliance with House Bill No. 31 that expands or restricts the rights or liabilities provided under this Act shall be disregarded and the provisions of this Act shall be read into that Bond.

18. SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days after, Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds and a copy of the Certificate of Insurance along with a copy or copies of the actual Insurance policy or policies. Owner shall deliver fully signed final contract to Contractor when all pre-construction contract requirements have been met.

19. PRE-BID CONFERENCE *(Revised 10/16/20)*

A pre-bid conference will be held at 10:00 a.m., local time, on the day of May 4th 2022 virtually via Microsoft Teams software. The link for the meeting will be posted on the EPWater website. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Owner will publish on the EPWater website such Addenda as Engineer considers necessary in response to questions arising at the conference.

20. SALES AND USE TAXES *(Revised 3/18/96, 4/13)*

Owner is exempt from Municipal and State Sales and Use Taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Contract Price. Refer to Supplementary General Conditions SC-7.10.B for additional information.

QUALIFICATION AND FINANCIAL DISCLOSURE STATEMENT

BIDDER: _____

PROJECT NAME: LA MESA SEWER RELIEF LINE

1. ORGANIZATION

1.1 How many years has your organization been in business as a Contractor?

1.2 How many years has your organization been in business under its present business name?

1.2.1 Under what other or former names has your organization operated?

1.3 If your organization is a corporation, answer the following:

1.3.1 Date of incorporation: _____

1.3.2 State of incorporation: _____

1.3.3 President's name: _____

1.3.4 Vice-president's name(s): _____

_____

1.3.5 Secretary's name: _____

1.3.6 Treasurer's name: _____

1.4 If your organization is a partnership, answer the following:

1.4.1 Date of organization: _____

1.4.2 Type of partnership (if applicable): _____

1.4.3 Name(s) of general partner(s): _____

1.5 If your organization is an individually owned sole proprietorship, answer the following:

1.5.1 Date of organization: _____

1.5.2 Name of owner: _____

1.6 If the form of your organization is other than those listed above, describe it and name the principals:

2. LICENSING

2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable. Indicate name, license number and expiration date for Master Electrician or other trade required under the Instructions to Bidders section of this Bid.

2.2 List jurisdictions in which your organization's partnership or trade name is filed.

3. EXPERIENCE *(Revised 3/18/96, 9/9/96, 12/10/97, 10/9/98, 7/13)*

3.1 List the categories of work that your organization normally performs with its own forces.

3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

3.2.1 Has your organization ever failed to complete any work awarded to it?

3.2.2 Are there any judgments, claims, arbitration proceedings, or suits pending or outstanding against your organization or its officers?

3.2.3 Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

3.3 Within the last five years, has any officer or principal of your organization been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

3.4.1 State total worth of work in progress and under contract:

3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

3.5.1 State annual amount of construction work performed each year during the past five years:

3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization. Submit resumes of Key Personnel (as defined in Section 00100, Instructions to Bidders). By execution of this bid, the Bidder certifies that its Resident Superintendent has the authority to act on behalf of the Contractor at all times. No substitution shall be made without the written approval of the Owner and the Engineer based upon acceptance of the qualifications of the proposed substitute.

3.7 On a separate sheet, provide evidence that the Bidder meets the minimum criteria called out in Section 00100, Instructions to Bidders. Provide similar evidence for Subcontractors, if required by Bid or by Engineer.

3.8 Provide the MWBE CERTIFICATION SUMMARY FORM found at the end of Section 00300.

4. REFERENCES

4.1 Trade References:

4.2 Bank References:

4.3 Surety:

Name and telephone number of Bonding Company: _____

Name, telephone, and address of Agent: _____

_____

_____

5. FINANCING

5.1 Financial Statement

5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

a. Cash Flow Statement

b. Notes to Financial Statement

c. Auditor Statement

d. Comparison Statements, if available

5.1.2 Name and address of firm preparing attached financial statement, and date thereof.

5.1.3 Is the attached financial statement for the identical organization named on page one?

5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

6. SIGNATURE

6.1 To be executed by a Principal of the firm authorized to certify the foregoing information:

_____, being duly sworn, deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

6.2 Dated at _____ this _____ day of_____, 20___.

Name of Organization: _____

By: _____

_____
(Printed Name)

Title: _____

BID PROPOSAL CHECKLIST (packet should be submitted unbound and unstapled)		
Section 00100/00300	1.	MANDATORY: Signed Bid Form with all blanks filled in, including acknowledgement of any issued addenda and names of all Subcontractors and Suppliers.
Section 00100/00300	2.	MANDATORY: Original and Notarized Bid Security or Bond
Section 00100/00300	3.	MANDATORY: Certificate of Insurance Availability
Section 00100/00300	4.	MANDATORY: Names and categories (SMLB, MBE OR WBE) of all Subcontractors and Suppliers with SMLB, MBE OR WBE certifications
Section 00100/00310	5.	MANDATORY: Evidence of Good Faith Efforts if Minority Participation Goals are not met
Section 00100/00302	6.	MANDATORY: Texas Ethics Commission requirement, "Certificate of Interested Parties", Form 1295 – Contractor must have registered/completed on-line application
Section 00100/00301	7.	MANDATORY: Safety Record (Qualifying Projects only)
Section 00100/00303	8.	MANDATORY: Statement of Residency
Section 00100/00304	9.	MANDATORY: Statement of Non-Divestment from Israel
Section 00100/00300	10.	MANDATORY: Electronic version of the bid, containing a copy of the full bid package submitted on a USB Drive.
Section 00100/00300	11.	MANDATORY: Provide one original and three hard copies of the bid proposal submitted.
	12.	

POST-BID/PRE-AWARD CHECKLIST		
Section 00100/00800 00810/00850	1.	MANDATORY: Evidence of Worker's Compensation Insurance Coverage: a Certificate of Insurance or Form DWC-81, DWC-82, DWC-83, DWC-84, DWC-85 or if self-insured, a coverage agreement filed with the Texas Worker's Compensation Commission's Division of Self Insurance Regulation.
Section 00100/00800 /00810	2.	MANDATORY: If employees provided by leasing company, evidence of Texas State License and copy of their Worker's Compensation policy. If no leased employees will be used, provide a letter on Contractor's letterhead stating so.
Section 00100	3.	MANDATORY: Financial Statements
Section 00100	5.	MANDATORY: Qualification Statement and Qualifications of Key Personnel (included in Section 00100)
Section 00100/00300	6.	MANDATORY: Updated Minority Certification and Participation Summary

SECTION 00300

BID FORM

PROJECT IDENTIFICATION: El Paso Water Utilities

La Mesa Sewer Relief Line

BID NO.: 08-22

Name and Address of OWNER:
El Paso Water Utilities
Public Service Board
1154 Hawkins Boulevard
P. O. Box 511
El Paso, Texas 79961

Name and Address of BIDDER:
_____
_____
_____
_____
_____

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ninety days after the day of Bid opening. In the case of State, Federal, or NADBank-funded projects, all Bids will remain subject to acceptance for 90 days or such reasonable time as the funding agency may require. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within ten days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

   A. BIDDER has examined copies of all the Bidding Documents and of the following Addenda **(receipt of all which is hereby acknowledged)**:

Date	Number

B. BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.

C. BIDDER has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 5.03 of the General Conditions, and accepts the determination set forth in Paragraph SC-5.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings.

D. BIDDER has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in "C." above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 5.03 of the General Conditions.

E. BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities.

F. BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.

G. BIDDER has given ENGINEER written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.

H. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

I. All prices quotes by the bidder shall be entirely in United States Currency (U.S. Dollars).

4. Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

********** HIGH IMPORTANCE **********

TEXAS ETHICS COMMISSION REQUIREMENT

*****IN THE EVENT YOU RECEIVE AN AWARD OF THIS CONTRACT*****

Reference: FORM 1295 (revised 12/22/17) "Certificate of Interested Parties"

A business entity must file Form 1295 electronically with the Texas Ethics Commission using the Commission's online filing application, which can be found at:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

SEE INSTRUCTIONS: Form 1295 and Sample Form 1295 (Section 00302)

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
1.	1	L.S.	Insurance, Bonds, and Move-In Related Expenses, Not to Exceed 5% of Bid Item Nos. 2 through 14. If Item No. 1 exceeds 5%, bid may be deemed non-responsive).	$_____	$_____
2.	1	L.S.	Preconstruction Video of existing site conditions.	$_____	$_____
3.	1	L.S.	Traffic Control and Traffic Safety System.	$_____	$_____
4.	1,650	L.F.	Furnish and Install 18-inch PVC SDR 26 Sanitary Sewer Line, fittings, appurtenances, backfill and compaction to finished subgrade complete in place.	$_____	$_____
5.	1,580	L.F.	Trench Safety System: Trench Box Method or Shoring, Sheeting, and Bracing Method	$_____	$_____
6.	360	S.Y.	8-inch base course trench area backfill, 100% compaction (STA 00+00 to 10+34 only; El Paso County portion)	$_____	$_____
7.	4	Each	48-inch Standard Manhole to a maximum depth of 6-ft, cured-in-place liner (Triplex or equal). Complete in place.	$_____	$_____

Item No.	Estimated Quantity	UOM	Brief Description of Item	Unit Bid Price	Extended Amount (Qty. x Unit Price)
8.	52	V.F.	48-inch Standard Manhole additional depth beyond 6-ft complete in place.	$_____	$_____
9.	1	Each	72-inch Manhole to a maximum depth of 6-ft complete in place, cured-in-place liner (Triplex or equal). Complete in place.	$_____	$_____
10.	2	V.F.	72-inch Manhole additional depth beyond 6-ft complete in place.	$_____	$_____
11.	112	L.F.	Furnish and install 30-inch diameter steel casing by boring method.	$_____	$_____
12.	26	S.Y.	Remove and Replace Hot Mix Asphaltic Concrete Pavement (HMAC) for walking trail, to include base course, tack coat, complete in place.	$_____	$_____
13.	27	S.Y.	Remove and Replace Hot Mix Asphaltic Concrete Pavement (HMAC) for La Mesa Ave., El Paso County, to include base course, tack coat, complete in place.	$_____	$_____
14.	1	L.S.	Storm Water Pollution Prevention Plan	$_____	$_____

TOTAL BID PRICE (ITEMS 1 THROUGH 14) $ _____

Quantities are not guaranteed.

If multiple awards are contemplated under a single bid document, an additional breakdown of bid amounts, subcontractors, and suppliers is required. It will also be necessary to adjust the MWBE Certification and Participation Summary Form accordingly.

In accordance with Section 151.311 of the Texas Tax Code (V.A.T.C.S.), regarding taxes on materials and services, and requiring a separated contract, the following is the breakdown of cost for materials and cost for labor for this bid:

MATERIALS TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: $_____

LABOR TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: $_____

RENTAL EQUIPMENT AND OTHER TAXABLE ITEMS:	**$_____**
OTHER (I.E. BONDS, INSURANCE, CAPITAL EQUIPMENT, ETC.)	**$_____**
***TOTAL CONTRACT: *(TOTAL MUST EQUAL TOTAL BID PRICE)**	**$_____**

5. BIDDER agrees that the Work will be Substantially completed within 90 Calendar Days from the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions, and as revised in Supplementary Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions, and as revised in the Supplementary Conditions, within 120 calendar days. Final completion includes CONTRACTOR'S resolution of all punch list items and CONTRACTOR'S submission of required close-out documentation. Any failure of the CONTRACTOR to complete the project within the contract time will be considered a material breach of this contract.

   BIDDER accepts the provisions of the Supplementary Conditions and the Agreement as to liquidated damages in the event of failure to complete the Work on time.

6. BIDDER MUST ANSWER THE FOLLOWING QUESTIONS: (Refer to INSTRUCTIONS TO BIDDERS for definitions.)

   A. Is the bidder that is making and submitting this bid a "RESIDENT BIDDER" or a "NONRESIDENT BIDDER"?

      Answer: _____

   B. If the bidder is a "NONRESIDENT BIDDER", does the state in which the Nonresident Bidder's principal place of business is located have a law requiring a Nonresident Bidder of that state to bid a certain amount of percentage under the bid or a Resident Bidder of that state in order for the nonresident bidder of that state to be awarded a contract on his or her bid in such state?

      Answer: _____

   C. If the answer to the question in Paragraph 6B above is "yes", then what amount or percentage must a Texas Resident Bidder bid under the bid of a Resident Bidder of that state in order to be awarded a contract on such bid in said state?

      Answer: _____

7. The following documents are attached to and made a condition of this Bid:

   A. Required Bid Security in the form of _____

      _____

   B. A tabulation of all Subcontractors who will provide labor at the site of the work or render services to the CONTRACTOR in or about the construction of the work and Suppliers and

other persons and organizations is required to be identified in this Bid. Complete the following table, designating each as Small Locally-Owned Business Enterprise (SLBE), Minority Business Enterprise (MBE), Women-Owned Business Enterprise (WBE), Small Business Enterprise (SBE), Small Business in Rural Areas (SBRA), or Other (not either SLBE, WBE MBE, SBE or SBRA) is required. Only one category may be checked. Include the work item and value of work to be provided by the Prime Contractor, as well as its category.

Tabulation of Subcontractors and Suppliers

SUBCONTRACTOR/SUPPLIER	WORK ITEM	SUBCONTRACT OR PURCHASE ORDER VALUE (If value is unknown, please list *Pending*)	SLBE	MBE	WBE	SBE	SBRA	OTHER
			Please check one box					
Prime Contractor:								

C. Will the Contractor meet the Small Locally Owned Business Enterprise, Minority Business Enterprise and Women-Owned Business Enterprise goals as required by these contract documents and the funding agencies?

YES _____ NO _____

If "YES", include above each of the firms to be used, their business status as a SLBE, MBE, or WBE, the proposed dollar value and type of work to be performed.

If "NO", documentation supporting good faith effort is required.

8. Communications concerning this Bid shall be addressed to the following named individual, address, telephone number, facsimile number, and e-mail address:

Name: _____

Address: _____

_____

Phone: _____ Fax: _____ E-mail: _____

9. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

SUBMITTED on _____, 20__.

If BIDDER is:

An Individual

By _____(SEAL)
(Name of Bidder)

_____
(Title) (Signature)

doing business as _____

Business Address: _____

_____

Phone No.: _____

A Partnership

By _____(SEAL)
(Firm Name)

_____
(Signature - general partner)

Business Address: _____

Phone No.: _____

A Corporation *(Revised 10/12/92, 1/7/93, 4/13, 3/1/22)*

By _____
(Corporation Name)

_____
(State of Incorporation and State of Principal Place of Business)

By _____
(Name of Person Authorized to Sign)

_____
(Title) (Signature)

(Corporate Seal)

Attest_____
(Secretary)

Business Address: _____

_____

Phone No.: _____

Federal Tax Identification Number: _____

When proposing as a Corporation, Bidder swears and affirms by signing this Bid that the proposing Corporation is currently in existence, is currently authorized to do business in the State of Texas (or State of incorporation) and that no franchise tax reports or payments are delinquent as of the date of this Bid Proposal. The Bidder will provide a Certificate of Account Status with the signed Contract Documents. See Section 00510, for the sample form which is to be obtained by the successful Contractor from the Texas (or other state) Comptroller of Public Accounts and submitted as part of the final, executed Contract Documents.

CERTIFICATION OF INSURANCE AVAILABILITY

Date _____

I, _____ (Name of Insurance Agent), certify that I have reviewed the insurance requirements listed in Article 5 of the Supplementary Conditions of the specifications for the La Mesa Sewer Relief Line, Bid No. 08-22, and further certify that _____ _____ (Name of Bidder) has or can obtain the insurance coverage required by this Project so that a certificate of insurance and a copy(s) for the actual insurance policies can be submitted to the Owner within ten (10) days of the Notice of Award.

Signed _____

Title _____

Insurance Agency _____

Address _____

Telephone _____

MINORITY CERTIFICATION
AND
PARTICIPATION SUMMARY

(EPWU CIP FUNDED PROJECTS)

BID NUMBER: _____

BID TITLE: _____

I certify that the Small Locally-Owned Businesses (SLBE), Minority (MBE) and Women's Business Enterprises (WBE) participating in this project are qualified in accordance with the Minority requirements included in the above listed Bid Documents and that we will ensure all consultants, contractors, suppliers, and subcontractors will comply with the Minority guidelines. Definitions of each category are found in the 00100, Instructions to Bidders Section. Attached are:

Solicitation Documents: _____ Proposed Subcontracts for the below listed firms: _____

SLBE, MBE, or WBE FIRM NAME	ADDRESS	PHONE	CONTRACT AMOUNT	SLBE	MBE	WBE

The attached documents outline the Good Faith Effort taken in complying with the Minority Guidelines.

_____ _____

CONTRACTOR SIGNATURE OF AUTHORIZED REPRESENTATIVE

_____ _____

DATE PRINTED NAME OF AUTHORIZED REPRESENTATIVE

MINORITY CERTIFICATION
AND
PARTICIPATION SUMMARY

(TWDB FUNDED PROJECTS)

BID NUMBER: _____

BID TITLE: _____

I certify that the Minority (MBE) and Women's Business Enterprises (WBE), Small Business Enterprises (SBE), and Small Business in Rural Area (SBRA) participating in this project are qualified in accordance with the Minority requirements included in the above listed Bid Documents and that we will ensure all consultants, contractors, suppliers, and subcontractors will comply with the Minority guidelines. Definitions of each category are found in the 00100, Instructions to Bidders Section. Attached are:

Solicitation Documents: _____ Proposed Subcontracts for the below listed firms: _____

MBE, WBE, SBE or SBRA FIRM NAME	ADDRESS	PHONE	CONTRACT AMOUNT	MBE	WBE	SBE	SBRA

The attached documents outline the Good Faith effort taken in complying with the Minority Guidelines.

_____ _____

CONTRACTOR SIGNATURE OF AUTHORIZED REPRESENTATIVE

_____ _____

DATE PRINTED NAME OF AUTHORIZED REPRESENTATIVE

CONTRACTOR PRE-QUALIFICATION FORM

EPWater requires any contractor who will work on EPWater Qualifying Projects, as well as subcontractors performing 20% of the work on a Qualifying Project, to demonstrate their ability to work safely. A Qualifying Project is a project with a value greater than $100,000 or one that the Chief Technical Officer and Vice President of Operations and Technical Services determine poses a significant hazard. This procedure allows EPWater to identify contractors that can perform site activities without compromising the safety or health of EPWater personnel.

Any contractor wishing to perform work on any Qualifying Project must complete this form and return with the bid package.

The information contained on this form will be evaluated and considered as a part of the overall selection process. Contractors who do not complete and submit this form will be considered non-responsive for any work they propose.

As part of this process, Contractors must certify that its employees have, or will have, appropriate training on the following subjects:

- Basic health and safety issues,
- the Contractor's health and safety programs, and
- the methods and techniques the Contractor will use on the project,
- Procedures for Contractor entrance into and exit from the area of work, and
- Informing EPWater about any unique hazards presented by the Contractor's work or found as a result of the Contractor's work.

Although EPWater will not ask for training documentation on each employee, EPWater requires that this documentation be available within twenty-four hours of request.

CONTRACTOR PRE-QUALIFICATION FORM

1.0 Company Name: _____

Address of Principal Place of Business: _____

Street: _____

City, State, Zip: _____

Telephone Number: _____

E-Mail: _____

2.0 Other Company Names Used: _____

3.0 Name(s) and Relationships of Parent Company, Affiliates, Subsidiaries, Partners:

Company: _____

Address: _____

City, State, Zip: _____

Relationship: _____

Company: _____

Address: _____

City, State, Zip: _____

Relationship: _____

4.0 Has the ownership in your company changed within the last three years? If so, please indicate who the previous owner was in the space below.

YES _____ NO _____

_____

_____

_____

_____

5.0 Please attach certificates showing the extent of coverage, exclusions, and deductibles for the following:

- General Business Liability Insurance Coverage
- Contractors Pollution Liability Insurance Coverage
- Professional Liability Insurance (limits and exclusions)
- Workers' Compensation Insurance Coverage

5.1 How long have you been covered by your current provider of Worker Compensation Insurance?

_____

CONTRACTOR PRE-QUALIFICATION FORM

6.0 Please transfer the numbers and rates of injuries and illnesses from your firm's OSHA No. 300 Logs to the table below:

Injuries & Illnesses in Year:	2019		2020		2021	
Type of Injury Statistic	#	Rate	#	Rate	#	Rate
Lost Workday Cases						
Restricted Workday Cases						
Medical Treatment (not First Aid) Cases						
Total Illness Cases						
Total Recordable Cases						
Employee Hours Worked in Year:						

6.1 List any fatalities your company has had in the last three calendar years (January-December). Include location, cause, and corrective action.

_____
_____
_____
_____
_____

7.0 Do you require that documented safety meetings be held for:

a. Field Supervisor? Yes_____No_____Frequency _____
b. Employees? Yes_____No_____Frequency _____
c. New Hires? Yes_____No_____Frequency _____
d. Subcontractors? Yes_____No_____Frequency _____

8.0 Will a corporate representative audit safety practices on this job?

YES_____ NO_____

8.1 Name _____ Title_____

8.2 How frequently will the representative visit the project?_____

8.3 Does the representative have the authority to take corrective action? Yes____ No____

8.4 To whom does the representative report?

Name _____ Title_____

CONTRACTOR PRE-QUALIFICATION FORM

9.0 Does the company have a health and safety plan? If yes, please give details.

_____

_____

_____

10.0 Describe the type and extent of training Contractor employees will have.

_____

_____

_____

10.1 What percentage of those employees will have this training? _____

11.0 Please give the name of the company's health and safety officer, if any.

_____

12.0 Attach a list of any State or Federal Health and Safety citations received in the past three years.

13.0 Signature of Company Officer: _____

Title: _____

Date: _____

INSTRUCTIONS – FORM 1295

*****IN THE EVENT YOU RECEIVE AN AWARD OF THIS CONTRACT*****

Effective January 1, 2016, a governmental entity may not enter into a contract requiring Board approval, unless the business entity submits a Disclosure of Interested Parties (Form 1295) prior to the convening Board awarding the contract.

The following definitions apply:

1. "Interested Party" means a person:
    a. Who has a controlling interest in a business entity with whom a governmental entity contracts, or;
    b. Who actively participates in facilitating the contract or negotiating the terms of the contract, including a broker, intermediary, adviser, attorney, or representative of, or agent for, the business entity.

2. "Intermediary" means a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of, or agent for, the business who:
    a. Receives compensation from the business entity for the person's participation;
    b. Communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contact, and;
    c. Is not an employee of the business entity.

3. "Business Entity" means any entity, recognized by law, through which business is conducted, including a sole proprietorship, partnership, or corporation. "Business entity includes a for-profit or non-profit entity. The term does not include a governmental entity or state agency.

4. "Contract" includes an amended, extended, or renewed contract.

5. "Controlling Interest" means:
    a. An ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise, that exceeds ten (10) percent;
    b. Membership on the board of directors or other governing body of a bustiness entity of which the board or other governing body is composed of not more than ten (10) members, or;
    c. Service as an officer of a business entity that has four (4) or fewer officers, or serve as one of the four (4) officers most highly compensated by a business entity that has more than four (4) officers.

A business entity must file Form 1295 electronically with the Texas Ethics Commission using the Commission's online filing application, which can be found at:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

The business entity must print a copy of the completed form, which will include a certification of filing containing a unique certification number. "Section 6 - Unsworn Declaration" of Form 1295 must be signed by an authorized agent of the business entity. The business entity must then submit the completed, signed Form 1295 to El Paso Water.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 **Check only if there is NO Interested Party.** ☐

6 **UNSWORN DECLARATION**

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Must file online at www.ethics.state.tx.us/File

STATEMENT OF RESIDENCY

The following information is required by El Paso Water Utilities – Public Service Board ("EPWU") in order to comply with the provisions of Texas Government Code §§ 2252.001 *et. seq.* Failure to provide the required information may constitute a basis for rejection of your bid. Bidders' cooperation in this regard will avoid costly time delays in the award of bids by EPWU. Failure to provide all required information may result in the apparent low bidder being considered non-responsive and non-responsible, and the second low bidder being considered for award.

Definitions

Resident Bidder: a person whose principal place of business is in the State of Texas, including a contractor whose ultimate parent company or majority owner has its principal place of business in the State of Texas.

Nonresident Bidder: a person who is not a resident.

Principal Place of Business in Texas: a permanent business office located in Texas from which a bid is submitted and from which business activities are primarily conducted for the organization other than submitting bids to governmental agencies, where at least one employee works for the business entity.

Bidder's Complete Company Name: _____

State the address of your principal place of business in the space provided below:

_____

_____

_____

State the nature of the business conducted at your principal place of business in the space provided below:

_____

_____

_____

State the number of employees you have at your principal place of business: _____

I swear and attest that the information provided above is true and correct as of the date _____ ("Bidder") submitted its bid on Bid No._____. I further attest that I am an authorized representative of Bidder or have been duly authorized to represent Bidder in this matter. I understand that the information provided is being relied on by EPWU in order for it to comply with state purchasing laws and will materially affect its decisions in this regard. Should the information provided be false or materially misleading, any contract entered into between EPWU and Bidder will be void and EPWU may pursue any legal claims it may have against Bidder.

[SIGNATURE ON NEXT PAGE]

By: _____

Name: _____

Title: _____

Company: _____

ACKNOWLEDGMENT

STATE OF _____ §
§
COUNTY OF _____ §

This instrument was acknowledged before me on the ____ day of _____, 20___, by _____, as _____ of_____, a _____.

_____

Notary Public, State of _____

My Commission Expires:

_____

STATEMENT OF NONDIVESTMENT FROM ISRAEL

The following information is required by El Paso Water Utilities – Public Service Board ("EPWater") in order to comply with the provisions of Texas Government Code §§ 2270.002.

I swear and attest that the following is true and correct as of the date _____ ("Bidder") submitted its bid on Bid No. _____: Bidder does not boycott Israel and will not boycott Israel during the term of the contract should it be awarded to Bidder. I further attest that I am an authorized representative of Bidder or have been duly authorized to represent Bidder in this matter. I understand that the information provided is being relied on by EPWater in order for it to comply with State purchasing laws and will materially affect its decisions in this regard. Should it be discovered that the statement by Bidder contained herein is false, any contract entered into between EPWater and Bidder will be void and EPWater may pursue any legal claims it may have against Bidder.

By: _____
Name: _____
Title: _____
Company: _____

ACKNOWLEDGMENT

STATE OF _____ §
§
COUNTY OF _____ §

This instrument was acknowledged before me on the ___ day of _____, 20___, by _____, as _____ of _____, a _____.

_____

Notary Public, State of _____

My Commission Expires:

_____

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Amazing Results Landscape and Supply Company
111 Red Rock Terrace
Lignite, Texas 72533

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

Amazing Results
Landscaping

January 12, 2008

Mr. John Q. Doe, Project Director
Acme Construction
10518 Burr Oak Drive
San Antonio, Texas 78609

RE: PROJECT NO. 123456, ANYWHERE TEXAS SEWER SYSTEM IMPROVEMENTS PROJECT

Dear Mr. Doe:

We wish to submit the following bid for the above mentioned project:

St. Augustine sod – 900 square yards at $1.75 per square yard $1,575.00
(Includes installation, rolling, fertilizing, and days of watering)

Hydro-Mulch – 15 acres at $1,175 per acre $17,625.00
(5-acre minimum pre trip; No water; No maintenance; areas that do not germinate will be reseeded) Proper watering is the responsibility of customer.

Hay Bales – We will furnish and install at a rate of $15.00 per bale

We look forward to hearing from you concerning our bid. Thank you.

Sincerely,

Theodore T. "Red" Robbins
Manager

EXAMPLE

*** * * * A Certified MBE FIRM * * * ***

1111 Red Rock Terrace
Lignite, Texas 72533
(512) 489-5678 (800) 549-0000
(512) 489-5679 fax
www.amazingresults.com

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Rider Excavation Services
7856 Dry Gulch
Little Indian Mound, Texas 74561

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

Rider Excavation Services

January 8, 2008

Mr. John Q. Doe, Project director
Acme Construction
10518 Burr Oak Drive
San Antonio, Texas 78609

RE: PROJECT NO. 123456
ANYWHERE TEXAS SEWER SYSTEM IMPROVEMENTS PROJECT

Dear Mr. Doe:

Thank you for your letter of January 5, 2008 requesting bids for the Anywhere, Texas Sewer System Improvements Project. We will not be submitting a bid because we are scheduled to begin work on another project that is projected to start on approximately the same date as ours.

We appreciate the opportunity to participate in your project. Please contact us again for any future projects.

Sincerely,

Easy Rider President
Rider Excavation Services

EXAMPLE

7856 Dry Gulch
Little Indian Mound, Texas 74561
512-767-9818 ph 512-767-9800 fax

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Shadow Paving
P. O. Box 903
Pharr, Texas 72579

Gentlemen:

We are actively seeking MWBE Contractors and suppliers for work to be done under Project Number 123456, Sewer System Improvements, City of Anywhere, Texas. The work will consist of utility worm, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials.

Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698.

All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

Sincerely,

John Q. Doe, Project Director
Acme Construction

EXAMPLE

SHADOW PAVING

January 8, 2008

Acme Construction
John Q. Doe, Project Director
10518 Burr Oak Dr.
San Antonio, TX 78609

Dear Mr.Doe:

Thank you for your letter of January 5, 2008 requesting a bid for the paving portion of the Anywhere, Texas Sewer System Improvements Project. Because of the distance of the project from our offices, we will not be interested in submitting a bid.

We appreciate your interest in our services. Please keep us in mind for future projects that may require expertise and services.

Sincerely,

Elmer A. Paver

Office Manager, Shadow Paving

EXAMPLE

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Construction Trades Newsletter
100 Someplace Dr.
P. O. Box 500
Anywhere, Texas 08654

Attn: Ms. Glory Everett, Editor

Dear Ms. Everett:

Please publish the following in the "Public Notices" section of your weekly newsletter on the following dates: 1/11/08; 1/18/08; 1/25/08; and 2/1/08.

"Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008".

Please bill Acme Construction, 10518 Burr Oak Drive, San Antonio, Texas 78609. The person authorizing the placement of this ad is B. J. Tenfold. If you have any questions, you may contact Mr. Tenfold at 512-557-7000.

Sincerely,

B. J. Tenfold
Manager of Accounts

EXAMPLE

ACME CONSTRUCTION

10518 Burr Oak Drive
San Antonio, Texas 78609

512-557-7089
Fax 512-557-2097

January 5, 2008

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Anywhere Weekly Courier
1111 Main Street
P. O. Box 1
Anywhere, Texas 08654

Attn: Mr. Bucky Beaver, Circulation Manager

Dear Mr. Beaver:

Please publish the following in the "Public Notices" section of your weekly newspaper editions on the following dates: 1/11/08; 1/18/08; 1/25/08; and 2/1/08.

"Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008".

Please bill Acme Construction, 10518 Burr Oak Drive, San Antonio, Texas 78609. The person authorizing the placement of this ad is B. J. Tenfold. If you have any questions, you may contact Mr. Tenfold at 512-557-7000.

Sincerely,

B. J. Tenfold
Manager of Accounts

EXAMPLE

THE STATE OF TEXAS }
COUNTY OF GHI }

Before me Homer Shortcut, a Notary Public in and for GHI County, Texas on this day personally appeared Bucky Beaver, Circulation Manager for Small Town Newspapers Group, Inc., publishers of the Anywhere Weekly Courier, who being by me duly sworn did depose and say that said newspaper has been published continuously for more than fifty-two weeks prior to the first insertion of this Legal Notice Number 879 at GHI County, Texas and the attached printed copy of the legal notice is a true copy of the original and was printed weekly on the following date(s): 1/11/08; 1/18/08; 1/25/08; 2/1/08.

_____
Circulation Manager
Anywhere Weekly Courier
Small Town Newspaper Group, Inc.

Appeared and sworn to before me on this
21st day of January, 2008

_____
NOTARY PUBLIC in and for the State of Texas
My Commission expires 12/28/2010

Legal Notice as Published

Acme Construction is soliciting subcontract and material bids in connection with the Improvements to the Sewer System for the City of Anywhere, Texas. Qualified MBE and WBE firms are encouraged to submit bids in response to this invitation. The work will consist of utility work, concrete, paving, fencing, landscaping, masonry, excavation and trucking, barricades, back-hoe work and supplies and materials. Plans and specifications may be viewed or obtained at the project engineer's general offices, Bing, Campbell and Associates, 19510 Jackson Blvd., Muleshoe, Texas 76698. Telephone No. 512-557-2091, Fax 512-557-2090. All bids must be submitted to the above mentioned address by Noon, Friday, February 16, 2008.

EXAMPLE

SECTION 00500

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20___ by and between El Paso Water Utilities-Public Service Board, a component unit of the City of El Paso, a Texas municipal corporation (hereinafter called OWNER), and _____ (hereinafter called CONTRACTOR). OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

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

LA MESA SEWER RELIEF LNE

The work under this contract shall be for furnishing all labor, materials, transportation and services for the construction and installation of the following work:

Approximately 1,658 linear feet of 18-inch diameter SDR-26 Polyvinyl Chloride (PVC) sanitary sewer main; installation of four (4) 48-inch diameter concrete manholes and one (1) 72-inch diameter concrete manhole each with Triplex Systems (or approved equal) interior cured-in-place liner; Trench Safety System; manhole connection inside TXDOT Right-of-Way (ROW); Traffic Control Measures within TXDOT ROW; protection and support of existing utilities; connection to an active manhole; installation of 112-feet of 30-inch diameter steel casing by boring method; pipeline route surface restoration including 8-inches of base course trench area backfill for El Paso County portion; small quantity of HMAC pavement removal and replacement; import approved backfill material; and all miscellaneous piping, fittings, and appurtenances necessary for the proper installation as required in the drawings and technical specifications.

ARTICLE 2. ENGINEER

The Project has been designed by Brock & Bustillos Inc. who is hereinafter called ENGINEER and who is 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 completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME *(Revised 9/2/92, 10/9/98, 6/3/99, 4/13, 10/16/20)*

3.1 The Work will be Substantially completed within 90 Calendar Days from the date when the Contract Time commences to run as provided in Paragraph 4.01 of the General Conditions, and as revised in Supplementary Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions, and as revised in the Supplementary Conditions, within 120 calendar days. Final completion includes CONTRACTOR'S resolution of all punch list items and CONTRACTOR'S submission of required close-out documentation. Any failure of the CONTRACTOR to complete the project within the contract time will be considered a material breach of this contract.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss and public inconvenience if the Work is not completed and the submittals are not submitted within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal 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) CONTRACTOR shall pay OWNER the sum of Nine Hundred Dollars ($*900.00*) for each Calendar Day that expires after the time specified in the Agreement for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER Six Hundred and Forty Dollars ($*640.00*) for each Calendar Day that expires after the time specified in the Agreement for completion and readiness for final payment.

ARTICLE 4. CONTRACT PRICE *(Revised 10/12/92, 6/7/93; 2/13/97)*

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds, per the attached CONTRACTOR's Bid in accordance with the below listed separate charges:

MATERIALS TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: $_____

LABOR TO BE INCORPORATED IN PROJECT NOT SUBJECT TO SALES TAX: $_____

RENTAL EQUIPMENT AND OTHER TAXABLE ITEMS: $_____

OTHER (I.E. BONDS, INSURANCE, CAPITAL EQUIPMENT, ETC.) $_____

***TOTAL CONTRACT:** $_____
*** (TOTAL MUST EQUAL TOTAL BID PRICE)**

ARTICLE 5. PAYMENT PROCEDURES *(Revised 5/14/96, 7/13, 10/16/20, 3/4/22)*

CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions and Article 15 of the Supplementary Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER for Work which is completed in accordance with the terms and conditions of the Contract Documents. All progress payments will be on the basis of the progress of the Work measured by the schedule of values established in Paragraph 2.03 and referenced in Paragraph 2.05 of the General Conditions (and in the case of Unit Price Work based on the number of units completed and accepted) or, in the event there is no schedule of values, as provided in the General Requirements. Each invoice, regardless of contract type, shall contain a summary indicating the budget, the current invoiced amount, less a withholding of a 5% retainage amount, and the billed to date figure.

Prior to Substantial Completion, progress payments will be made in an amount equal to the percentages indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall recommend, or OWNER may withhold, in accordance with Paragraph 15.06 of the General Conditions.

Ninety-five percent of Work completed (ninety percent for contracts under $400,000.00), including 95 percent of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in Paragraph 15.01 of the General Conditions).

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with Article 15 of the General and Supplementary Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Article.

ARTICLE 6. CONTRACTOR'S REPRESENTATIONS *(Revised 10/12/92, 7/13, 11/9/17, 10/16/20, 3/4/22)*

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

6.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

6.2 CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 5.03 of the General Conditions, and accepts the determination set forth in Paragraph SC-5.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings.

6.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Paragraph 6.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise which may affect the cost, progress, performance or furnishing of the Work necessary for the performance or furnishing of the Work at the Contract Price, specifically within the provisions of Paragraph 5.03 of the General Conditions. CONTRACTOR understands that the correctness of such information is not

guaranteed by the OWNER or the ENGINEER and CONTRACTOR understand(s) that the conditions encountered in performing the work may be different from the approximations shown.

6.4 CONTRACTOR has reviewed all information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the location of said Underground Facilities as determined by his or her own field investigations. CONTRACTOR understands that the correctness of such information is not guaranteed by the OWNER or the ENGINEER and CONTRACTOR understand that the conditions encountered in performing the work may be different from the approximations shown.

6.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

6.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

6.7 CONTRACTOR affirms it is not a foreign-owned company that is owned or controlled by citizens of or directly controlled by the government of China, Iran, North Korea, Russia or a designated country pursuant to Chapter 2274 of the Texas Government Code. Additionally, CONTRACTOR affirms it is not a company that is headquartered in China, Iran, North Korea, Russia, or a designated country pursuant to Chapter 2274 of the Texas Government Code.

6.8 CONTRACTOR affirms it does not boycott Israel and will not boycott Israel during the term of the Agreement.

6.9 In accordance with Chapter 2274 of the Texas Government Code, CONTRACTOR affirms that it does not boycott energy companies and will not boycott energy companies during the term of the Agreement.

6.10 In accordance with Section 2274.002 of the Texas Government Code, CONTRACTOR affirms that it does not have a practice, policy, guidance or directive that discriminates against a firearm entity or firearm trade association and will not discriminate during the term of the Agreement against a firearm entity or firearm trade association.

ARTICLE 7. CONTRACT DOCUMENTS *(Revised 11/16/94, 1/12/11, 7/13, 11/2/16, 10/16/20, 3/4/22)*

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

7.1 CONTRACTOR's Bid (Section 00300)

7.2 Agreement (Section 00500)

7.3 Performance and Payment Bonds, and Certificate of Insurance, and insurance policies identified as Sections 00610, 00630 and 00650.

7.4 Notice of Award.

7.5 General Conditions (Section 00700)

7.6 Supplementary Conditions (Section 00800)

7.7 Supplement for Special-Funded Project (Section 00805) – IF APPLICABLE

7.8 General Wage Rates (Section 00840)

7.9 Specifications bearing the title Project Manual for the Construction of **La Mesa Sewer Relief Line** consisting of division numbers 1 through 40 as listed in table of contents thereof.

7.10 Drawings consisting of a cover sheet and sheets listed in the Index to Drawings, each sheet bearing the following general title:

CITY OF EL PASO, TEXAS
EL PASO WATER UTILITIES - PUBLIC SERVICE BOARD

LA MESA SEWER RELIEF LINE

(Drawings not attached to this Agreement.)

7.11 Addenda numbers _____ to _____, inclusive (not attached to this Agreement.)

7.12 Documentation submitted by CONTRACTOR prior to Notice of Award (Pages_____ to _____, inclusive).

7.13 Contractor Health and Safety Plan

7.14 The Instructions to Bidders, Information Available to Bidders, Bid Form and Bid Security, as well as any supplements to the Bid Form.

7.15 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 11.01 of the General Conditions.

7.16 The documents listed in Paragraphs 7.2 et. seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 11.01 of the General Conditions.

ARTICLE 8. MISCELLANEOUS

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically, but without limitation, moneys that may become due and moneys that are 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.

8.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

ARTICLE 9. OTHER PROVISIONS *(Revised 3/4/22)*

9.1 It is agreed that should any dispute arise under this Contract which culminates in litigation, venue of that suit shall be in a court of competent jurisdiction sitting in El Paso County, Texas. The court shall apply the laws of the State of Texas in construing and interpreting the terms of this Contract and the Contract Documents.

9.2 In case any one or more of the provisions contained in this Agreement shall, for any reason, be held to be invalid, illegal, or unenforceable in any respect, that invalidity, illegality, unenforceability shall not affect any other provisions and this Agreement shall be construed as if such invalid, illegal, or unenforceable provisions had never been included, and the Agreement provisions shall be read and interpreted so as to harmonize with the Agreement itself.

9.3 The captions or headings of paragraphs in this Contract are for convenience only and shall not be considered in constraining the provisions hereof if any question of intent should arise.

9.4 For NADBank-funded projects, Contractor agrees to indemnify and hold harmless North American Development Bank (NADB) and each of its directors, officers, employees, agents and representatives (collectively, "NADB's Associated Persons") against all claims for death, personal injury, damages, or other relief against NADB or NADB's Associated Persons, including costs, expenses and attorney's fees, resulting from negligence or willful acts or failure to act by the Contractor.

9.5 In accordance with Sections 552.371 and 552.372 of the Texas Government Code, the following language is included, and applicable in contracts that require or result in the expenditure of public funds of at least $1,000,000:

CONTRACTING INFORMATION. CONTRACTOR must preserve all contracting information related to this Agreement as provided by the records retention schedule requirements applicable to the OWNER for the duration of this Agreement. CONTRACTOR will promptly provide the OWNER any contracting information related to this Agreement that is in the custody or possession of the CONTRACTOR on request of the OWNER. On completion of this Agreement, CONTRACTOR will either provide at no cost to the OWNER all contracting information related to this Agreement that is in the custody or possession of the CONTRACTOR or preserve the contracting information related to this Agreement as provided by the records retention requirements applicable to the OWNER.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20___.

OWNER: El Paso Water Utilities
Public Service Board of
the City of El Paso, Texas

By _____
Purchasing Agent

Address for giving notices:

1154 Hawkins Boulevard
El Paso, Texas 79925

Date Signed _____

CONTRACTOR: _____

_____

_____

By _____

Name: _____

Title: _____

Address for giving notices:

_____

_____

Date Signed _____

Federal Tax I.D. No. _____

Agent for service or process:

_____

INSTRUCTIONS FOR EXECUTING CONTRACT

If the CONTRACTOR be a corporation, the following certificate should be executed:

I,_____, certify that I am the_____of the corporation named as CONTRACTOR hereinabove; that, _____ who signed the foregoing Contract on behalf of the CONTRACTOR was then,_____ of said Corporation; that said Contract was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporate powers.

_____

Corporate Seal

If the Contract is signed by the secretary of the corporation, the above certificate should be executed by some other officer of the corporation under the corporate seal. In lieu of the foregoing certificate, there may be attached to the Contract copies of so much of the records of the corporation as will show the official character and authority of the officers signing, duly certified by the Secretary or Assistant Secretary under the corporate seal to be true copies.

The full name and business address of the CONTRACTOR should be inserted and the Contract shall be signed with his or her official signature. Please have the name of the signing party or parties typewritten or printed under all signatures to the Contract.

If the CONTRACTOR should be operating as a partnership, each partner should sign the Contract. If the Contract is not signed by each partner, there should be attached to the Contract a duly authenticated Power of Attorney, or other appropriate resolution or document evidencing the signer's (signers') authority to sign such Contract for and in behalf of the partnership.

If the CONTRACTOR is an individual, the trade name (if the CONTRACTOR is operating under an assumed or trade name) should be indicated in the Contract and the Contract should be signed by such individual. If signed by one other than the CONTRACTOR, there should be attached to the Contract a duly authenticated Power of Attorney evidencing the signer's authority to execute such Contract for and in behalf of the CONTRACTOR.

CONTRACT SUBMITTAL CHECKLIST (The following items must be submitted within **10** calendar days of the Notice of Award unless stated otherwise in the General or Supplemental Conditions)	
	1. Executed Agreement
	2. Payment and Performance Bonds
	3. Insurance Certificate and Policies. Policies should be sent in electronic format to rguevara@epwater.org, with copy to becky.ramirez@hubinternational.com (Owner's Risk Manager) and to Purchasing.Info@epwater.org.
	4. If employees provided by leasing company, evidence of Texas State License and copy of their Worker's Compensation policy. If no leased employees will be used, provide a letter on Contractor's letterhead stating so.
	5. Certificate of Account Status (paid franchise taxes)
	6. Final/Updated (if applicable) Minority Certification and Participation Summary
	7. Preliminary Schedule of Values
	8. Preliminary Construction Schedule
	9. Schedule of Shop Drawings
	10. Trench Safety System (sealed by a Professional Engineer)
	11. Trench Safety Plan
	12. Stormwater Pollution Prevention Plan
	13. Traffic Control Plan
	14. Health and Safety Plan
	15.
	16.
	17.

- **Deliver all items to the OWNER's Purchasing Department**
- **Deliver electronic copies of item 7-14 to EPWater Project Manager**

TEXAS COMPTROLLER OF PUBLIC ACCOUNTS

SUSAN COMBS • COMPTROLLER • AUSTIN, TEXAS 78774

July 30, 2007

CERTIFICATE OF ACCOUNT STATUS

EXAMPLE

THE STATE OF TEXAS
COUNTY OF TRAVIS

I, Susan Combs, Comptroller of Public Accounts of the State of Texas, DO HEREBY CERTIFY that according to the records of this office

is, as of this date, in good standing with this office having no franchise tax reports or payments due at this time. This certificate is valid through the date that the next franchise tax report will be due November 15, 2007.

This certificate does not make a representation as to the status of the corporation's Certificate of Authority, if any, with the Texas Secretary of State.

This certificate is valid for the purpose of conversion when the converted entity is subject to franchise tax as required by law. This certificate is not valid for the purpose of dissolution, merger, or withdrawal.

GIVEN UNDER MY HAND AND
SEAL OF OFFICE in the City of
Austin, this 30th day of
July 2007 A.D.

Susan Combs
Texas Comptroller

Taxpayer number:
File number:

Form 05-304 (Rev. 02-03/14)

TEXAS STATUTORY PERFORMANCE BOND

(Penalty of this Bond must be 100% of Contract Amount)
Public Work – State of Texas

STATE OF TEXAS }
COUNTY OF_____ } BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ (hereinafter called the Principal), as Principal and _____, a corporation organized and existing under the laws of the State of _____, and whose principal office is located in the City of _____, and duly authorized to do business in the State of Texas (hereinafter called the Surety).

As Surety, are held firmly bound unto El Paso Water Utilities / Public Service Board, hereinafter called the Owner), in the penal sum of _____ Dollars ($_____) for the payment of which sum well and truly to be made, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20___, a copy of which is hereto attached and made a part hereof, for _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall faithfully perform the work in accordance with the plans, specifications and contract documents, then this obligation shall be void; otherwise to remain in full force and effect.

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

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20___.

_____

BY: _____
Principal

WITNESS:

_____ BY: _____
Surety

PAYMENT BOND

Public Work – State of Texas

STATE OF TEXAS }
COUNTY OF_____ } BOND NUMBER_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ of the City of _____, County of _____ and State of _____ (hereinafter called the Principal), and _____ authorized under the laws of the State of Texas to act as Surety on bonds for Principals (hereinafter called the Surety) are held firmly bound unto El Paso Water Utilities / Public Service Board, hereinafter called the Owner), in the penal sum of _____ Dollars ($_____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Owner, dated the _____ day of _____, 20___, for _____ _____ to which Contract is hereby referred to and made part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said Contract, then this obligation shall be void; otherwise to remain in full force and effect.

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

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, shall in anywise affect its obligation on this Bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ___ _____ day of _____, 20___.

_____

BY: _____
Principal

WITNESS:

_____ BY: _____
Surety

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
	PHONE (A/C, No, Ext): -	FAX (A/C, No):
	E-MAIL ADDRESS:	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A :	
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

Specimen/Sample Certificate Form

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
								$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐	N / A					E.L. EACH ACCIDENT	$
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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EL PASO WATER UTILITIES - PUBLIC SERVICE BOARD

ENGINEER'S CERTIFICATE OF SUBSTANTIAL COMPLETION

LA MESA SEWER RELIEF LINE, BID NO. 08-22

(TO BE FILLED OUT AND SUBMITTED BY ENGINEER)

The above-referenced project is substantially complete as of _____, 20____. Exceptions and/or items requiring additional work are indicated as follows:

The following documents are required contract submittals. Certificate of Final Completion and Final Payment will *not* be issued until all submittals listed below are received and correct (pursuant to contract requirements).	
1. Contractor's Waiver of Claim/Lien (GC 15.06.A.3)	
2. *Original* Consent of Surety to Final Payment (GC 15-06.A.2.a)	
3. Copy of Release to Contractor from EPWID#1 for Dewatering Fees, if applicable (SC 18.13.E)	
4. Completed Operations Insurance Letter (coverage for at least 2 years after final payment (GC 6.03.B.3 and SC-6.03.C.6)	
5. Delivery to the Engineer of all Operating & Maintenance Manuals, Guarantees, Certificates of Inspection, and Marked-up As-Builts or Record Drawings, if applicable (GC 10.07.D and GC 15.06.A.1)	
6. Final Report of Total Payments to subcontractors and suppliers	
7. Evidence of Payment of Final Water Bill and Return of Water Meter	
8. Ensure that *Certified* Payrolls for entire contract period for contractor and all subcontractors, including "Final" (SC 7.11.D.5) payroll from each, are entered in the Utility Automated Payroll Software program and ensure that all outstanding corrections and/or evidence of restitution have been submitted	
9. Warranty/Guarantee, if applicable	
10. NPDES Requirements (NOT), if applicable	

EPWU Engineering Division Manager

Project Engineer of Record

Date

Date

CONTRACTOR'S PROJECT CLOSE-OUT SUBMITTALS CHECKLIST

The following documents are required contract submittals for the Close-Out of this project. Contractor is contractually required to submit the following in one packet to the Engineer for review. Certificate of Final Completion and Final Payment will not be issued until all submittals listed below are received and correct.

REQUIRED ITEM	INCLUDED
1. Final Change Order (if applicable)	
2. Contractor's Waiver of Lien (GC 15.06.A.3)	
3. *Original* Consent of Surety to Final Payment (GC 15.06.A.2.b)	
4. Copy of Release to Contractor from EPWID#1 for Dewatering Fees, if applicable (SC 18.13.E)	
5. Completed Operations Insurance Letter (coverage for at least 2 years after final payment (GC 6.03.B.3 and SC 6.03.C.6)	
6. Transmittal Letter of Delivery to Engineer of all Operating & Maintenance Manuals, Guarantees, Certificates of Inspection, and Marked-up As-Builts or Record Drawings, if applicable (GC 10.07.D and GC 15.06.A.1)	
7. Final Report of Total Payments to Subcontractors and Suppliers	
8. Final Certified Payrolls (list 'Final' atop the payrolls) (SC 7.11.D.5). Submit any and all outstanding corrections and/or evidence of paid restitution.	
9. Warranty/Guarantee, if applicable	
10. NPDES Requirements (NOT), if applicable	
11. Paid Final Water Bill, Completed Meter and Removal Forms for Fire Hydrant Meter	

* All items must be submitted and received as a complete packet. An incomplete packet will be returned.

When all items have been received and approved by EPWater, the assigned Project Compliance Specialist will notify Project Engineer, Consultant Engineer, and Contractor. At that time, Contractor may submit the Final Pay Application to Consultant Engineer. Consultant Engineer will provide the Certificate of Final Completion and the approvable Final Pay Application to the Project Compliance Specialist for processing and closing of project.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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GUIDELINES FOR USE OF EJCDC® C-700, STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), is the foundation document for the EJCDC Construction Series. The General Conditions define the basic rights, responsibilities, risk allocations, and contractual relationship of the Owner and Contractor, and establish how the Contract is to be administered.

2.0 OTHER DOCUMENTS

EJCDC documents are intended to be used as a system and changes in one EJCDC document may require a corresponding change in other documents. Other EJCDC documents may also serve as a reference to provide insight or guidance for the preparation of this document.

These General Conditions have been prepared for use with either EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price), or EJCDC® C-525, Agreement Between Owner and Contractor for Construction Contract (Cost-Plus-Fee) (2018 Editions). The provisions of the General Conditions and the Agreement are interrelated, and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018).

The full EJCDC Construction series of documents is discussed in the EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018).

3.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

4.0 EDITING THIS DOCUMENT

Remove these Guidelines for Use. Some users may also prefer to remove the two cover pages.

Although it is permissible to revise the Standard EJCDC Text of C-700 (the content beginning at page 1 and continuing to the end), it is common practice to leave the Standard EJCDC Text of C-700 intact and unaltered, with modifications and supplementation of C-700's provisions set forth in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018). If the Standard Text itself is revised, the

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user must comply with the terms of the License Agreement, Paragraph 4.0, Document-Specific Provisions, concerning the tracking or highlighting of revisions. The following is a summary of the relevant License Agreement provisions:

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2. During the drafting or negotiating process for C-700, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus, if a draft or version of C-700 purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.
3. If C-700 has been revised or altered and is subsequently presented to third parties (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a version that shows the changes.
4. Once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The user may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any "Track Changes," redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

5.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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 document prepared by Contractor, in a form acceptable to Engineer, to request 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; 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; contesting an initial decision by Engineer concerning the

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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.

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.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. 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), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations 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 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. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

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recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *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.

24. *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.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *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.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *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.

30. *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.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *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.

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33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *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.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *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.

37. *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.

38. *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 or areas furnished by Owner which are designated for the use of Contractor.

39. *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.

40. *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.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *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 of such Work.

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43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *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.

50. *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.

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1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: 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*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. 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 Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means 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, means 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, means 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.

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F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. 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 Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), 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 signed 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 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

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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 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents 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 Electronic Documents.

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ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document 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 versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will 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.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. 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.

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, means 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, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer 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 or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

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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 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 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 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 in writing 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.

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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 notify Owner and Contractor in writing 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 versions, 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 precludes 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 30th 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 60th day after the day of Bid opening or the 30th 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 may 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

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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 must 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 will 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 Contract Price or 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. Such an adjustment will 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 third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

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D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price 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. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. 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, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses 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.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.

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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, or to improvements, structures, utilities, or similar facilities located at such adjacent lands 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 7.13, 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 in a court of competent jurisdiction; 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 will 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

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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 of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: 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 Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: 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;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

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

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;

2. is of such a nature as to require a change in the Drawings or Specifications;

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 whether it is necessary for Owner to obtain 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; 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. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, 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

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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 subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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;

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 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, then any such adjustment will 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, 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.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

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3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. 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 on the Drawings, or was not shown or indicated on the Drawings 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), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; 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

4. 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. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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or indicated on the Drawings, 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. 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;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. 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, then any such adjustment will 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, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; 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 on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. 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

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of construction to be employed by Contractor, and safety precautions and programs incident thereto;

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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, 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. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

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

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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, 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.I obligates 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 obligates 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 Contractor's obligations under the Contract. These bonds must 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 terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

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Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. 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.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

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. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages 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, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

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Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages 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, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. 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, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. 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.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain 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.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) 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 will be adjusted accordingly.

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L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, 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 and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, 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;

4. apply with respect to the performance of the Work, whether such performance is 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; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

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4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other 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 Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

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 advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. 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 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

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Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. 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, risks, 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 individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater 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.
2. None of the above waivers extends 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. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, 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, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

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6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 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 6.04 shall maintain such proceeds in a segregated account, and 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, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.

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B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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 must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, 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 equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) 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) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item 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 will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material 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 equipment or material under the circumstances described below. To the extent possible such requests must 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 equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

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3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

    a. will 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 the item specified; and

        3) be suited to the same use as the item 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 the item specified; and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. will 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.

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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 will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers 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 or Supplier 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 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. 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 or Suppliers 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 or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, 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 or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

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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 solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

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

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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 will be disclosed 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.

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7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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.

7.10 *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.

7.11 *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. 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 is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written 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 written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *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.

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7.13 *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.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. 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.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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).

E. 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.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that 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.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. 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.

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I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will 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.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) 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

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must 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.

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3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must 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.C.

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.C.

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. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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 will 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

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document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 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, will 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 or Sample will 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.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

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 Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

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d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

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 is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, 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.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

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. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

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9. Any correction of defective Work by Owner.

E. 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 will 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 will 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.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

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D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

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 third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. 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.

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E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

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 for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, 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. 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 will 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, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will 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 or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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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.

1. 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 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 8.03.B.

2. 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 Contractor.

C. 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 will 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.

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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 (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.

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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 10.07. 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 *Resident 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 the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

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

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

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E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *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.

10.06 *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.

10.07 *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, will 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 Contractor under 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 10.07 also apply to the Resident Project Representative, if any.

10.08 *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 of which Engineer has been informed.

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ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that 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, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in 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 11.05, (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 that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. 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 11.07 regarding change of Contract Price.

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B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. 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.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work 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 must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates 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.

11.06 *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.C.2.

11.07 *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 must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

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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);

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 11.07.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 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will 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 will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.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 5 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 will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will 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 of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

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11.08 *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 must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: 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.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must 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.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

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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.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *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 in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *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 are subject 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;

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; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

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 rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, 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

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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 will 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 will 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 will 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 will 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 will 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 will 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 will be incorporated in a Change Order or other written document 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

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2. When needed 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 will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, 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, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will 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 or retained for services specifically related to the Work.

5. Other costs consisting of 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, which are

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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.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

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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 does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

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

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

6. Expenses incurred in preparing and advancing Claims.

7. 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*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

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Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

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 for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will 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

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thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

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 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 with such procedures and programs 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 will 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.

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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 will 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 will 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 written 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,

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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 will 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 additional 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, 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,

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or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will 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 defective Work as required by Engineer, then Owner may, after 7 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 for 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.

2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

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establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) 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.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. 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.

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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;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from 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;

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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 has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other 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; or

l. Other items entitle 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 will 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 will be treated as an amount due as determined by Paragraph 15.01.D.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 7 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

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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 will 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 7 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

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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 15.03.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 6.04 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 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must 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.

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d. a list of all duly pending Change Proposals and Claims; 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 Final Application and Recommendation of Payment*: 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 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will 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. 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. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *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 and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

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appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

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 as a Claim, 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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect 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 adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, 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 from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, 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 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. 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.

E. 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.

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F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to 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 directly attributable to any such suspension. Any Change Proposal seeking such adjustments must 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) 10 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) written 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 7 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,

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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 will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 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 for any loss of anticipated profits or revenue, post-termination overhead costs, 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 7 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, 7 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

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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, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise 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;

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 requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

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

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18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will 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 of the Contract or 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 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party 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.

18.09 *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.

18.10 *Headings*

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

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SECTION 00800
SUPPLEMENTARY CONDITIONS
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INTRODUCTORY STATEMENT

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 Edition). All provisions which 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—for example, “Paragraph SC-4.05.”

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01.A.4 Add the following sentence to Paragraph 1.01.A.4:

The term “Offer” has the same meaning as the term “Bid”.

SC-1.01.A.5 Add the following sentence to Paragraph 1.01.A.5

The term “Offeror” has the same meaning as the term “Bidder”.

SC-1.01.A.10.e Add the following sentence to Paragraph 1.01.A.10.e

When submitted, a Claim must be signed by the Designated Authorized Representative.

SC-1.01.A.51 Add the following paragraph as reference 1.01.A.51:

Designated Authorized Representative — the representative authorized by the party filing the Claim to execute legally-binding agreements on behalf of that party. For Owner, the Designated Authorized Representative shall be the Chief Technical Officer, a Vice President, or President and Chief Executive Officer. For Contractor, the owner or its designee authorized pursuant to a power of attorney.

SC-1.01.A.52 Add the following paragraph as reference 1.01.A.52:

Health and Safety Plan — The part of the Contract Documents prepared by Contractor that describes safety procedures for the Work, identifies the Contractor’s safety representative required by Paragraph 6.14.A, and certifies that the Contractor’s employees have received or will receive training prior to the commencement of the Work on (1) basic health and safety issues; (2) the Health and Safety Plan; (3) the methods and techniques the Contractor will use on the Project; (4) procedures for Contractor entrance into and exit from the Site(s); and (5) informing Owner about any unique hazards presented by the Work or found as a result of the Work.

ARTICLE 2 - PRELIMINARY MATTERS

2.02 *Copies of Documents*

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

A. Owner shall provide to Contractor an electronic version of a fully executed copy of the contract documents.

2.03 *Before Starting Construction*

SC-2.03.B Add the following new paragraph immediately after Paragraph 2.03.A.3

B. *Health and Safety Plan*. Contractor shall submit a copy of Health and Safety Plan fifteen (15) days before mobilization. No Work shall proceed until the Owner has accepted the Health and Safety Plan.

2.04 *Pre-Construction Conference; Designation of Authorized Representatives*

SC-2.04.B Amend the first sentence of Paragraph 2.04.B to read as follows:

At or prior to this conference Owner and Contractor each shall designate, in writing by Owner and in writing by Contractor as a submittal, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract.

2.05 *Acceptance of Schedules*

SC-2.05.A Amend the first sentence of Paragraph 2.05.A to read as follows:

At the preconstruction conference indicated in Paragraph 2.04 or other time acceptable to the parties and Engineer, Engineer and Contractor will review the acceptability to Engineer, as provided below, of the schedules submitted in accordance with Paragraph 2.03.A.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

SC-3.01.C Delete Paragraph 3.01.C in its entirety.

SC-3.03.B.1 Add the following to new paragraph immediately after Paragraph 3.03.B:

SC-3.03.B.1 In resolving such conflicts, errors, and discrepancies, the Contract Documents will be given precedence in the following order: Change Orders, Field Orders, Addenda, Agreement, Performance Bond and Payment Bond, Supplementary Conditions, General Conditions, Specifications and Drawings. Numerical dimensions shown on the Drawings shall govern over scaled dimensions on the Drawings. This Paragraph SC-3.03.B.1 is not, however, a definitive enumeration of what comprises the "Contract Documents", which definitive enumeration is indicated in the Agreement.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

SC-4.01.A Amend the third sentence of paragraph 4.01.A by changing the word "60th" to read as "90th".

4.03 *Reference Points*

SC-4.03.A Amend the third sentence of Paragraph 4.03.A to read as follows:

Contractor shall report to Engineer when a reference point, including property boundary stakes or monuments, or an elevation benchmark, is disturbed, lost, or destroyed, or requires relocation because of necessary changes in grades or locations. Contractor shall be responsible for accurately replacing or relocating such reference points by a professional land surveyor licensed by and registered in the State of Texas.

4.05 *Delays in Contractor's Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

5. Weather-Related Delays

   a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Time, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

   b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:

      1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":

         i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 1-inch over a 24-hour period of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference).

         ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: wind chill factor equal or less than 25-degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: equal or greater than 110-degrees Fahrenheit.

         iii) Suspension (greater than 4 hours) or postponement of construction due to high wind advisory/warning that has

been issued and does not allow construction activities to continue.

2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by the El Paso International Airport weather monitoring station located at 6701 Convair Road in El Paso, Texas.

3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the Foreseeable Bad Weather Days table, Exhibit A included in SC-4.05.5.b.4.

4) Foreseeable Bad Weather Days:

   i) Foreseeable Bad Weather Days (Standard Baseline) is defined as the normal number of calendar days for each month during which construction activity exposed to weather conditions is expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.

   ii) The Foreseeable Bad Weather Days are as follows:

Exhibit A

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	3	3	2	3	4	8	8	6	5	3	4

5) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the Standard Baseline table in Exhibit A - Foreseeable Bad Weather Days will be considered as "abnormal weather conditions." The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor's then-current Progress Schedule's critical path for the Project.

ARTICLE 5 - SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

SC 5.01.D Add the following new paragraph immediately after paragraph 5.01.C:

SC-5.01.D All work associated with special provisions of easements shall be performed in accordance with the Contract Documents, unless the Contract Documents indicate that easement provisions govern. Should the actions of Contractor or Subcontractors or Suppliers cause the Work to be delayed to the point that the ending date of an easement is exceeded, Contractor shall reimburse Owner for additional costs required to extend the period of rights to the easement to complete the Work. Such delay shall be considered to be within the control of Contractor, in accordance with paragraph 4.05.

5.02 *Use of Site and Other Areas*

SC-5.02.E Add the following new paragraph immediately after Paragraph 5.02.D:

SC-5.02.E *Dust Control*

1. Contractor shall not cause or allow dust-generating operations, earthmoving operation, use of property, or other operation that results in fugitive dust emissions that exceed the limits prescribed by the authority having jurisdiction, in accordance with Texas Administrative Code Title 30, Part 1, Chapter 111, Subchapter A, Division 4, Rule 111.145. Contact City of El Paso Environmental Management Division at (915) 212-6000 for additional information regarding nuisance fugitive dust emissions from the Site.
2. Provide necessary equipment and materials to apply sufficient dust suppressants, properly clean all vehicle "track-out" areas on and adjacent to the Site, and provide adequate physical stabilizations of soils to comply with requirements of earthmoving permits and approved dust control plan or activities, if any.
3. Contractor shall pay fines and civil penalties imposed by authorities having jurisdiction and incurred by Owner because of Contractor's violation of earthmoving permits and dust control plans or activities.
4. Implement measures to control fugitive dust emissions from the Site in compliance with earthmoving permit and Laws and Regulations.

5.03 *Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Geotechnical Engineering Study, La Mesa Sanitary Sewer Relief Line	10-30-2020	Geotechnical Engineering, soils analysis

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
No drawings of existing physical conditions at or adjacent to the Site are known to Owner.		

G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at the El Paso Water Utilities' website:

www.epwater.org/business_center/purchasing_overview/bids

5.06 *Hazardous Environmental Conditions at Site*

SC-5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following in its place:

SC-5.06.A No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

SC-5-06.B Not Used.

ARTICLE 6 - BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01.A Delete Paragraph 6.01.A and 6.01.B in their entirety and insert the following in place of:

SC-6.01.A Except as provided in this Paragraph SC-6.01.A, Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. 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 or by the Contract Documents. Contractor shall also furnish such other bonds and certificates of insurance as are required by the Contract Documents. Certificates of insurance shall be in the form prescribed by the Contract Documents. Conditions under which a payment bond and/or a performance bond are required are as follows:

1. Payment Bond is required when the contract award is in excess of $50,000, and,
2. Performance Bond is required when the contract award is in excess of $100,000.

   (Note: If Contract value is in excess of $100,000, both bonds are required.)

SC-6.01.B Delete Paragraph 6.01.C in its entirety and insert the following in its place:

SC-6.01.B. All bonds shall be in the form prescribed by the Contract Documents, except as provided otherwise by Laws and Regulations including, but not limited to, Chapter 2253 of the Texas Government Code and Article 7.19-1 of the Texas Insurance Code. The bonds shall be executed by surety which shall be authorized and admitted to do business in the State of Texas, licensed by the State of Texas to issue surety bonds, and carry an A.M. Best Key rating of not less than A VIII. If the amount of the bond is in excess of ten percent of surety's capital and surplus, surety shall furnish to Owner a written certification that surety has insured that portion of surety's risk that exceeds ten percent of surety's capital and surplus with one or more reinsurers who are duly authorized, accredited or trusteed to do business in the State of Texas. If any portion of surety's obligation is reinsured, the amount reinsured shall not exceed ten percent of the reinsurer's capital and surplus. Surety and the reinsurer(s) shall furnish additional information and documentation, if any, required by Owner for Owner to determine whether surety or its reinsurer(s) comply with the requirements of this Paragraph SC-6.01.B. All bonds signed by an agent or attorney-in-fact shall 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 each bond.

6.02 *Insurance - General Provisions*

SC-6.02.G Delete Paragraph 6.02.G in its entirety and insert the following in its place:

SC-6.02.G Not Used.

6.03 *Contractor's Insurance*

SC-6.03.C Add the following immediately after Paragraph 6.03.C.1:

a. In addition to the individuals or entities specified above, include as additional insured, or loss payees as their interest may appear, the following:

1) None.

SC-6.03.C Add the following immediately after Paragraph 6.03.C.5:

SC-6.03.C.5 If, at any time, the required insurance policies are canceled, terminated, or modified so that the insurance is not in full force and effect as required under the Contract Documents, Owner may terminate for cause in accordance with Paragraph 16.02 of the General Conditions or, where possible, obtain insurance coverage equal to that required by the Contract Documents, the full cost of which will be charged to Contractor and deducted from any payments due Contractor.

a. Each Contractor shall require his subcontractors, at all tiers, to carry insurance coverages satisfactory to the Contractor and to provide evidence of such insurance as specified herein.

For purposes of this Bid, a Payment Bond will be required in an amount equal to the Bid Price and a Performance Bond will be required in a like amount.

SC-6.03.C.6 Add the following immediately after Paragraph 6.03.C.5:

SC-6.03.C.6 Contractor shall furnish to Owner and each other additional insured identified in the Contract Documents, to whom evidence of insurance has been issued, evidence satisfactory to Owner and other such additional insured of continuation of such insurance at final payment and for a duration thereafter equal to the correction period required under Paragraph 15.08.

SC-6.03.D Add the following new Paragraph 6.03.D:

D. 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 Employer's Liability Insurance:

   a. State: Statutory

   b. Employer's Liability: In accordance with Table 00800-1 of these Supplementary Conditions.

   c. *Terminology*: The following terms are not defined but when used in this Paragraph SC-6.03.D for workers' compensation insurance, and have the meanings indicated below:

      1) Certificate of coverage: A copy of a certificate of insurance, a certificate of authority to self-insure, issued by the Texas Workers Compensation Commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project. Contractor shall not execute TWCC Forms 83 or 85 or other form that precludes coverage under Contractor's policy if Contractor hires a Subcontractor or service provider without worker's compensation insurance.

      2) Duration of the Project: Is the time from the Contractor's beginning work on the Project until the time Contractor's and Subcontractor's obligations under the Contract Documents are fully complete.

      3) Contractor and Subcontractors (as indicated in Texas Labor Code §406.5096) includes all persons or entities performing all or part of the Work, regardless of whether that person or entity contracted directly with Contractor and regardless of whether that person or entity has employees. This includes, without limitation, independent contractors, Subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the Project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other services related to the Project. "Services" does not include activities unrelated to the Project, such as food or beverage vendors, office supply deliveries, and delivery of portable toilets or portable sanitary facilities.

   d. Comply with the following relative to Worker's Compensation and Employer's Liability insurance:

      1) *Waiver of Subrogation Relative to Workers' Compensation Insurance*: The policy shall be endorsed to provide that insurer waives any right of subrogation that insurer may

acquire against Owner, Engineer, Engineer's consultants, and others named in the Contract Documents as additional insured relative to Contractor's liability insurance, by reason of any payment made on account of injury, including death resulting therefrom, sustained by an employee of the insured.

2) If workers employed on the Work will be employed through a leasing company, furnish evidence of leasing company's State of Texas license and a copy of leasing company's Worker's Compensation policy insuring its employees (including sole proprietors, partners, supervisors, and executive officers) who perform work in the State of Texas.

3) Contractor shall furnish coverage, based on proper reporting of classification codes and payroll amounts and filing of coverage agreements, which meets the statutory requirements of Texas Labor Code §401.011(44) for all employees of Contractor performing the Work or services on the Project, for the duration of the Project.

4) Contractor shall furnish to Owner a certificate of coverage prior to being awarded the Contract.

5) If the coverage period shown on the Contractor's current certificate of coverage ends during the Contract Times, Contractor shall, prior to the end of the coverage period, furnish to Owner a new certificate of coverage indicating that coverage has been extended; furnish updated certificate of coverage throughout the duration of the Project.

6) *Subcontractors and Workers' Compensation and Employee Liability Insurance*:

   a) Contractor shall contractually require each Subcontractor to comply with the workers' compensation and employer's liability insurance requirements of the Contract Documents, to same extent such requirements are binding on Contractor.

   b) Obtain from each Subcontractor and furnish to Owner a certificate of coverage, prior to that Subcontractor beginning work on the Project. Not later than seven days after receipt by Contractor, furnish updated, valid certificate of coverage for each Subcontractor throughout the duration of the Project.

7) Retain Contractor's and Subcontractors' required certificates of coverage for the duration of the Project.

8) Contractor shall notify Owner in writing, in accordance with Paragraph 18.01, within 10 days after Contractor knew or should have known, of a change that materially affects the

provision of coverage of any entity performing work or services on the Contract.

9) Post at the Site a notice, in the text, form, and manner prescribed by the Texas Workers' Compensation Commission, informing persons performing work or services on the Contract that they are required to be covered, and stating how a person may verify coverage and report lack of coverage. Such posted notice does not satisfy other posting requirements imposed by the Act or other commission rules in the State of Texas. Such notice shall be printed with a title in text that is not less than 30-point bold type, with and other text in not less than 19-point non-bold type, and shall be in English, Spanish, and other languages, if any, common to the workers at the Site. Text for the notices shall be as indicated by the Commission on the sample notice without changes.

10) By executing the Agreement or furnishing or causing to be furnished a certificate of coverage, Contractor represents to Owner that employees of Contractor and Subcontractors who will perform work or services on the Contract will be covered by workers' compensation coverage for the duration of the Project; that such coverage will be based on proper reporting of classification codes and payroll amounts; and that coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Furnishing false or misleading information may subject Contractor to administrative penalties of authorities having jurisdiction, criminal penalties, civil penalties of authorities having jurisdiction, and other civil actions.

11) Contractor's failure to comply with one or more workers' compensation insurance provisions is a breach of the Contract by Contractor, entitling Owner to terminate for cause in accordance with Paragraph 16.03, unless otherwise provided by Laws and Regulations.

12) If any provision of the Workers' Compensation and Employee Liability insurance requirements of the Contract Documents, or its application to any person or circumstance, is held invalid, the invalidity does not affect other provisions or applications of this rule that can be given effect without the invalid provision or application, and to this end the provisions of this rule are declared to be severable.

2. Contractor's General Liability under Paragraphs 6.03 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of Contractor. General Liability coverage shall be for not less than the limits indicated in Table 00800-1 of these Supplementary Conditions.

3. Automobile Liability under Paragraph 6.03 of the General Conditions: Shall be for not less than the limits indicated in Table 00800-1 of these Supplementary Conditions.

4. Umbrella Liability:

   a. Contractor shall purchase and maintain, until final payment by Owner, Umbrella Liability Insurance. Such insurance shall insure against all claims in excess of the limits provided under workers' compensation and employer's liability, general liability insurance, and automobile liability policies. The limits of umbrella liability shall be in accordance with Table 00800-1 of these Supplementary Conditions.

5. *Table of Minimum Liability Insurance Coverage Limits*: The limits of liability insurance shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations. The limits of coverage under Paragraph 6.03 vary with the Contract Price as indicated in Table 00800-1:

6.

TABLE 00800-1				
LIMITS OF COVERAGE FOR ALL CONSTRUCTION PROJECTS	AUTOMOBILE (6.03) {Combined Single Limit} Per Accident	COMMERCIAL GENERAL LIABILITY (6.03) {Combined Single Limit} Per Project	WORKERS' COMPENSATION (6.03) {Employers' Liability} Per Accident Per Employee Per Disease	UMBRELLA (SC-6.03) {Combined Single Limit}
CONTRACT PRICE LESS THAN $100,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$300,000	$ 500,000 $ 500,000 $1,000,000	$ 500,000 $ 500,000 $ 500,000	Not applicable
CONTRACT PRICE EQUAL TO $100,000 OR GREATER AND LESS THAN $500,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$500,000	$ 500,000 $1,000,000 $1,000,000	$ 500,000 $ 500,000 $ 500,000	Not applicable
CONTRACT PRICE EQUAL TO OR GREATER THAN $500,000 AND UP TO AND INCLUDING $10,000,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$1,000,000	$1,000,000 $2,000,000 $2,000,000	$1,000,000 $1,000,000 $1,000,000	Not applicable
CONTRACT PRICE GREATER THAN $10,000,000: Occurrence *General Aggregate Products/Completed Operations Aggregate	$1,000,000	$1,000,000 $2,000,000 $2,000,000	$1,000,000 $1,000,000 $1,000.000	$5,000,000 $5,000,000

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04 in its entirety and insert the following in its place:

SC-6.04 *Property Insurance*

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of $250,000. This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, Engineer, and other individuals or entities identified herein, and the officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured, additional insured, or loss payee as their interest may appear;

a. In addition to the individuals or entities specified above, include as additional insured, or loss payees as their interest may appear, the following:

1) None.

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, materials and equipment in transit, and shall insure against at least the following perils or causes of loss:

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and

equipment have been included in an Application for Payment recommended by Engineer;

5. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph SC-6.04 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured or loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph SC-6.05.

D. The risk of loss within any deductible amount applicable to the policies of insurance purchased in accordance with this Paragraph SC-6.04 will be borne by Contractor, Subcontractors, or others suffering such loss.

6.05 *Property Losses; Subrogation*

SC-6.05 Delete Paragraph 6.05 in its entirety and insert the following in its place:

SC-6.05 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph SC-6.04 will protect Owner, Contractor, Subcontractors, Engineer, and all other individuals or entities identified in Paragraph SC-6.04 to be listed as insureds or additional insured or loss payees (and the officers, directors, members, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of loss or damage the insurers will have no rights of recovery against any of the insureds or additional insured or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents and other 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 Subcontractors, Engineer, and all other individuals or entities identified in Paragraph SC-6.04 to be listed as insureds or additional insureds or loss payees (and the officers, directors, members, partners, employees, agents and other 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 as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, Engineer, and the officers, directors, partners, employees, agents, and other 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 and 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 utilization 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 SC-6.05.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, Engineer, and the officers, directors, members, partners, employees, agents and other consultants and subcontractors of each and any of them.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7:00 a.m. to 4:00 p.m., Monday through Friday.

2. Owner's legal holidays are New Year's Day, Martin Luther King Holiday, Memorial Day, Juneteenth Holiday, Independence Day, Labor Day, Thanksgiving Day, Day After Thanksgiving, Christmas Day.

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as those taking place outside of the regular working hours defined above.

SC-7.03.E Add the following new paragraph immediately after paragraph 7.03.D:

SC-7.03.E for work financed in whole or in part by loans or grants from, or loans insured or guaranteed by, the United States or any agency or instrumentality thereof under any statute of the United States providing wage standards for such work, the provisions of the Contract Documents are subject to the applicable provisions of the Contract Work Hours and Safety Standards Act, 40 U.S.C.A. §327 et seq. Contractor and Subcontractor shall not require or allow any laborer or mechanic to be employed on the Work in excess of forty hours in any work week unless such laborer or mechanic receives compensation at a rate not less than one-and-one-half times his or her basis rate of pay for hours worked in excess of forty hours in such work week. Except as may be otherwise required by law, all claims pertaining to the classification of labor employed on the project shall be decided by Owner's governing body or other duly designated official.

7.07 *Concerning Subcontractors and Suppliers*

SC 7.07.N Add the following new paragraphs immediately after Paragraph 7.07.M:

SC-7.07.N Contractor shall perform, with his organization and with the assistance of workers under Contractor's immediate superintendence, not less than 40 percent of the Contract Price, exclusive of Work not commonly found in contracts for similar construction which require

specialized knowledge, craftsmanship, or equipment not ordinarily available in the organizations of contractors performing construction similar in nature to the Work. The value of the Work, exclusive of said items, will be interpreted as the value of labor, equipment, superintendence, and only those portions of materials and equipment incorporated into the Work that are related to the Contract's direct labor requirements.

7.09 *Permits*

SC-7.09.B Add the following new paragraph immediately after Paragraph 7.09.A:

SC-7.09.B TPDES Permit and Related Permits and Requirements

SC-7.09.B *TPDES Permit and Related Permits and Requirements*

1. This Work is subject to the Texas Pollution Discharge Elimination System (TPDES) permitting requirements for the installation and maintenance of temporary and permanent erosion and sediment controls and stormwater pollution prevention measures throughout the construction period.

2. Owner has prepared a Storm Water Pollution Prevention Plan (SWPPP). Requirements are in the Specifications.

3. Owner will file Owner's "Notice of Intent" and "Notice of Termination" to the Texas Commission on Environmental Quality (TCEQ). Owner will pay the TPDES stormwater application fee.

4. Contractor's responsibilities are as follows:

   a. Prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to filing the "Notice of Intent" form.

   b. File a "Notice of Intent" form with the TCEQ not less than two days prior to starting construction activity at the Site and pay for the permit. Form is available from Owner or on the Internet at http://www.tceq.state.tx.us/assets/public/permitting/waterquality/forms/20022.pdf. The form shall be mailed or submitted online to the TCEQ. For online submittal, the web address is https://www.tceq.state.tx.us/steers/. If Contractor has not already registered to use the TCEQ online application submittal service, it typically takes approximately ten working days to receive a user name and password from TCEQ. No extension of the Contract Times will be granted for this activity. The mailing address is:

      Texas Commission on Environmental Quality
      Storm Water & General Permits Team; MC-228
      P.O. Box 13087

c. Submit to Owner a copy of the completed "Notice of Intent" form as submitted to TCEQ.

d. Obtain a signed certification statement from Subcontractors responsible for implementing erosion and sediment controls. Such statements shall indicate that Subcontractor understands the permit requirements. Such certified statement forms shall be attached to and become part of the SWPPP.

e. Post a notice near the main entrance of the Site with the following information.

1) TPDES permit number for the Work or a copy of the Notice of Intent if a permit number has not yet been assigned,

2) Name and telephone number of Contractor's local contact person,

3) Brief description of the Work, and

4) Location of the SWPPP if the Site is inactive or does not have an on-site location to store the SWPPP.

f. When posting this information near a main entrance is infeasible due to safety concerns, the notice shall be posted in a local public building. If the Work is linear (pipeline, highway, or other linear construction), the notice shall be placed in a publicly accessible location near where construction is actively underway and moved as necessary. For linear Work, multiple postings of the information may be required by Owner.

g. Maintain erosion and sediment controls and other protective measures identified in the SWPPP in effective operating condition.

h. Perform inspections every 14 days and after every half-inch of rainfall, noting the following observations on an inspection form furnished by Owner:

1) Locations of discharges of sediment or other pollutants from the Site.

2) Locations of storm water, erosion, sedimentation controls that require maintenance.

3) Locations of storm water, erosion, sedimentation controls that are not performing, failing to operate, or are inadequate.

4) Locations where additional storm water, erosion, sedimentation controls are needed.

i. Continuously maintain at the site a copy of the SWPPP (with all updates, as described below) and inspection reports.

Update the SWPPP as necessary to comply with TPDES permitting requirements, which includes noting changes in erosion and sedimentation controls and other best management practices that are part of the SWPPP and which may be necessary due to the results of inspection reports.

File a "Notice of Termination" with TCEQ within 30 days of final stabilization of all areas of disturbed soil and disturbed soil cover. Form is available from Owner or on the Internet at http://www.tceq.state.tx.us/assets/public/permitting/waterquality/forms/20023.pdf.

j. "Notice of Termination" shall be mailed to:

Texas Commission on Environmental Quality
Storm Water & General Permits Team; MC-228
P.O. Box 13087
Austin, TX 78711-3087
(512) 239-4671

k. Upon completion of the Work, submit to Owner TPDES records.

7.10 *Taxes*

SC-7.10.B Add the following new paragraph immediately after Paragraph 7.10.A:

SC-7.10.B Exemption from State of Texas sales tax may be obtained on materials and equipment incorporated into the Work and supplies required to perform the Work. Owner is an organization which qualifies for such exemption pursuant to provisions of Article 20.04(F) of the Texas Limited Sales, Excise and Use Tax Act. In accordance with Texas House Bill 11, Contractor may purchase, materials, equipment, and supplies consumed in the performance of the Work by issuing to Suppliers an exemption certificate in lieu of the tax, said exemption certificate complying with State of Texas Comptroller's Ruling No. 95-0.07. Such exemption certificate(s) issued by Contractor in lieu of the sales will be subject to the provisions of the State of Texas Comptroller's Ruling No. 95-0.09 as amended to be effective October 2, 1968. Exemption certificate may be obtained from Owner's Purchasing Agent.

7.11 *Laws and Regulations*

SC-7.11.C Remove last sentence on Paragraph 7.11.C. "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 written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim in its entirety."

SC-7.11.D Add the following new paragraph immediately after Paragraph 7.11.C:

SC-7.11.D *Minimum Prevailing Wage Rates*

1. Wage rates paid to workers employed in performing the Work at the Site, including Contractor and Subcontractor employees, shall not be less than the following:

   a. Minimum prevailing wage rates of the City of El Paso, Texas. The prevailing minimum wage rate determination, comprised of 7 pages, applicable to the Project is part of the Contract Documents.

   b. Federal Davis-Bacon minimum prevailing wage rates, comprised of 7 pages, which is part of the Contract Documents. Comply with 40 USC 31 and 29 CFR Parts 1, 3, and 5.

   When a labor classification is included in both the City of El Paso and federal minimum prevailing wage rate determinations, Contractor shall pay the higher of the two minimum prevailing wage rates for that labor classification. Contractor shall be aware of changes in the minimum prevailing wage rates applicable to the Work and shall pay the minimum prevailing wages at no additional cost to Owner. Contractor shall post the schedule of classifications and wage rates at conspicuous locations at the Site. Such schedule shall also show deductions, if any, required by law to be made from wages earned by laborers and mechanics engaged on the Work.

2. Contractor shall give preference to hiring qualified local residents for work as laborers and mechanics on the Project. Employees shall be bona-fide residents of the United States of America.

3. Contractor and Subcontractors shall pay each of their employees, engaged in the Work in full, not less often than once per week, and without deductions or subsequent rebates on any account, except for deductions mandated by law.

4. Contractor, and Subcontractors shall keep a complete payroll record indicating the name, address, and Social Security number of each employee engaged in the Work, together with the classification of work in which the employee is engaged, the hourly wage rate paid, number of deductions made from such wages and total amount paid to the employee. Submit to Owner one copy of each such payroll record, for the period for which payment is requested, with each Application for Payment. Each payroll record shall bear the affidavit of the employer certifying, under oath, that such payroll is a true, complete, and accurate report of the wages earned and paid to each employee engaged in the Work, that no deductions from any wages due each employee, except as set out on the payroll, have been directly or indirectly made, and that no rebates, either direct or indirect, have been nor will be required of an employee.

5. Certified payroll reports shall indicate for each worker whether the labor performed was performed under the Building, Heavy, Highway, or Water and Sewer Line Prevailing Wage Rate scale. Certified payroll reports shall be submitted for the complete Contract period and, for weeks where no Work was performed, negative reports shall be submitted, marked "No Work Performed". Clearly mark "FIRST PAYROLL" on the first payroll submitted, and clearly mark "FINAL PAYROLL" on the last payroll submitted for the Contract.

6. Apprentices will be work only under a bona fide apprenticeship program registered with the U.S. Department of Labor. A copy of such program shall be submitted to Owner, together with current certification or evidence of registration with the U.S. Department of Labor, Bureau of Apprenticeship and Training, for each apprentice engaged in the Work.

7. Contractor shall, when requested by Owner, submit additional certification and documentation (such as copy of cancelled check or an Employee Restitution Receipt Form) indicating that employee has received back compensation due.

8. Contractor and Subcontractors in violation of this provision are subject to a penalty of $60 per day for each worker that is paid less than the rate specified in the Project's applicable prevailing wage rates.

SC-7.11.E Add the following new paragraph immediately after Paragraph 7.11.D:

SC-7.11.E *Mandatory for Building Projects with Contract Price Over $100,000 – Apprentices*

1. In accordance with resolution adopted on November 9, 1999 by the El Paso City Council regarding apprenticeship programs on City projects, Contractor and Subcontractors shall:

   a. Sponsor or participate in a U.S. Department of Labor (DOL) certified apprenticeship program for all job classifications utilized on the Project which are apprenticeable occupations as defined by DOL regulations and which appear on the "schedule of categories of apprentices" kept on file in the office of the City of El Paso's Capital Improvement Department;

   b. Pay wage rates and benefits in accordance with the applicable apprenticeship program;

   c. Comply with the DOL requirements for ratio of apprentices to journeymen;

   d. Hire registered apprentices enrolled in a DOL-certified apprenticeship program in all job classifications utilized on the Project which are apprenticeable occupations as defined by DOL

regulations and which are designated for City projects on the "schedule of categories of apprentices" kept on file in the office of the City of El Paso Director of Capital Improvement Department. Helpers, unregistered apprentices, and other substitutes shall not perform apprentice-level work in place of registered apprentices.

2. Contractor shall post the applicable prevailing wage rate schedules at the Site in a prominent location readily accessible to the workers throughout the Project. Contractor shall post a notice to be provided by the City of El Paso Director of Capital Improvement Department regarding prevailing wage rates and the City of El Paso's apprenticeship program, in English and in Spanish, which shall be posted at the Site with the prevailing wage rates.

3. Contractor shall submit to Owner the names of all apprentices employed on the Work; verification of their status as registered apprentices; documentation regarding apprentice's proper wage rates; and documentation regarding journeyman-to-apprentice ratios for each trade as determined by the apprenticeship program.

4. No worker shall be discharged by Contractor or Subcontractor, or in any other manner be discriminated against, because such worker has filed an inquiry or complaint, instituted legal or equitable proceeding, or has testified or is about to testify in such proceeding under, or relating to, the apprenticeship program.

5. Contractor and Subcontractors shall allow immediate entry into all areas of the Site by Owner or Owner's agents and representatives displaying or presenting proper identification to Contractor's Site superintendent or their representative. Owner or their representative may visit the Site to determine adherence to these requirements, Contractor and Subcontractors shall allow access to personnel and apprenticeship program books and records and access to employees to be interviewed at random, at any time and for any reasonable duration to determine compliance with these provisions, including the apprenticeship programs.

6. Owner reserves the right to terminate for cause in accordance with Paragraph 16.02 if Contractor or Subcontractor breaches any of provisions of the Contract Documents regarding apprenticeship programs.

7. Apprentices shall be allowed to work at less than the predetermined rate for the work they performed when apprentice(s) are employed pursuant to, and individually-registered in, a bona-fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration Bureau; or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program but who has been certified by the Bureau of Apprenticeship & Training, or a state apprenticeship agency where appropriate, to be eligible for probationary employment as an apprentice.

8. The allowable ratio of apprentices to journeymen on the Work in any craft classification shall not be greater than the ratio permitted to the Contractor or Subcontractor as to the entire work force under the registered program. Any apprentice performing the Work in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the City Wage Scale for the work actually performed.

9. Contractor shall submit to Owner's Contract Administrator with sufficient information, which demonstrates that apprentices are employed pursuant to, and individually registered in, a bona-fide apprenticeship program. A copy of such program shall be submitted to Owner as well as the current certification for each individual assigned to the Work and appearing on the payrolls for that Contract. Every apprentice must be paid at not less than the rates specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the City wage determination. Workers not registered in a bona-fide apprenticeship program shall be paid not less than the applicable wage rate in the City Wage Scale for the classification of work actually performed. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the program does not specify fringe benefits, they must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Bureau of Apprenticeship & Training determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with that determination.

10. If the Bureau of Apprenticeship & Training or a state apprenticeship agency recognized by the Bureau, withdraws approval of a program, Contractor shall not employ apprentices at less than the applicable City rate for the work performed until an acceptable program is approved and evidence provided.

7.13 *Safety and Protection*

SC-7.13.B.1 Add following new subparagraph immediately after Paragraph 7.13.B:

SC-7.13.B.1 Contractor's safety representative shall be identified in submittal to Owner and Engineer for acceptance prior to commencement of Work at the Site. Name and qualifications of proposed substitute, if any, shall be submitted to Owner for acceptance.

SC-7.13.G Replace the word "safety program" with "Health and Safety Plan."

SC-7-13.H Replace the word "safety program" with "Health and Safety Plan."

SC-7.13.K Add the following new subparagraphs immediately after Paragraph 6.13.J:

SC-7.13.K Within twenty-four hours of receiving a request from Owner, Contractor shall furnish to Owner documentation substantiating representations made in the Health and Safety Plan including, but not limited to, that each of the Contractor's employees has received training on the Health and Safety Plan as well as any other training necessary to competently effectuate the Health and Safety Plan. Select Contractor project management staff shall complete the El Paso Water Online Contractor Orientation, (Course 19ELPWC) available at www.hasc.com, before start of construction.

SC-7.13.L Owner maintains a drug and alcohol-free workplace in accordance with the Drug-free Workplace Act of 1988. Contractor shall publicize a statement notifying employees on the Work that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the workplace, including at the Site.

SC-7.13.M Owner maintains specific rules regarding smoking on Owner's properties. Contractor shall adhere to such rules at the Site.

SC-7.13.N Owner maintains specific rules regarding firearms and Contractor shall adhere to such rules at the Site.

SC-7.13.O Owner maintains specific rules regarding traffic safety on Owner's properties. Contractor shall adhere to such rules at the Site.

7.16 *Submittals*

SC-7.16.G Add the following new paragraphs immediately after Paragraph 7.16.F:

SC-7.16.G For each Contractor submittal required under the Contract Documents, Engineer will review one initial submittal and one resubmittal at no cost to Contractor. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, Samples, or other submittals requiring approval or acceptance, and Contractor shall reimburse Owner for Engineer's charges for labor and expenses for such time.

SC-7.16.H In the event that Contractor requests a change of a previously approved or previously accepted submittal, Contractor shall reimburse Owner for Engineer's charges for Engineer's review time unless the need for such change is beyond Contractor's control.

ARTICLE 9 - OWNER'S RESPONSIBILITIES

9.11 *Evidence of Financial Arrangements*

SC-9.11 Delete Paragraph 9.11 in its entirety and insert the following in its place:

SC-9.11 Not used

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Add a new paragraph immediately after Paragraph 10.03.B that is to read as follows:

SC-10.03.C Resident Project Representative (RPR) will be Owner's and/or Engineer's employee or agent at the Site, will act as directed by and under the supervision of Owner and/or Engineer, and will confer with Owner and/or Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Owner and/or Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner with the knowledge of and under the direction of Engineer.

1. Duties and Responsibilities to RPR:

    a. Schedules: Review the Progress Schedule, Schedule of Submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

    b. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

    c. *Safety Compliance*: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

    d. Liaison:

        1) Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent, and assist in providing understanding of the intent of the Contract Documents.

        2) Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

3) Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

e. Shop Drawings and Samples:

1) Record date of receipt of Shop Drawings and Samples that are received at the Site.

2) Receive Samples that are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

3) Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by Engineer.

f. Review of Work, Rejection of Defective Work, Inspections, and Tests:

1) Conduct observations of the Work in progress on the Site to assist Engineer in determining if the Work is, in general, proceeding in accordance with the Contract Documents.

2) Report to Engineer when RPR believes that any Work is unsatisfactory, faulty, or defective or does not conform generally to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.

3) Verify that tests, equipment, and systems startups, and operating and maintenance training are conducted in the presence of appropriate Owner's personnel and that Contractor maintains adequate records thereof; and observe, record, and report to Engineer appropriate details relative to the test procedures and startups.

4) Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

5) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.

g. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

h. Modifications: Consider and evaluate Contractor's suggestions for modifications to Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor decisions issued by Engineer.

i. Records:

1) Maintain at the Site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, and reproductions of original Contract Documents including all Addenda, Change Orders, Field Orders, work change directives, additional Drawings issued subsequent to the execution of the Agreement, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project-related documents.

2) Keep a record recording Contractor's hours on the Site, weather conditions, data relative to questions on Change Orders or changed conditions, list of visitors to the Site, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

3) Record names, addresses, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

4) The RPR shall prepare a daily report or keep a daily diary that records weather conditions, the contractor's daily work activities, and specific observations. The RPR shall regularly photograph the work. The RPR shall maintain orderly files of correspondence, reports of job conferences, change orders, field orders, work change directives, daily reports and/or diaries, photographs and other similar documents. These documents shall be filed in Consultant's project record file. They shall be made available to Owner upon receipt of request from Owner and, if available, uploaded to cloud-based construction management software applications (or any other construction management software applications made available).

j. Reports:

1) Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and Schedule of Submittals.

2) Consult with Engineer in advance of scheduled major tests, inspections, or start of important phases of the Work.

3) Prepare draft of proposed Change Orders, obtaining backup documents from Contractor, and provide recommendations to Engineer regarding Change Orders and Field Orders.

4) Report immediately to Engineer and Owner upon the occurrence of any Site accident, any Hazardous Environmental Condition, emergencies, or acts of God endangering the Work, or property damage by fire or other cause.

k. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission, and submit recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

l. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals, and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.

m. Completion:

1) Before Engineer issues a certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

2) Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public authorities having jurisdiction over the Work.

3) Conduct final inspection in the company of Engineer, Owner, and Contractor, and prepare a final list of items to be completed or corrected.

4) Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance of the Work.

2. The RPR shall not:

a. Authorize any deviation from the Contract Documents or substitution of materials or equipment, including "or equal" items.

b. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

c. Undertake any of the responsibilities of Contractor, Subcontractors, or Contractor's superintendent.

d. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction, unless such advice or directions are specifically required by the Contract Documents.

e. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.

f. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

g. Authorize Owner to occupy the Project in whole or in part.

h. Authorize the use of any Unmanned Aircraft System (UAS or drone) without prior consent and authorization from Owner.

i. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

ARTICLE 11 - CHANGES TO THE CONTRACT

11.02 *Change Orders*

SC-11.02.C Add the following new paragraph immediately after Paragraph 11.02.B:

SC-11.02.C Change Order requests shall be accompanied by Contractor's time impact analysis for the Change Order request to be reviewed.

11.03 *Work Change Directives*

SC-11.03.A.1 Add the following new subparagraphs immediately after Paragraph 11.03.A:

SC-11.03.A.1 Without invalidating the Contract, OWNER may, by written Work Change Directive, using the Cost of the Work method, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Amount and Contract Time being adjusted as necessary. "Cost of the Work" means a basis of payment for the direct performance of Work with payment based on the actual cost of the labor, equipment and materials furnished and consideration for overhead and profit as set forth in Section 13.01, below. A Work Change Directive shall be used in the absence of complete and prompt agreement on the terms of a Change Order. Where practicable, any items of Work that may be agreed upon, prior to the performance of Work under this Section, will be included in a separate Change Order.

SC-11.03.A.2 If the Work Change Directive provides for an adjustment to the Contract Amount, the adjustment shall be based on the method provided in paragraph 13.01. The estimated value of the work issued under each individual Work Change Directive shall not exceed five (5) percent of the original contract price.

SC-11.03.A.3 A Work Change Directive shall be effective immediately and shall be recorded later by preparation and execution of an appropriate Change Order.

SC-11.03.A.4 Upon receipt of a Work Change Directive, CONTRACTOR shall promptly proceed with the change in the Work involved, provided, prior to the commencement of any Work under this section, the CONTRACTOR must submit its proposed Work plan, anticipated schedule, and a list of its work force and equipment proposed to be used in the Work for OWNER'S approval. Upon such approval, CONTRACTOR must promptly commence and make continuous progress in the Work. The OWNER reserves the right to withhold payment for low production or lack of progress.

11.07 *Change of Contract Price*

SC-11.07.C.2.c Delete 27 percent and replace with 25 percent.

SC-11.11 Add the following new paragraph immediately after Paragraph 11.10:

SC-11.11 Liquidated Damages:

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.

B. Liquidated Damages Relative to Milestones: Owner and Contractor recognize that time is of the essence as stated in Paragraph SC-11.11.A above and that Owner will suffer financial loss if the Work is not performed to achieve the Milestone within the time limits specified for Milestones in Specification Section 01010, Summary of Work, plus any changes thereof allowed in accordance with Article 11 of the General Conditions. Owner and Contractor also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration preceding the actual loss suffered by Owner if the Work is not performed to achieve the Milestone on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner $_____ for each day that expires after the time specified in the Contract Documents for achieving the Milestones (adjusted for changes thereof, if any, made in accordance with Article 11 of the General Conditions) until the Work is sufficiently complete to achieve the associated Milestone. In the event of multiple Milestones, Contractor is liable for liquidated damages for each missed Milestone, but liquidated damages for more than one missed Milestone will not be cumulative (e.g., maximum daily rate of liquidated damages under this Paragraph SC-11.11.B is $____ per day).

C. Liquidated Damages Relative to Substantial Completion and Readiness for Final Payment: Owner and Contractor recognize that time is of the essence as stated in Paragraph SC-11.11.A above and that Owner will suffer financial loss if the Work is not completed within the Contract Times for Substantial Completion, completion and readiness for final payment, and Milestones (if any) specified in the Contract Documents, plus any changes thereof allowed in accordance with Article 11 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration preceding 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), Contractor shall pay Owner $900.00 for each day that expires after the time specified in the Contract Documents for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $640.00 for each day that expires after

the time specified in the Contract Documents for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 12 - CLAIMS

SC-12.01.B Add the following immediately after Paragraph 12.01.B:

SC-12.01.B.1 In the event a delay Claim arises due to Standby Equipment Costs, Contractor must notify, through an RFI, Engineer and Owner no later than 72-hours in advance of such claim at which time Contractor, Engineer and Owner will evaluate the progress of the Work and determine if no other Work can be performed. Once that determination has been made, official response from Engineer and Owner acknowledging the delay at which point the Standby time will commence.

ARTICLE 13 - COST OF WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

SC-13.01 In Paragraph SC-13.01.A, delete the last sentence and replace with:

The provisions of this Paragraph 13.01 are used for **three** distinct purposes:

SC-13.01 Add the following new paragraph immediately after Paragraph 13.01.A.2:

SC-13.01.A.3 If neither of the methods defined in paragraphs 13.01.A.1 nor 13.01.A.2 can be agreed upon before a change in the Work is commenced which will result in an adjustment in the Contract Amount, then the change in the Work will be performed by Work Change Directive, using the Cost of the Work method, and payment will be made as described below:

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of RS Means Heavy Construction Costs. Equipment or machinery with a value of less than $1,000 will be considered small tools.

SC-13.01 Add the following new subparagraphs immediately after Paragraph 13.01.B.5.i:

SC-13.01.B.5.j Standby Equipment Costs: Standby equipment time will not exceed more than eight (8) hours per twenty-four (24) hour day, forty (40) hours per week, and one hundred seventy-six (176) hours per month Payment for standby equipment will be made in accordance with 13.01.B.5.c except that:

SC-13.01.B.5.j.(1) Contractor-Owned Equipment. For Contractor-owned machinery, trucks, power tools, or other equipment, Standby will be paid at 50% (to account for the removal of operating costs) of the rate established under 13.01.B.5.c.(2).

Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

SC-13.01.B.5.j.(2) Equipment Not Owned by the Contractor. For equipment rented from a third party not owned by the Contractor, Standby will be paid at the invoice daily rental rate, excluding operating cost, which includes fuel, lubricants, repairs, and servicing. The Owner reserves the right to limit the daily standby rate to comparable rates established under 13.01.B.5.c.(2). Standby will be paid for equipment operators when included on the invoice and equipment operators are actually on standby. Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than $1,000.

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

   a. 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 **25** percent from the estimated quantity of such item indicated in the Agreement; and

   b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK

SC-14.02 Add the following new subparagraphs to Paragraph 14.02.B:

1. Re-Inspection Fees

    a. Pay fees to the Owner to compensate the Owner's Representative as identified in Article 10 of the General Conditions for reinspection of the Work required by the failure of the Work to comply with the claims of status of completion made by the Contractor.

    b. Owner may withhold the amount of these fees from the Contractor's final payment as stipulated in Article 15 of the General Conditions.

    c. Cost for additional inspections will be billed to the Owner by the Owner's Representative for the actual hours required for the reinspection and preparation of related reports at a rate of $180.00/hour.

2. Fees for Inspections Outside Normal Working Hours

    a. If some or all of the Work has been determined to be required to be performed outside the normal working hours and or beyond the standard 40-hour work week as defined by Article 7 of the General Conditions, the Contractor is required to:

        1) Notify the Owner in advance of their intent to work outside regular working hours or working days;

        2) Determine if the work to be performed will require observation by the Owner's Representative or other agencies prior to covering the Work;

    b. Pay fees to the Owner to compensate the Owner's Representative as identified in Article 10 of the General Conditions for inspection of the Work performed outside normal working hours;

    c. Owner may withhold the amount of these fees from the Contractor's final payment as stipulated in Article 15 of the General Conditions.

    d. Cost for inspections will be billed to the Owner by the Owner's Representative for the actual hours required for the inspection and or observation of the work and preparation of related reports at a rate of $180.00/hour.

ARTICLE 15 - PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 *Progress Payments*

SC-15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

SC-15.01.D.1 Thirty days after presentation of the Application for Payment to Owner by Contractor with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 15.01.E) become due, and when due will be paid by Owner to Contractor.

SC-15.01.D.1.(a) The thirty days' time will commence immediately after Owner acknowledges receipt of the Application for Payment from Contractor.

SC-15.01.D.1.(b) If upon review of the Application for Payment the Owner encounters any error (including, but not limited to, clerical, grammatical, informational, etc…) or lacks documentation as required by the Contract Documents, the Application for Payment will be deemed incomplete and the Owner will reject the Application for Payment. The Owner will immediately notify the Contractor and Engineer the reason for the rejection of the Application for Payment. The thirty days' time allotted will reset and recommence once a corrected Application for Payment is received by Owner from Contractor.

SC-15.01.F Add the following new Paragraph 15.01.F:

SC-15.01.F For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

15.03 *Substantial Completion*

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

15.06 *Final Payment*

SC-15.06.B Delete the first sentence and replace with the following:

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 10 days after receipt of the final Application for Payment, indicate in writing **to Owner** Engineer's recommendation of final payment and **inform Contractor Final Payment Application is ready to be submitted to Owner for payment**.

SC-15.06.E Delete Paragraph 15.06.E in its entirety and replace with the following:

E. Final Payment Becomes Due: Upon receipt from **Contractor of an approvable Application for Final Payment** and accompanying documentation, Owner shall set-off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including, but not limited to, set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Contractor. An approvable application for final payment shall include Contractor and Subcontractor payrolls for the period covered in the final Application for Payment; an update of progress against the accepted Progress Schedule; and such other items as the Engineer may reasonably require.

15.08 *Correction Period*

SC-15.08 Add the following new Paragraph 15.08.G:

G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be one year after Substantial Completion.

ARTICLE 16 - SUSPENSION OF WORK AND TERMINATION

16.02 *Owner May Terminate for Cause*

SC-16.02.A.5 Add the following new paragraphs immediately after Paragraph 16.02.A.4:

SC-16.02.A.5 If the Contract or any part thereof is sublet or assigned to another party by Contractor, without the written consent of Owner and surety that issued the performance bond and payment bond.

ARTICLE 17 - FINAL RESOLUTIONS OF DISPUTES

SC-17.02 Add the following new paragraphs immediately after Paragraph 17.01:

17.02 *Arbitration*

A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of $100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate 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 arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will 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.

C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.

E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.

F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a

waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.

G. No arbitration arising out of or relating to the Contract will 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 will allow complete relief to be afforded among those who are already parties to the arbitration;

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;

3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and

4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.

H. 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.

I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

17.03 *Attorneys' Fees*

SC-17.03 Add the following new paragraph immediately after Paragraph 17.02:

17.03 *Attorneys' Fees*

A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18 - MISCELLANEOUS

SC-18.11 Add the following new paragraph immediately after Paragraph 18.10:

SC-18.11 *Use of Unmanned Aerial/Aircraft Systems (UAS)*

A. The use of an UAS on all Owner property is strictly prohibited unless the following are met:

1. The proposed flight is solely for purposes of Utility operations
2. Authorization has been received from Owner to operate on or above Owner property
3. All of the necessary federal, state, and local approvals have been acquired
4. Compliance with federal, state, and local laws are met
5. The Contractor has filed a flight plan with AirMap or any other Owner-approved Unmanned Aircraft System Traffic Management (UTM) ecosystem for uncontrolled operations that is separate from, but complementary to, the FAA's Air Traffic Management (ATM) system prior to flight operations
6. The proposed flight does not photograph, video, or monitor in any way areas where members of the general public would have a reasonable expectation of privacy

B. Any person or vendor, including but not limited to third parties seeking to operate a UAS on or above Owner property or at an Owner-sponsored event must submit a completed UAS (Drone) Use Approval Form to the Owner at least 10 business days in advance.

C. The applicable Owner Representative (PM) who is an employee of the Owner will process the request for UAS use. After review and assessment of the request, the requestor will be notified of a decision or receive a request of additional information within five (5) business days.

1. If approved, the PM will email a copy of the approved form to the Owner's Utility Security and Emergency Response (USER) Coordinator.

D. The USER Coordinator will advise El Paso Police Department (EPPD) and Airport Operations (if the UAS will be near or entering restricted flight space) of UAS activity for situational awareness.

1. If approved, a copy of the UAS Approval Form must be in possession by the pilot in command at all times during flight activity and must be presented to any EPWater official or representative with control or jurisdiction over the activity, upon request.

E. The USER Coordinator will maintain a copy of the UAS (Drone) Use Approval Forms.

F. Exceptions and Deviations

1. Contractors will be limited to the collection, use, retention, or dissemination of images and videos of Owner's critical infrastructure acquired by UAS.

2. The Owner's Utility Chief Operations Officer may waive the 10-business day notification requirement as deemed necessary.

3. UAS operators must only conduct approved flights under favorable conditions. If unforeseen circumstances develop (e.g. adverse weather) under which operations cannot be conducted in a safe manner, the operation must postpone the flight and request an extension from the Project Manager within 3 business days of the original date. If the extension is not requested within three (3) business days, a new UAS Approval Form must then be completed and submitted.

4. The use of UAS for hobby or recreational use on all EPWater property is always strictly prohibited. Using a UAS to take photographs or videos for personal use is considered recreational use and is prohibited.

SC-18.12 Add the following new paragraph immediately after Paragraph 18.10:

SC-18.12 *Working Near Utilities*

A. *Construction Adjacent to High Voltage Electric Lines:*

1. Contractor shall comply with Laws and Regulations, including U.S. Occupational Safety and Health Administration (OSHA) safety standards regarding construction adjacent to high-voltage electric lines and facilities, including trenching, crane operations, final grading, and other associated work which may result in impaired clearance to an existing electrical line or facility.

2. It is a violation of OSHA regulations to operate equipment in a manner that results in persons or equipment coming within ten feet of an energized electric line. Such Laws and Regulations are enforced by OSHA, and violators are subject to penalties imposed under federal Law.

3. Texas Law prohibits function or activity where it is possible for the person performing such activity to come within six feet of an overhead power line.

4. Contractor shall notify the El Paso Electric Company in writing of Contractor's anticipated dates and times when such work is scheduled. Written notification of El Paso Electric Company shall be at least six working days prior to each scheduled activity near El Paso Electric Company power lines and facilities, so that El Paso Electric Company personnel can coordinate with Contractor to provide proper clearance of energized electric lines. No other type of notice will be acceptable and work shall not be initiated until proper clearance and arrangements are confirmed by Contractor with the El Paso Electric Company.

5. Submit written notification to:

   Raul Guel, Distribution Engineering Design
   El Paso Electric Company
   P. O. Box 982
   El Paso, Texas 79960
   (915) 543-4015

6. Simultaneously submit one copy of the notification letter to Owner's Contracts Development Manager and retain copy in Contractor's file.

7. Below are selected El Paso Electric Company phone numbers:

Claims Director	(915) 543-4158
Trouble & Emergencies	(915) 543-5720
Field Services/Power Consultants	(915) 543-2255
Cable Locator	(915) 543-4051

B. Construction Adjacent to Gas Lines: Contractor shall comply with the One-Call Notification and System Protection Program developed by Southern Union Gas Company, and with State Damage Prevention Law, HB 2295:

☐ Contact Texas Gas Co. not less than two working days before commencing excavation activities

☐ Determine exact location of all underground utilities by safe and acceptable means

☐ Employ the two-foot safety rule

☐ Utilize "Professional Excavator's Manual" as revised

SC-18.13 Add the following new paragraph immediately after Paragraph 18.12:

SC-18.13 *EPCWID #1 Dewatering Permit Requirements*

A. A license agreement for "Discharge of Foreign Waters into District Drain Ditches" is required between Owner and the El Paso County Water Improvement District (EPCWID) #1 before Contractor may begin dewatering operations. Contractor shall be a co-licensee with Owner. Terms and conditions of the license agreement are applicable to Contractor, who will function, relative to the license EPCWID #1 agreement only, as an agent of Owner, by preparing an approvable plan and carrying out the terms of the plan and the EPCWID #1 license agreement. Contractor shall, to the extent permitted by law, defend and hold harmless Owner, its employees, insurers and agents; and the Engineer and Engineer's consultants, and their employees, officers, insurers, and agents from claims arising out of damages caused by actions, or inactions, of Contractor or as a result of EPCWID's exercise of any or all options given it under the license agreement.

B. Contractor shall prepare and submit to Engineer a "Dewatering Plan", a "Final Schedule for Dewatering", and an estimate of fees due EPCWID #1. Submit "Dewatering Plan" within 15 days of the date that the Contract Times commence running. "Dewatering Plan" shall include the estimated quantities of dewatering for each month of the Contract, the design capacity and number of pumps to be used by Contractor, and the point(s) of dewatering pump discharge. Engineer will review for acceptability the "Dewatering Plan" and, when the submittal is acceptable to Engineer, Engineer will forward it, through Owner, to EPCWID #1. Prepare and submit the submittal and schedule the Work so that Owner receives the "Dewatering Plan" submittal not less than 14 days before the start of dewatering operations at the Site. Owner will pay the fees as estimated in the "Dewatering Plan".

C. Estimate the dewatering fees on the following basis:

1. Drain maintenance fee of $1,000 for each six months a discharge occurs. Fee for maintenance is non-refundable. Subsequent semi-annual fee payments are payable to Owner by Contractor in advance of each respective six-month period.

2. Dewatering fee at the rate of $150 per acre-foot of water discharged. For a month in which the discharge exceeds the amount estimated under the "Dewatering Plan", Contractor shall advise Owner and Engineer in writing, that such excess fees may be due so that the Owner may consider its liability for, and take action to make payment of, such excess fees to EPCWID #1. Owner will pay such excess fees only to the extent that such fees are incurred through no fault of Contractor.

D. Samples of the discharge water shall be tested by a qualified testing laboratory hired by Contractor. Submit to Engineer results of total dissolved solids (TDS) tests, which Engineer will transmit to EPCWID #1. Submit to Engineer and Owner monthly reports of discharge quantities and quality (TDS and sulfates), which specific requirements may be more particularly indicated in the Specifications and in the associated discharge permit; Engineer will transmit monthly reports to EPCWID #1.

E. Contractor will not be eligible for final payment by Owner until final dewatering fees based upon actual quantities and damages (if any) due EPCWID # 1 have been paid and payment due from Contractor has been made. A "Final Release" from EPCWID # 1 shall be received by Owner as a condition precedent to Contractor applies for final payment.

SC-18.14 Add the following new paragraph(s) immediately after Paragraph 18.12:

SC-18.14 *Railroads*

A. *Union Pacific Railroad Company Contractor's Right of Entry*: Contractor shall acquire and pay all associated expenses (including railroad company inspection fees), Contractor's right-of-entry from, the Union Pacific Railroad Company. Refer to Union Pacific Railroad's "Contractor's Right of Entry" form and its exhibits, included in the Project Manual following these Supplementary Conditions. Right-of-entry requirements are interrelated with the railroad liability insurance requirements and both are Contractor's cost responsibility. Contractor shall acquire railroad company's authorization prior to commencing work in the railroad right-of-way. Submit to Owner and Engineer executed copies of Contractor's "Right of Entry" form prior to commencing work on railroad property.

B. *Railroad Liability Insurance*: Contractor shall obtain Railroad Liability Insurance in the form and amount required by the Union Pacific Railroad Company. Such insurance shall be in effect and cover all necessary work and operations required of Contractor within the railroad right-of-way. Refer to the railroad's "Contractor's Right of Entry" form and its exhibits. Insurance requirements of this paragraph are interrelated with the right-of-entry requirements in Paragraph SC-18.14.A and is Contractor's responsibility.

C. For clarification of the requirements and costs of railroad permits and insurance, contact:

Manager Utilities Work
Union Pacific Railroad Company
Contracts and Real Estate Department
1400 Douglas Street STOP 1690
Omaha, Nebraska 68179-1690
Phone: (402) 544-8620
Fax: (402) 501-1519

SC-18.15 Add the following new paragraph immediately after Paragraph 18.14:

SC-18.15 Texas Water Development Board (TWDB) contracts require that all Contractors and subcontractors maintain project costs in a manner consistent with generally accepted accounting principles. All records are to be maintained for a minimum period of three years and beyond that minimum period if litigation, a claim, or an audit is in process, or if audit findings are not resolved. The three-year period will begin upon completion of final payment.

***** END OF SUPPLEMENTARY CONDITIONS *****

REQUIRED WORKERS' COMPENSATION COVERAGE

(Title must be 30 point font & bold lettering)

(19 point font from here on)

The law requires that each person working on this site or providing services related to this construction project must be covered by workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee."

"Call the Texas Workers' Compensation Commission at 512-440-3789 to receive information on the legal requirements for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage."

* The above sign to be provided in both English and Spanish without any additional words or changes and shall be posted at the Project Site. Refer to Paragraph SC-6.03.D.1 of the Supplementary Conditions (Document 00800 in the Contract Documents).

Contractor Insurance Check List

Project				
Bid Number				
Job Description				
Contract Cost				
Final Completion				
Contractor				
Engineer				
Insurance Agent				
Performance & Payment Bonds	**Bond Limit :**			
	Surety:			
	Certified copy of Authority to Act		☐ Yes	☐ No
	Countersigned by Agent		☐ Yes	☐ No
Workers' Compensation	**Insurance Company / A.M. Best Rating**			
	Policy Period	From:	To:	
	Employers Liability Limits required			
	Employers Liability Limits provided			
	Waiver of Subrogation		☐ Yes	☐ No
	30 Days Notice of Cancellation		☐ Yes	☐ No
	If Employees Leased:			
	– Employee Leasing Company		☐ Yes	☐ No
	– Texas State License		☐ Yes	☐ No
	– Copy of Workers' Compensation Policy		☐ Yes	☐ No
Commercial General Liability	**Insurance Company / A.M. Best Rating**			
	Policy Period	From:	To:	
	Limits required			
	Limits provided			
	Products/Completed Operations – 2 Years after completion		☐ Yes	☐ No
	Personal Injury – Employment Exclusion deleted		☐ Yes	☐ No
	Contractual		☐ Yes	☐ No
	Broad Form Property Damage		☐ Yes	☐ No
	XCU		☐ Yes	☐ No
	Additional Insured		☐ Yes	☐ No
	30 Days Notice of Cancellation		☐ Yes	☐ No
Business Auto	**Insurance Company / A.M. Best Rating**			
	Policy Period	From:	To:	
	Limits required			
	Limits provided			
	Symbol 1		☐ Yes	☐ No
	Additional Insured		☐ Yes	☐ No
	30 Days Notice of Cancellation		☐ Yes	☐ No
Umbrella	**Insurance Company / A.M. Best Rating**			
	Policy Period	From:	To:	
	Limits required			
	Limits provided			
	Follow Form – Additional Insureds and Waivers of Subrogation		☐ Yes	☐ No
	30 Days Notice of Cancellation		☐ Yes	☐ No

Contractor Insurance Check List

Builder's Risk/Installation Floater	**Insurance Company / A.M. Best Rating**			
	Policy Period	From:	To:	
	Limits required			
	Limits provided			
	Deductible			
	– All Risk		☐ Yes	☐ No
	– Flood		☐ Yes	☐ No
	– Earthquake		☐ Yes	☐ No
	– Testing		☐ Yes	☐ No
	– Offsite Storage		☐ Yes	☐ No
	– Transit		☐ Yes	☐ No
	– Additional Interests		☐ Yes	☐ No
	– Waiver of Subrogation		☐ Yes	☐ No
Boiler & Machinery	– **If required**			
Certificates of Insurance	– **All coverages**			
Certified Copies of Policies	– **All policies**			
Requirements	**Additional Insureds – Owner, Engineer and Engineer's Consultants on:**			
	– CGL		☐ Yes	☐ No
	– Auto		☐ Yes	☐ No
	– Umbrella		☐ Yes	☐ No
	Waiver of Subrogation (Workers' Compensation) – Owner, Engineer and Engineer's Consultants		☐ Yes	☐ No
	30 Days Notice of Cancellation to Owner & Engineer by Certified Mail on:			
	– WC		☐ Yes	☐ No
	– CGL		☐ Yes	☐ No
	– Auto		☐ Yes	☐ No
	– Umbrella		☐ Yes	☐ No
	– Builder's Risk		☐ Yes	☐ No
	– B&M (If required)		☐ Yes	☐ No
	Builder's Risk/Installation Floater – Include Additional Insured interests & Waiver of Subrogation in favor of :			
	– Owner		☐ Yes	☐ No
	– Contactor		☐ Yes	☐ No
	– Subcontractor		☐ Yes	☐ No
	– Engineer		☐ Yes	☐ No
	– Engineer's Consultants		☐ Yes	☐ No
Other				

Notice: This checklist is provided as a guide only and is not a substitute for the insurance requirements included in the EPWU contract. EPWU strongly advises contractors provide a copy of the contract insurance requirements to their insurance agents, consultants and providers to ensure their insurance coverages meet the contract insurance requirements.

APPLICATION FOR PAYMENT NO. ___

Check One: PARTIAL ____ FINAL ____

OWNER: El Paso Water Utilities
Public Service Board
1154 Hawkins Blvd.
El Paso, Texas 79925

PROJECT: _____

BID NO.: _____

PURCHASE ORDER: _____

ORIGINAL CONTRACT AMOUNT: $_____

NET CHANGE BY CHANGE ORDERS: $_____

CONTRACT SUM TO DATE: $_____

THROUGH CHANGE ORDER NO. _____

NOTICE TO PROCEED: _____

CONTRACT TIME: _____ Calendar Days

REVISED: _____ Calendar Days

ELAPSED TIME: _____ Calendar Days

CONTRACT COMPLETION DATE: _____

REVISED COMPLETION DATE: _____

SUBSTANTIAL COMPLETION DATE: _____

FINAL COMPLETION DATE: _____

WORK COMPLETED: $ _____ *See Attached Pay Item Schedule*

MATERIALS STORED: $ _____ *Attach Invoices, Documentation*

TOTAL EARNED: $_____

LESS RETAINED: ____ % - $ _____

LESS PREVIOUS PAYMENTS: - $ _____

NET DUE THIS ESTIMATE: $ _____ *Attach Certified Payroll LCP Tracker Report this Period*

CONTRACTOR'S CERTIFICATION:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of work done under the contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with work covered by prior applications for payment; and (2) title to all 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, claims, security interests and encumbrances (except such as covered by bond acceptable to OWNER).

CONTRACTOR: _____ By: _____

Title: _____

Date: _____

RECOMMENDED:

CONSTRUCTION MANAGER: _____

By: _____

Date: _____

APPROVED:

By: _____

Title: _____

Date: _____

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing
Contractor's signed Certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NUMBER:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	BALANCE TO FINISH (C-G)	RETAINAGE
			FROM PREVIOUS APPLICATION (D+E)	THIS PERIOD					

PAY APPLICATION CHECK LIST

REQUIRED ITEM/PROCESS	INCLUDED
1. Three original Pay Applications are included/submitted and are on the standard EPWU form (CM 11343A in the bid document).	
2. Substantial and Final Completion due dates listed match the bid document.	
3. Project adjustments (e.g., price, quantity, time, etc.) reflected in Work Directives or unexecuted Change Orders are NOT included in the Pay Application.	
4. If charges for paid materials are included in the Pay Application, include paid invoices for the stored material.	
5. Updated Construction Schedule is included	
6. Payrolls to be entered in the Utility Automated Payroll Software program, which include the following:	
a. For 'Negative Payrolls' during week(s) of no work performed, state, "No Work Performed" on those payrolls.	
b. If apprentices are used, submit DOL certification, apprenticeship programs and training periods for each apprentice. (Note: The DOL certificates expire every 90 days and must be renewed and current. If a current DOL certificate is not submitted for each apprentice, the employee must be paid the Journeyman's rate).	

If all requirements are not met or included in the Pay Application package, the Pay Application will be returned for revisions, and payment will not be made until EPW's receipt of 'approvable' Pay Application.

SECTION 00840

GENERAL WAGE REQUIREMENTS

The following Wage Decision(s) will be utilized for this project. **A Wage Rate for one or both Wage Decisions for a construction type(s) included in the Contract Document, the Contractor is required to indicate on his Certified Payroll Reports, the Wage Decision description/construction type under which the works being reported. The wage decision(s) is/are attached to this form.**

CONSTRUCTION TYPE / WAGE DECISION	PORTION OF PROJECT FOR WHICH THE WAGE DECISION IS APPLICABLE
City of El Paso 2016 Paving and Street Construction, Dirt Work, Heavy Construction, Pipeline Work, Highway Wage Rates Adopted by El Paso City Council February 28, 2017	Entire project

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

AGREEMENT BETWEEN GENERAL CONTRACTOR AND SUBCONTRACTOR
TO PROVIDE WORKERS' COMPENSATION INSURANCE

Notice of Agreement

The undersigned General Contractor and the undersigned Subcontractor hereby agree that the General Contractor ☐ will withhold ☐ will not withhold the cost of workers' compensation insurance coverage from the Subcontractor's contract price and that, for the purpose of providing workers' compensation insurance coverage, the General Contractor will be the employer of the Subcontractor and the Subcontractor's employees. This agreement makes the General Contractor the employer of the Subcontractor and the Subcontractor's employees only for the purposes of workers' compensation laws of Texas and for no other purpose.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT):

_____

_____

_____

ESTIMATED NUMBER OF EMPLOYEES AFFECTED: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.
Texas Labor Code, Texas Workers' Compensation Act, Section 406.123

General Contractor's Affirmation

_____
Federal Tax I.D. Number

If the General Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the General Contractor to file this form with the new insurance carrier.

_____ _____ _____
Signature of General Contractor Date Address (Street)

_____ _____
Printed Name of General Contractor Address (City, State, Zip)

Subcontractor's Affirmation

_____
Federal Tax I.D. Number

_____ _____ _____
Signature of Subcontractor Date Address (Street)

_____ _____
Printed Name of Subcontractor Address (City, State, Zip)

The General Contractor should retain the original. Legible copies of this agreement should be filed with the general contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. If the General Contractor is certified self-insured, a copy should be filed with the Division's Self-Insurance Regulation service area. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Subcontractor must also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

CHECK ☐ BOX OF STATEMENT THAT APPLIES

☐ AGREEMENT BETWEEN MOTOR CARRIER AND OWNER OPERATOR TO PROVIDE WORKERS' COMPENSATION INSURANCE COVERAGE

Notice of Declaration

The undersigned Motor Carrier and the undersigned Owner Operator agree that the Motor Carrier will provide workers' compensation insurance coverage to the Owner Operator and the Owner Operator's employees. The Motor Carrier ☐ will deduct ☐ will not deduct the actual premiums, based on payroll, that are paid or incurred by the Motor Carrier for coverage from the contract price or any other amount owed to the Owner Operator by the Motor Carrier.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

ESTIMATED NUMBER OF WORKERS AFFECTED: _____
Texas Labor Code, Texas Workers' Compensation Act, Section 406.123.

☐ AGREEMENT TO REQUIRE OWNER OPERATOR TO ACT AS EMPLOYER

Notice of Agreement

The undersigned Motor Carrier and the undersigned Owner Operator agree that the Owner Operator assumes the responsibilities of an employer for the performance of work.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

ESTIMATED NUMBER OF WORKERS AFFECTED: _____
Texas Labor Code, Texas Workers' Compensation Act, Section 406.122.

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

MOTOR CARRIER'S AFFIRMATION

If the Motor Carrier's workers' compensation carrier changes during the effective period of coverage, it is advisable for the Motor Carrier to file this form with the new insurance carrier.

_____
Federal Tax I.D. Number

_____ _____ _____
Signature of Motor Carrier | Date | Address (Street)

_____ _____
Printed Name of Motor Carrier | Address (City, State, Zip)

OWNER OPERATOR'S AFFIRMATION

_____
Federal Tax I.D. Number

_____ _____ _____
Signature of Motor Owner Operator | Date | Address (Street)

_____ _____
Printed Name of Owner Operator | Address (City, State, Zip)

The Motor Carrier should retain the original. Legible copies of this agreement must be filed with the Motor Carrier's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Owner Operator must also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

Texas Workers' Compensation Act, Texas Labor Code, Section 406.141(2) defines "independent contractor" as follows: (2) "Independent contractor" means a person who contracts to perform work or provide a service for the benefit of another and who: (A) is paid by the job, not by the hour or some other time-measured basis; (B) is free to hire as many helpers as he desires and to determine what each helper will be paid; and (C) is free to work for other contractors, or to send helpers to work for other contractors, while under contract to the hiring employer.

CHECK ☐ BOX OF STATEMENT THAT APPLIES

☐ JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

Notice of Declaration

The undersigned Hiring Contractor and the undersigned Independent Contractor hereby declare that the Independent Contractor meets the qualifications of an Independent Contractor under Texas Workers' Compensation Act, Texas Labor Code, Section 406.141, that the Independent Contractor is not an employee of the Hiring Contractor, and that:

(A) the Independent Contractor and the Independent Contractor's employees shall not be entitled to workers' compensation coverage from the Hiring Contractor; and
(B) the Hiring Contractor's workers' compensation insurance carrier shall not require premiums to be paid by the Hiring Contractor for coverage of the Independent Contractor or the Independent Contractor's employees, helpers, or subcontractors.

THIS DECLARATION TAKES EFFECT UPON RECEIPT BY THE TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION. THIS DECLARATION APPLIES TO ALL HIRING AGREEMENTS EXECUTED BY THE HIRING CONTRACTOR AND THE INDEPENDENT CONTRACTOR DURING THE YEAR AFTER THIS DECLARATION IS FILED UNLESS A SUBSEQUENT HIRING AGREEMENT IS MADE TO WHICH THE DECLARATION DOES NOT APPLY. IN THE EVENT THAT A HIRING AGREEMENT TO WHICH THIS DECLARATION DOES NOT APPLY IS MADE, THE HIRING CONTRACTOR AND INDEPENDENT CONTRACTOR SHALL SO NOTIFY THE TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION AND THE HIRING CONTRACTOR'S WORKERS' COMPENSATION INSURANCE CARRIER (IF ANY) IN WRITING WITHIN 10 DAYS AFTER THE NON-APPLYING AGREEMENT IS MADE. ONCE THIS AGREEMENT IS SIGNED, THE SUBCONTRACTOR AND THE SUBCONTRACTOR'S EMPLOYEES SHALL NOT BE ENTITLED TO WORKERS' COMPENSATION COVERAGE FROM THE HIRING CONTRACTOR UNLESS A SUBSEQUENT WRITTEN AGREEMENT IS EXECUTED, AND FILED ACCORDING TO WORKERS' COMPENSATION RULES, EXPRESSLY STATING THAT THIS AGREEMENT DOES NOT APPLY.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.145.

☐ AGREEMENT TO ESTABLISH EMPLOYER-EMPLOYEE RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

Notice of Agreement

The undersigned Hiring Contractor and the undersigned Independent Contractor hereby agree that the Hiring Contractor ☐ will withhold ☐ will not withhold the cost of workers' compensation insurance coverage from the Independent Contractor's contract price and that the Hiring Contractor will purchase workers' compensation insurance coverage for the Independent Contractor and the Independent Contractor's employees. Once this agreement is signed, for the purpose of providing workers' compensation insurance coverage, the Hiring Contractor will be the employer of the Independent Contractor and the Independent Contractor's employees. This agreement makes the Hiring Contractor the employer of the Independent Contractor and the Independent Contractor's employees only for the purposes of workers' compensation laws of Texas and for no other purpose.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT):

_____

_____

_____

ESTIMATED NUMBER OF EMPLOYEES AFFECTED: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.144.

Hiring Contractor's Affirmation

If the Hiring Contractor's workers' compensation carrier change during the effective period of coverage, it is advisable for the Hiring Contractor to file this form with the new insurance carrier.

_____ Federal Tax I.D. Number

_____ Signature of Hiring Contractor

_____ Date

_____ Address (Street)

_____ Printed Name of the Hiring Contractor

_____ Address (City, State, Zip)

Independent Contractor's Affirmation

_____ Federal Tax I.D. Number

_____ Signature of Independent Contractor

_____ Date

_____ Address (Street)

_____ Printed Name of the Independent Contractor

_____ Address (City, State, Zip)

The Hiring Contractor should retain the original. Legible copies of this agreement should be filed with the hiring contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Independent Contractor should also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

EXCEPTION TO APPLICATION OF JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

NOTICE OF DECLARATION

The undersigned Hiring Contractor and the undersigned Independent Contractor declare that the Joint Agreement to Affirm Independent Relationship for Certain Building and Construction Workers (as recorded on DWC FORM-83) does not apply to the subsequent hiring agreement between the Hiring Contractor and Independent Contractor. Nothing in this declaration otherwise nullifies the Joint Agreement to Affirm Independent Relationship for Certain Building and Construction Workers as it applies to other hiring agreements made during the term of the joint agreement.

DATE OF JOINT AGREEMENT TO AFFIRM INDEPENDENT RELATIONSHIP FOR CERTAIN BUILDING AND CONSTRUCTION WORKERS

DATE OF SUBSEQUENT HIRING AGREEMENT TO WHICH THIS FORM APPLIES

LOCATION OF SPECIFIC JOB SITES NOT AFFECTED BY JOINT AGREEMENT: _____

NAME OF HIRING CONTRACTOR

NAME OF INDEPENDENT CONTRACTOR

Texas Labor Code, Texas Workers' Compensation Act, Section 406.145.

Hiring Contractor's Affirmation

If the Hiring Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the Hiring Contractor to file this form with the new insurance carrier.

Federal Tax I.D. Number

Signature of Hiring Contractor

Date

Address (Street)

Printed Name of Hiring Contractor

Address (City, State, Zip)

Independent Contractor's Affirmation

Federal Tax I.D. Number

Signature of Independent Contractor

Date

Address (Street)

Printed Name of Independent Contractor

Address (City, State, Zip)

The Hiring Contractor should retain the original. Legible copies of this agreement should be filed with the hiring contractor's workers' compensation insurance carrier and the Division within 10 days of the date of execution. An agreement is not considered filed if it is illegible or incomplete. Filing may be accomplished by mail or facsimile transmission. The Independent Contractor should also retain a copy of the agreement.

Division Date Stamp Here

TEXAS DEPARTMENT OF INSURANCE, DIVISION OF WORKERS' COMPENSATION
7551 Metro Center Drive, Suite 100
Austin, Texas 78744

If you are not certain whether all parties meet the requirements for entering into this agreement, you may wish to consult an attorney.

Texas Workers' Compensation Act, Texas Labor Code, Section 406.121(2) defines "independent contractor" as follows: (1) "Independent contractor" means a person who contracts to perform work or provide a service for the benefit of another and who ordinarily: (A) acts as the employer of any employee of the contractor by paying wages, directing activities, and performing other similar functions characteristic of an employer-employee relationship; (B) is free to determine the manner in which the work or service is performed, including the hours of labor of or method of payment to any employee; (C) is required to furnish or have his employees, if any, furnish necessary tools, supplies, or materials to perform the work or service; and (D) possesses the skills required for the specific work or service.

AGREEMENT BETWEEN GENERAL CONTRACTOR AND SUBCONTRACTOR TO ESTABLISH INDEPENDENT RELATIONSHIP

Notice of Agreement

The undersigned General Contractor and the undersigned Subcontractor hereby declare that:

(A) the Subcontractor meets the qualifications of an Independent Contractor under Texas Workers' Compensation Act, Texas Labor Code, Section 406.121;
(B) the Subcontractor is operating as an independent contractor as that term is defined under Section 406.121 of the Act;
(C) the Subcontractor assumes the responsibilities of an employer for the performance of work; and
(D) the Subcontractor and the Subcontractor's employees are not employees of the General Contractor for purposes of the Act.

TERM (DATES) OF AGREEMENT: FROM: _____

TO: _____

_____ Name of General Contractor

_____ Name of Subcontractor

LOCATION OF EACH AFFECTED JOB SITE (OR STATE WHETHER THIS IS A BLANKET AGREEMENT):

_____

_____

_____

Estimated number of employees affected: _____

THIS AGREEMENT SHALL TAKE EFFECT NO SOONER THAN THE DATE IT IS SIGNED.

Texas Labor Code, Texas Workers' Compensation Act, Section 406.122 .

General Contractor's Affirmation

If the General Contractor's workers' compensation carrier changes during the effective period of coverage, it is advisable for the General Contractor to file this form with the new insurance carrier.

_____ Federal Tax I. D. Number

_____ Signature of General Contractor _____ Date _____ Address (Street)

_____ Printed Name of General Contractor _____ Address (City, State, Zip)

Subcontractor's Affirmation

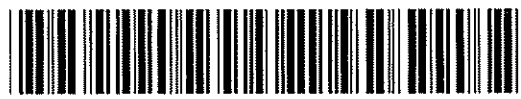
_____ Federal Tax I. D. Number

_____ Signature of Subcontractor _____ Date _____ Address (Street)

_____ Printed Name of Subcontractor _____ Address (City, State, Zip)

The General Contractor should retain the original. The Subcontractor should also retain a copy of the agreement. This form is not required to be filed with the Division, and may be provided to the insurance carrier.

Division Data Stamp Here



CITY OF EL PASO, TEXAS

2016 Paving and Street Construction, Dirt Work, Heavy Construction, Pipeline Work, Highway Wage Rates

CLASSIFICATION	BASE WAGE PER HOUR	TOTAL FRINGES PER HOUR	HOURLY PREVAILING WAGE RATE	(8 HOURS) PER DIEM WAGE RATE
Asphalt Distributor Operator	14.64	0.00	14.64	117.12
Asphalt Paving Machine Operator / Spreader Box Operator	14.20	0.00	14.20	113.60
Asphalt Raker	12.99	0.00	12.99	103.92
Backhoe Operator	15.95	0.00	15.95	127.60
Concrete Finishers (Paving and Structures)	13.88	0.00	13.88	111.04
Crane Operator, Lattice Boom	17.50	0.00	17.50	140.00
Crane Operator, Hydraulic	17.50	0.00	17.50	140.00
Electrician	23.09	0.00	23.09	184.72
Excavator Operator	16.10	0.00	16.10	128.80
Form Builder/Setter	15.02	0.00	15.02	120.16
Form Setter (Paving and Curb)	12.86	0.00	12.86	102.88
Front End Loader	14.82	0.00	14.82	118.56
Laborer	11.89	0.00	11.89	95.12
Laborer (Skilled)(Utility)	13.65	0.00	13.65	109.20
Mechanic	17.50	0.00	17.50	140.00
Motor Grader Operator (Fine)	17.54	0.00	17.54	140.32
Pipe Layer	12.94	0.00	12.94	103.52
Reinforcing Steel Setter (Structure and Paving)/ Structural Steel Worker	17.00	0.00	17.00	136.00
Rock Mason	12.00	0.00	12.00	96.00
Roller Operator	13.70	0.00	13.70	109.60
Servicer	14.33	0.00	14.33	114.64
Truck Driver, Single Axle	13.19	0.00	13.19	105.52
Truck Driver, Tandem Axle	15.32	0.02	15.34	122.72
Utility Operator Grade 1	12.00	0.00	12.00	96.00
Utility Operator Grade 2	13.95	0.00	13.95	111.60
Welder, Certified/ Structural Steel Welder	13.83	0.00	13.83	110.64

All persons required to be licensed or certified must meet those qualifications to be paid the associated rate.

February 28, 2017

2016 HEAVY / HIGHWAY DEFINITIONS

1	**Asphalt Distributor Operator**	Drives distributor truck, sets spray bars and operates valves and levers to control distribution of bituminous material for highway surfacing. May oil, grease or otherwise service and make adjustments to equipment as needed. Performs other related duties.
2	**Asphalt Paving Machine Operator/Spreader Box Operator**	Operates paving machine that spreads and levels asphaltic concrete on highway. Controls movement of machine, raises and lowers screed, regulates width of screed. Operates spreader box by adjusting hopper and strike-off blade so that gravel, stone or other material may be spread to a specific depth on road surface during seal coat and surface treatment operations. May oil, grease, service and make adjustments to equipment as needed. Performs other related duties.
3	**Asphalt Raker**	Distributes asphaltic materials evenly over road surface by hand-raking and brushing material to correct thickness; may control screed to regulate width and depth of materials; directs Laborers (skilled and unskilled) when to add or take away material to fill low spots or to reduce high spots.
4	**Backhoe Operator**	Operates a rubber-tired machine mounted with a backhoe bucket on one end and a loader bucket on the other end. Used for excavating ditches and structures, laying pipe and precast concrete structures, carrying material in the loader bucket, and general excavation and backfill. May also be equipped with hydraulic attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.
5	**Concrete Finisher (Paving and Structures)**	Finishes the exposed surfaces of fresh concrete paving, median barrier and every element of concrete structures. Operates bridge deck finishing machine. Forms and finishes edges and joints. Finishes concrete curbs and gutters. Finishes exposed surface of concrete after forms have been removed by patching imperfections with fresh concrete, rubbing surface with abrasive stone, and directing others in removing excess or defective concrete with power tools. Performs other related duties.
6	**Crane Operator, Lattice Boom**	A worker who operates a lattice boom type crane to hoist and move materials, raise and lower heavy weights and perform other related operations. May be crawler type or rubber tired. May include placement of rock riprap, clamshell, dragline, pipe and pile driving operations. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.
7	**Crane Operator, Hydraulic**	A worker who operates a hydraulic telescoping boom type crane to hoist and move materials, raise and lower heavy weights and perform other related operations. May be crawler type or rubber-tired. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

8	**Electrician**	Plan and execute the layout and installation of electrical conduit, switch panels, buss bars, outlet boxes, electrical wires and cables, lighting standards, lighting fixtures, receptacles, switches, and other electrical devices and apparatus necessary for the complete installation of wiring systems, works on overhead distribution systems and underground distribution systems. Includes installation of photovoltaic solar panels.
9	**Excavator Operator**	Operates a crawler or rubber-tired machine mounted with an excavator bucket. Used for excavating ditches and structures, laying pipe and precast concrete structures, loading trucks and placing rock riprap. May also be equipped with various hydraulic attachments. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.
10	**Form Builder/Setter**	Works from plans to build, assemble, fit together, align, plumb, and set in place forms for molding concrete structures. Forms may be wood, steel, aluminum, fiberglass or any other type of material. Checks forms while concrete is being placed. May install miscellaneous materials integral to concrete structures. May set precast concrete elements. Prepares for slipforming traffic rail and median barrier. May install permanent metal deck forms. May work with power tools. Performs other related duties. Includes guardrail installation.
11	**Form Setter (Paving and Curb)**	Fits together, aligns and sets to grade metal and wooden forms for placement for concrete paving and curbs. Works with survey crew to set stringline for paving, curb and gutter and curb. Performs other related duties.
12	**Front End Loader**	Operates a rubber-tired, skid steer or crawler type tractor with an attached scoop type bucket on front end. Machine is used to load materials from stockpiles, excavation, charging batch plants, loading and unloading trucks. May be used with attachments in lieu of the bucket. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.
13	**Laborer**	A general term used on construction work covering many unskilled classifications requiring work of a physical nature. Performs a variety of work ranging from pick and shovel work to cleaning up lumber with hammer, shoveling and placing concrete, uses air tools, under the supervision of qualified personnel. Cleans concrete joints and fills joints with sealing compound from bucket or with hose and nozzle from a central source, applies coating of oil to inside face of forms and strip forms, unloads and transports reinforcing steel, cures newly poured concrete, assists pipelayers, works with dirt crew keeping construction layout stakes out of the way of dirt-moving equipment. May fine grade excavation and ditches, shovels hot asphalt material. May use power tools and other necessary equipment in demolition work under the supervision of qualified personnel. Does not ordinarily perform work permitting exercise of independent judgment or without close direction by other workers. Installs and maintains erosion control. Performs other related duties.

14	**Laborer (Skilled) (Utility)**	Performs a variety of manual duties, usually working in a utility capacity by working on multiple projects and tasks where demands require workmen with varied experience and ability to work without close direction. Unloads and transports reinforcing steel. Directs laborers in pouring concrete. Erects trench shoring and bracing. Installs, operates, and maintains watering systems. May assist equipment operators in positioning machines, verifying grades and signaling operators to dumping positions to maintain grades as directed. Uses power tools and air tools. May work as lead man in a labor crew. Is more or less a general utility construction worker. May be a second step in learning a skill. Includes Concrete/Granite Pump Operator, Concrete Saw Operator, Fence Erector, Flagger, and Sign Erector. Performs other related duties.
15	**Mechanic**	Assembles, assist set up, adjusts and maintains and repairs all types of construction equipment and trucks. May perform the duties of a welder in repair of equipment. Performs other related duties.
16	**Motor Grader Operator (Fine)**	Operates motor grader. Performs many of the same duties of Motor Grader, Rough, but in addition performs finish grade work to bluetops or other close specification control. This work is subject to strict inspection and must conform closely to specifications. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.
17	**Pipe Layer**	Installs concrete, clay, steel, ductile iron, plastic, corrugated pipe and any other type of pipe for storm drainage, water lines, gas lines and sanitary sewer lines. Lays underground communication and electrical ducts. May install and set electrical ground boxes, hand holes, manholes, inlets and other structures. Caulks joints, makes threaded and flanged connections. Installs valves and other accessories. Performs other related duties.
18	**Reinforcing Steel Setter (Structure and Paving)/ Structural Steel Worker**	Works from plans to lay out and install reinforcing steel within forms or in mats of concrete paving. Erects and places reinforcing steel and fabricated structural steel members, such as girders, plates, diaphragms, lateral bracing, and unites them permanently to form a completed structural steel unit, including reinforcing members. Fastens steel members together by welding or bolting. May include dismantling and erecting large units of equipment. Gives direction to reinforcing steel worker apprentice or utility laborers. Performs other related duties.
19	**Rock Mason**	Constructs partitions, fences, walls, using rock. Cutting, grouting and pointing of materials listed above which is necessary shall be part of this classification. May also build or repair rock retaining walls, cutting or placing of rock in mortar or other similar material.
20	**Roller Operator**	Operates a self-propelled machine with either steel wheels or pneumatic tires which is used to compact and smooth bituminous and flexible base materials and compact earth fills, subgrade, and all other types of materials. May oil, grease or otherwise service and make necessary adjustments to equipment as needed. Performs other related duties.

21	**Servicer**	Drives a truck which carries various fuels, oils, greases and filters. Must have knowledge of and is responsible for the correct oiling and greasing and changing of filters on equipment according to manufacturers' specifications. Uses compressed air grease guns, wrenches and other tools. May make adjustments to clutches, brakes and other mechanical items. Keeps record of service for preventive maintenance records. . May require a Commercial Driver's License if driving truck on public highways. Performs other related duties.
22	**Truck Driver, Single Axle**	Drives a light capacity truck for transporting loads of construction material. The truck is of single rear axle type, may have various kinds of beds attached such as dump, flat bed, tank, etc. May require CDL license for driving on highway. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.
23	**Truck Driver, Tandem Axle**	Drives a tandem axle powered vehicle. Hauls dirt, rock, aggregates or other material. May require CDL license for driving on highway. May service and make necessary adjustments for proper operation of equipment. Performs other related duties.
24	**Utility Operator Grade 1**	Clam, ditching machine, side booms (except those in Grade 2), operator on dredges, cleaning machine, coating machine, , blending machine, water-kote machine, equipment welder, track tractor, derrick, dragline, shovel, motor grader rough grade, Crawler tractor, foundation drill operator, crawler and truck mounted, and piledriver.
25	**Utility Operator Grade 2**	Pipe, gin truck or winch truck with poles when used for hoisting, side boom (cradling rock drill), tow tractor, farm tractor road boring machine, fork lift **(industrial type)**, pot fireman (power agitated), straightening machine, boring machine, bombardier (track or tow rig), , hydrostatic testing operator, scraper, stalking machine, plant mix pavement roller operator, plant mix pavement, pneumatic motor operator. Concrete paving curing, float, texturing machine, subgrade trimmer, slip-form machine, milling machine, self-propelled sweeping machine, trenching machine, directional drill, , trenching, screening plant, and joint sealer. Off Road Hauler, Pavement Marking Machine Operator Reclaimer/Pulverizer Operator, Slurry Seal or Micro-Surfacing Machine Operator.
26	**Welder, Certified/ Structural Steel Welder**	Certified by the American Welding Society to perform structural steel welding. Operates welding equipment. Welds structural steel girders and diaphragms. May weld permanent metal deck forms. Cuts, lays-out, fits and welds metals or alloyed metal parts to fabricate or repair equipment. Welds the joints between lengths of pipe for oil, gas or other types of pipelines. May assist in welding of permanent metal deck forms. Performs other related duties.

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DIVISION 01

SECTION 01 11 13

SUMMARY OF WORK

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. This Section includes the following Articles:

Article	Title
1.2	Location and Description of Work
1.3	Other Construction Contracts
1.4	Work by Others
1.5	Work by OWNER
1.6	Sequence and Progress of Work
1.7	CONTRACTOR's Use of Site
1.8	Easements and Rights-of-Way
1.9	Notices to Owners and Authorities of Properties Adjacent to the Work
1.10	Salvage of Materials and Equipment
1.11	Partial Utilization by OWNER

1.2 LOCATION AND DESCRIPTION OF WORK

A. The Work is located in the Montana Vista Subdivision in east El Paso, TX.

B. Work to be performed under this Contract includes, but is not limited to, constructing a new wastewater collection system ranging in size from 6-inch to 18-inch diameter, new sanitary service connections, new service yard lines, and decommissioning of septic systems. Included, but not limited to, are manholes, piping installed by open-cut and trenchless methods, pavement replacement, pavement markings replacement, trench safety, traffic control, protection to existing infrastructure, and all other Work required in accordance with the Contract Documents.

C. Contracting Method: The Project shall be constructed under one prime Contract.

D. Hazardous Environmental Conditions:
   1. To the best of Owner's knowledge, information, and belief, the prior use of the Site included housing development, utility installations, and road construction. No potential of hazardous conditions were found on the site.

1.3 OTHER CONSTRUCTION CONTRACTS

A. The El Paso County may be performing work in the area related to pavement replacement and waterline installation. The contractor shall coordinate construction activities with El Paso County as required to minimize conflicts or issues.
B. Other agencies may be performing work in the areas. The contractor shall coordinate construction activities these agencies as required to minimize conflicts or issues.

1.4 SEQUENCE AND PROGRESS OF WORK

A. Requirements for sequencing and coordinating with OWNER's operations, including maintenance of facility operations during construction, and requirements for tie-ins and shutdowns, are in Section 01 14 16, Coordination with Owner's Operations.

1.5 CONTRACTOR'S USE OF SITE

A. CONTRACTOR's use of the Site shall be confined to the public right-of-way, unless CONTRACTOR makes arrangements to use private property at no additional costs to the OWNER.

B. Move stored materials and equipment that interfere with operations of OWNER, other contractors, and others performing work for OWNER.

C. Limits on CONTRACTOR's use of the Site are:
   1. As indicated in Section 01 14 19, Use of Site.
   2. Do not use the Site for operations other than those required for the Project.

1.6 EASEMENTS AND RIGHTS-OF-WAY

A. General:
   1. Easements and rights-of-way required for the permanent improvements included in the Work will be provided by OWNER in accordance with the General Conditions and Supplementary Conditions.
   2. Confine construction operations within OWNER's property, public rights-of-way, easements obtained by OWNER, and limits shown, and property for which CONTRACTOR has made arrangements directly with property owner(s).
   3. Use care in placing construction tools, equipment, excavated materials, and materials and equipment to be incorporated into the Work to avoid damaging property and interfering with traffic.
   4. Do not enter private property outside the construction limits without permission from the owner of the property.

B. On Private Property:
   1. General limits of OWNER-furnished easements are shown on the Drawings.

C. Within Highway, Kinder Morgan, and Railroad Rights-of-Way:
   1. Permits required for the permanent facilities will be obtained by OWNER. CONTRACTOR shall obtain and pay for work permits and fees for safety and inspection forces to be furnished by the right-of-way owner.
   2. Work performed and CONTRACTOR's operations within limits of railroad and highway rights-of-way shall comply with requirements of railroad or highway owner and applicable work permits, or authority having jurisdiction over right-of-way.
   3. Comply with Section 01 14 33, Work in Highway Rights-of-Way, and Section 01 41 24, Permit Requirements.

1.7 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

A. Notify owners of adjacent property and utility owners when prosecution of the Work may affect their property, facilities, or use of property.

B. When it is necessary to temporarily obstruct access to property, or when utility service connection will be interrupted, provide notices sufficiently in advance to enable affected persons to provide for their needs. Such notifications shall comply with Laws and Regulations and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.

C. Notify utility owners and other concerned entities not less than 72 hours prior to cutting or closing streets or other traffic areas or excavating near Underground Facilities or exposed utilities.

+ + END OF SECTION + +

SECTION 01 14 16

COORDINATION WITH OWNER'S OPERATIONS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for coordinating with OWNER's operations during the Project, and includes requirements for tie-ins and shutdowns necessary to complete the Work without impact on OWNER's operations except as allowed in this Section.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals shown, specified, and required to coordinate with OWNER's operations during the Work in accordance with this Section.

B. Coordination:
   1. Review construction procedures under other Specifications sections and coordinate Work that will be performed with or before the Work specified in this Section.

C. Related Sections:
   1. Section 01 11 13, Summary of Work.
   2. Section 01 14 19, Use of Site.
   3. Section 01 25 00, Substitution Procedures
   4. Section 01 31 13, Project Coordination.
   5. Section 01 51 05, Temporary Utilities.
   6. Section 01 51 41, Temporary Pumping
   7. Section 01 55 26, Maintenance and Protection of Traffic.
   8. Section 01 73 24, Connections to Existing Facilities.
   9. Section 01 73 29, Cutting and Patching

D. Except for shutdowns specified in this Section, perform the Work such that OWNER's facilities remain in continuous satisfactory operation during the Project. Schedule and conduct the Work such that the Work does not: impede OWNER's production or processes, create potential hazards to operating equipment and personnel, reduce the quality of the facility's products or effluent, cause odors or other nuisances, or affect the public health, safety, and convenience.

E. Work not specifically covered in this Section or in referenced Sections may, in general, be completed, within the Contract Times, at any time during regular working hours in accordance with the Contract Documents, subject to the requirements in this Section.

F. As a substitute to the procedures specified in this Section, CONTRACTOR may propose providing additional temporary facilities that can eliminate or mitigate a

constraint without additional cost to OWNER, provided such additional temporary facilities: do not present hazards to the public, personnel, structures, and equipment; that such additional temporary facilities do not adversely affect OWNER's ability to comply with Laws and Regulations, permits, and operating requirements; that such temporary facilities do not generate or foster the generation of odors and other nuisances; and that requirements of the Contract Documents are fulfilled.

G. Coordinate shutdowns with OWNER and ENGINEER. When possible, combine multiple tie-ins into a single shutdown to reduce impacts on OWNER's operations and processes.

H. Operation of Existing Systems and Equipment during the Work:
   1. Do not shut off or disconnect existing operating systems or equipment, unless accepted by ENGINEER in writing.
   2. Operation of existing systems and equipment will be by OWNER unless otherwise specified or indicated.
   3. Where necessary for the Work, CONTRACTOR shall seal or bulkhead OWNER-operated gates and valves to prevent leakage that may affect the Work, OWNER's operations, or both.
   4. Provide temporary watertight plugs, bulkheads, and line stops as required. After completing the Work, remove seals, plugs, bulkhead, and line stops to satisfaction of ENGINEER.

I. Requirements for temporary pumping are in Section 01 51 41, Temporary Pumping. Requirements for temporary pumping associated with specific shutdowns are indicated in this Section.

1.2 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Substitute Sequence Submittal: When deviation from specified sequence or procedures is proposed, furnish submittal explaining in detail the proposed sequence or procedures and associated effects, including evidence that OWNER's operations will not be adversely affected, to an extent greater than originally contemplated in the Contract Documents, by proposed substitution. List benefits of proposed substitution, including benefits to Progress Schedule. Submit in accordance with Section 01 25 00, Substitution Procedures, and other requirements of the Contract Documents regarding substitution requests.

B. Informational Submittals: Submit the following:
   1. Shutdown Planning Submittal:
      a. For each shutdown, submit an inventory of labor, materials, and equipment required to perform the shutdown and tie-in tasks, an estimate of time required to accomplish the complete shutdown including time for OWNER to take down and start up existing equipment, systems, or conduits, and written description of steps required to complete the Work associated with the shutdown.

b. Furnish submittal to ENGINEER not less than 30 days prior to proposed shutdown start date. Do not start shutdown until obtaining ENGINEER's acceptance of shutdown planning submittal.

2. Shutdown Notification: After ENGINEER's acceptance of shutdown planning submittal and prior to starting the shutdown, submit written notification to OWNER and ENGINEER of date and time each shutdown is to start. Submit notification not less than 72 hours in advance of each shutdown.

1.3 GENERAL CONSTRAINTS

A. Indicated in the Contract Documents are the sequence and shutdown durations, where applicable, for OWNER'S equipment, systems, and conduits (including piping and ducting) that are to be taken out of service temporarily for the Work. New materials, equipment, and systems may be used by OWNER after the specified field quality controls and testing are successfully completed and the materials or equipment are Substantially Complete in accordance with the Contract Documents.

B. The following constraints apply to coordination with OWNER's operations:
   1. Operational Access: OWNER'S personnel shall have access to equipment and areas of the facility that remain in operation.
   2. Schedule and perform equipment and system start-ups for Monday through Thursday. Equipment and systems shall not be placed into operation on Friday, Saturday, and Sunday without prior approval of OWNER, unless specifically indicated otherwise in the Contract Documents.
   3. Dead End Valves or Conduits: Provide blind flanges, watertight bulkheads, or valve at temporary and permanent terminuses of conduits, including piping and ducting. Blind flanges and bulkheads shall be suitable for the service and braced and blocked, as required, or otherwise restrained as directed by ENGINEER. Temporary valves shall be suitable for their associated service. Where valve is provided at permanent terminus of conduit, including piping or ducting, also provide on downstream side of valve a blind flange with drain/flushing connection.
   4. Draining and Cleaning of Conduits, Tanks, and Basins:
      a. Unless otherwise shown or indicated, CONTRACTOR shall dewater process tanks, basins, conduits (including piping) at beginning of each shutdown. Flush, wash down, and clean tanks, basins, conduits (including piping), and other work areas.
      b. CONTRACTOR shall remove liquids and solids and dispose of them at appropriate location at the Site as directed by ENGINEER. Unless otherwise specified or indicated, contents of tanks, basins, and conduits (including piping) undergoing modifications shall be transferred to existing process tanks or conduits at the Site with capacity sufficient to accept such discharges, using hoses, temporary piping, temporary pumps, or other means provided by CONTRACTOR. Discharge of fluids across floors is not allowed.
      c. If drainage point is not available on the conduit (including piping) to be drained, provide a wet tap using tapping saddle and valve or other

method approved by ENGINEER. Uncontrolled spillage of contents of conduits (including piping) is not allowed.

d. Spillage shall be brought to ENGINEER's attention immediately, both verbally and in writing, and reported in accordance with Laws and Regulations. CONTRACTOR shall wash down spillage to floor drains or sumps or other appropriate location and flush the system to prevent clogging and odors. If spillage is not suitable for discharge to the drainage system, such as chemical spills, as determined by ENGINEER, CONTRACTOR shall remove spillage by other method, such as vactor truck, sorbents, or other method acceptable to ENGINEER.

1.4 TIE-INS

A. CONTRACTOR shall perform tie-ins required to complete the Work as shown as indicated.

1.5 SHUTDOWNS

A. General:
   1. Terminology: A "shutdown" is when a portion of the normal operation of OWNER's facility, whether equipment, systems, conduit (including piping and ducting), has to be temporarily suspended or taken out of service to perform the Work.
   2. Work that may interrupt normal operations shall be accomplished at times convenient to OWNER unless otherwise indicated in the Contract Documents.
   3. Furnish at the Site, in close proximity to the shutdown and tie-in work areas, tools, materials, equipment, spare parts, both temporary and permanent, necessary to successfully perform the shutdown. Complete to the extent possible, prefabrication of piping and other assemblies prior to commencing the associated shutdown. Demonstrate to ENGINEER's satisfaction that CONTRACTOR has complied with such requirements before commencing the shutdown.
   4. If CONTRACTOR's operations cause an unscheduled interruption of OWNER's operations, immediately re-establish satisfactory operation for OWNER.
   5. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of OWNER's facilities that result in fines or penalties by authorities having jurisdiction shall be paid solely by CONTRACTOR if, in ENGINEER's opinion, CONTRACTOR did not comply with requirements of the Contract Documents, or was negligent in the Work, or did not exercise proper precautions in performing the Work and complying with applicable permits, Laws, and Regulations.
   6. Temporary, short-term shutdowns of smaller conduits (including piping and ducting), equipment, and systems shall be coordinated with ENGINEER and OWNER. Where necessary, obtain ENGINEER's interpretation or clarification before proceeding.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 GENERAL

A. In addition to requirements of this Section, comply with Section 01 73 29, Cutting and Patching, and Section 01 73 24, Connections to Existing Facilities, and other Contract Documents applicable to Work associated with shutdowns, tie-ins, temporary pumping (where applicable), and similar work.

3.2 DETAILED SHUTDOWN REQUIREMENTS

1. General:
    a. Affected Equipment Operating Prior to Shutdown: Residential Septic Systems
    b. Procedure: Schedule shutdowns and decommissioning of residential septic systems to minimize service disruptions to residents.
    c. Dates: Shutdown shall be accomplished based on careful coordination with property owners.
    d. Time: Shutdown shall be performed within a 4 hour window based on careful coordination with property owners.
2. Temporary Pumping: Provide temporary pumping system, including controls, as required to successfully complete sewer service tie-ins.
3. Prior to Shutdown:
    a. Obtain ENGINEER's acceptance of proposed shutdown planning submittal and shutdown notification submittal.
    b. Bring necessary piping, couplings, valves, equipment, and appurtenances to the work areas.
    c. Assist property OWNER in preparing to take septic systems out of service.
    d. Coordinate other tie-ins to be performed simultaneously.
    e. Install, check, and test the temporary pumping system.
4. During Shutdown:
    a. Place temporary pumping system into operation.
    b. Dewater the septic system and associated piping
    c. Remove existing septic system, leach field, and associated piping.
    d. Provide sanitary sewer service tie-in to the new sewer system
    e. Place sewer service into operation.
5. Following Shutdown:
    a. Verify functionality of new sewer service
    b. Verify operation of new sewer service, and verify that joints in the piping are watertight or gastight as applicable.
    c. Repair joints that are not watertight or gastight, as applicable.
    d. Remove temporary pumping system and appurtenances.

3.3 SCHEDULES

A. The schedules shall vary based on coordination with individual property owners.

+ + END OF SECTION + +

SECTION 01 14 19

USE OF SITE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for use of the Site during the Project, and includes requirements for use of existing facilities, as applicable.
   2. CONTRACTOR shall provide all labor, materials, equipment, tools, and incidentals shown, specified, and required to comply with restrictions on CONTRACTOR's use of the Site and other areas.
   3. Comply with requirements of the General Conditions, as may be modified by the Supplementary Conditions, regarding the CONTRACTOR's use of the Site and other areas.

1.2 USE OF PREMISES

A. Limit use of premises at the Site to work areas shown or indicated on the Drawings and as specified in this Section. Do not disturb portions of the Site beyond areas of the Work.
   1. Limits:
      a. Confine construction operations to the following areas:
         1) Easements and rights of way within the Homestead Meadows South subdivision.
         2) Areas required to perform residential sewer service connections.

B. Use of Existing Buildings and Structures: Maintain existing buildings and structures in weather-tight condition throughout construction unless otherwise indicated in the Contract Documents. Protect buildings, structures, and occupants during construction.
   1. Use of Existing Utilities, Sanitary Facilities, and First-aid Facilities: Refer Section 01 51 05, Temporary Utilities.

C. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to specified condition; if condition is not specified, restore to pre-construction condition or better.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 22 13

MEASUREMENT AND PAYMENT (UNIT PRICE)

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. The items listed starting with Article 1.5 of this Section refer to and are the same pay items listed in the Bid Form and constitute all pay items for completing the Work.
   2. No direct or separate payment will be made for providing miscellaneous temporary or accessory works, plant or facility services, CONTRACTOR's or ENGINEER's field offices, layout surveys, Project signs, sanitary requirements, testing, safety provisions and safety devices, submittals and record drawings, water supplies, power and fuel, maintenance of traffic, removal of waste, security, coordination with OWNER's operations, information technology (including hardware, software, and services) required during construction, bonds, insurance, or other requirements of the General Conditions, Supplementary Conditions, Division 01 Specifications, and other requirements of the Contract Documents.
   3. Compensation for all services, items, materials, and equipment shall be included in prices stipulated for the lump sum and unit price pay items listed in this Section and included in the Contract.

B. Each lump sum and unit price shall include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

1.2 ENGINEER'S ESTIMATE OF QUANTITIES

A. ENGINEER's estimated quantities for items of Unit Price Work, as included in the Contract, are approximate only and are included solely for purpose of comparing Bids and pricing. OWNER does not expressly or by implication agree that nature of materials encountered below the ground surface, or actual quantities of material encountered or required, will correspond with the quantities included in the Contract at the time of award and reserves right to increase or decrease quantities, and to eliminate quantities, as OWNER may deem necessary. Unless indicated otherwise in the Supplementary Conditions, CONTRACTOR or OWNER will not be entitled to adjustment in price of Unit Price Work items as a result of change in estimated quantity and agree to accept the unit prices accepted in the Bid as complete and total compensation for additions caused by changes or alterations in the Unit Price Work directed by OWNER.

1.3 ADJUSTMENT OF UNIT PRICES FOR INCREASE OR DECREASE OF ESTIMATED QUANTITIES

A. Increases or decreases in the quantity of an item of Unit Price Work will be determined by comparing total payable quantity of Unit Price Work with ENGINEER's estimated quantity indicated in the Contract Documents.

B. Provisions, if any, regarding adjustment of unit prices due to variations in actual quantities from the estimated quantities awarded with the Contract, are in the Supplementary Conditions.
   1. ENGINEER's review for possible unit price cost adjustment, when provision for such adjustment is indicated in the Supplementary Conditions, will be at a time ENGINEER deems reasonable and proper.
   2. Payment for Unit Price Work item that has an as-awarded computed total value of less than the percent (indicated in the Supplementary Conditions) of the sum of the as-awarded total Contract Price will be made at the unit price in the Contract, regardless of an increase or decrease in quantity.

1.4 RELATED PROVISIONS

A. Payments to CONTRACTOR: Refer to General Conditions, Supplementary Conditions, and Agreement

B. Changes in Contract Price: Refer to General Conditions and Supplementary Conditions,

C. Schedule of Values: Refer to General Conditions, Supplementary Conditions, and Section 01 29 73, Schedule of Values.

1.5 BID ITEMS

A. Item 1 – Insurance, Bonds, Mobilization, Demobilization, and Related Expenses:
   1. Measurement shall be made in the stated lump sum of the Insurance, Bonds, Mobilization, and Related Expenses
   2. Payment made for Bid Item No. 1 shall include all costs for Contractor's mobilization and demobilization, insurance and bond, construction permits and fees, cleaning, site administration expenses, temporary utilities, videographic documentation, for the entire project. This shall include all costs for contract closeout, site cleanup, and all costs associated with Contractor's demobilization from the site. Mobilization/Demobilization and all work included in this item shall be limited to five (5) percent of the total bid price and is payable **one half at mobilization and one half at demobilization.**

B. Item 2 – Pre- and Post-construction Video:
   1. Measurement shall be made in the lump sum for video recording of the construction site pre and post construction.

2. Payment made for Bid Item No. 2 at the stated lump sum shall include high quality digital video of the entire site prior to construction activities and following construction activities, and all ancillary requirements required to successfully complete the Work.

C. Item 3 - Traffic Control:
   1. Measurement shall be made in the lump sum for the traffic control measures.
   2. Payment made for Bid Item No. 3 shall be for the traffic control devices as required and is considered to include but is not limited to: TXDOT coordination for approval, temporary signage, temporary traffic control devices, daily removal and reinstallation, storage, removal and reinstallation of existing permanent signage, inspection, and other ancillary costs required to successfully complete the work.

D. Item 4 – Furnish and Install 18-inch PVC SDR-26 pipe:
   1. Measurement shall be made per linear foot of 18-in diameter sewer line.
   2. Payment made for Bid Item No. 4 shall be for furnishing and installing 18-inch diameter PVC SDR-26 pipe and fittings and is considered to include but is not limited to: connection to existing manhole, coordination with EPWater operations for existing manhole connection, nighttime work as required for the connection, excavation, bedding, compaction, backfill, disposal, protection of existing structures, subsidiary items noted in the drawings, and other ancillary costs required to successfully complete the work.

E. Item 5 – Trench Safety Systems:
   1. Measurement for trench excavation safety systems shall be made per linear foot of complete trench safety support system provided based on the linear feet of pipe installed.
   2. Payment for Bid Item No. 5 for the trench excavation safety system shall be for furnishing and installing trench safety systems and is considered to include is not limited to: excavation, backfill, compaction, design, maintenance, inspection, equipment, shoring, sheeting, bracing, and other ancillary costs required to successfully complete the work.

F. Item 6 – 8-inch base course trench area backfill, 100% compaction:
   1. Measurement for 8-inch base course, 100% compaction, will be made per the square yard.
   2. Payment for Bid Item No. 6 shall be 8-inch base course trench area backfill, at 100% compaction, furnished and installed complete in place and is considered to include but not limited to all ancillary costs required to successfully complete the work as approved by the Owner and end users.

G. Item 7 – 48-Inch Diameter Manhole:
   1. Measurement for 48-inch diameter standard manholes will be made per each furnished and installed manhole.
   2. Payment for Bid Item No. 7 shall be for 48-inch diameter manholes furnished and installed complete in place and is considered to include but not limited to:

excavation, bedding, backfilling, compaction, site disposal, protection of existing structures, utility relocation and protection, external drop connections, installation of Triplex Systems cured-in-place interior liner (or approved equal), and other ancillary costs required to successfully complete the work.

H. Item 8- 48-Inch Diameter Manhole Additional Depth Beyond 6-feet:
   1. Measurement for 48-inch diameter manholes deeper than 6-feet will be made per additional vertical linear foot of depth additional to the standard 6-ft. of depth.
   2. Payment for Bid Item No. 8 for the additional depth of 48-inch diameter manholes in excess of 6 feet complete in place and is considered to include but not limited to: excavation, bedding, backfilling, compaction, site disposal, protection of existing structures, utility relocation and protection, and other ancillary costs required to complete the work.

I. Item 9 – 72-Inch Diameter Standard Manhole:
   1. Measurement for 72-Inch diameter manholes will be made per each furnished and installed manhole.
   2. Payment for Bid Item No. 9 shall be for 6-ft. deep, or less, 72-inch diameter manholes furnished and installed complete in place and is considered to include but not limited to: excavation, bedding, backfilling, compaction, site disposal, protection of existing structures, utility relocation and protection, external drop connections, installation of Triplex Systems cured-in-place interior liner (or approved equal), and other ancillary costs required to successfully complete the work.

J. Item 10 – 72-Inch Diameter Manhole Additional Depth Beyond 6-feet:
   1. Measurement for 72-inch diameter manholes deeper than 6-feet will be made per additional vertical linear foot of depth additional to the standard 6-ft. of depth.
   2. Payment for Bid Item No. 10 for the additional depth of 72-inch diameter manholes in excess of 6 feet complete in place and is considered to include but not limited to: excavation, bedding, backfilling, compaction, site disposal, protection of existing structures, utility relocation and protection, and other ancillary costs required to complete the work.

K. Item 11 – Furnish and install 30-inch diameter steel casing by boring:
   1. Measurement shall be made per the linear foot of steel casing installed.
   2. Payment made for Bid Item No. 11 shall be for steel casing installed by boring method and is considered to include: vent piping, casing insulators, end seals, pits and related shoring, pipe supports and skids, cement stabilized backfill and other incidental work required to complete the work.

L. Item 12 – Removal and Replacement of HMAC (TXDOT walking trail):
   1. Measurement shall be made per square yard of HMAC pavement removed and replaced.

2. Payment made for Bid Item No. 12 shall be for HMAC pavement repair and is considered to include: excavation, backfill, compaction, sub base and base course materials, compaction, replacement of existing pavement markings with thermoplastic paint, and other ancillary cost required to successfully complete the Work as approved by the OWNER.
3. Unused quantity will be deducted from Contract amount at final quantity adjustment.

M. Item 13 – Removal and Replacement of HMAC (La Mesa, El Paso County):
1. Measurement shall be made per square yard of HMAC pavement removed and replaced.
2. Payment made for Bid Item No. 13 shall be for HMAC pavement repair and is considered to include: excavation, backfill, compaction, sub base and base course materials, compaction, replacement of existing pavement markings with thermoplastic paint, and other ancillary cost required to successfully complete the Work as approved by the OWNER.
3. Unused quantity will be deducted from Contract amount at final quantity adjustment.

N. Item 14 – Stormwater Pollution Prevention Plan (SWPPP):
1. Measurement shall be made in the lump sum for the environmental controls installed.
2. Payment made for Bid Item No. 14 at the stated lump shall include but is not limited to: SWPPP development, filter fabric fence installation and removal, construction entrances, erosion control, inlet protection installation and removal, maintenance of SWPPP, application for and obtaining the required NPDES permit, NOI and NOT, and all ancillary requirements necessary to satisfactorily complete the Work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope: Section includes:
   1. Administrative and procedural requirements for selecting materials and equipment for the Project.
   2. Procedural requirements for substitutions of materials and equipment.
   3. Procedural requirements for substitute construction methods or procedures, when construction methods or procedures are specified.

B. A proposed substitute will not be accepted for review if:
   1. Approval would require changes in design concept or a substantial revision of the Contract Documents.
   2. Approval would delay completion of the Work or the work of other contractors.
   3. Substitution request is indicated or implied on a Shop Drawing or other submittal, or on a request for interpretation or clarification, and is not accompanied by CONTRACTOR's formal and complete request for substitution.

C. If proposed substitute is not approved, CONTRACTOR shall provide the specified materials, equipment, method, or procedure, as required in the contract documents and technical specifications.

D. Approval of a substitute does not relieve CONTRACTOR from requirement for submitting Shop Drawings and other submittals in accordance with the Contract Documents.

E. ENGINEER and OWNER have the right to rely upon the completeness and accuracy of the information included in CONTRACTOR's request for approval of a substitute, and CONTRACTOR accepts full responsibility for the completeness and accuracy thereof.

F. When approved substitute is defective or fails to perform in accordance with the Contract Documents, responsibility for remedying the defect or failure resides solely with CONTRACTOR and Supplier.

1.2 SUBSTITUTE MATERIALS AND EQUIPMENT

A. Requests for approval of substitute items of materials or equipment will be considered within a period of 14 days after the Effective Date of the Contract. After the end of specified period, substitution requests will be considered only in case of unavailability of a specified item of material or equipment or other conditions beyond CONTRACTOR's control.

B. Procedure:
   1. Submit requests for substitution in accordance with requirements for furnishing submittals, as indicated in Section 01 33 00, Submittal Procedures.
   2. Submit separate request for each proposed substitute.
   3. Submit request for substitution using forms attached to this Section. Complete all information requested on each form, and enclose with the forms supplementary information as required. In addition to requirements of the General Conditions and information required on substitution request forms, include with each substitute request the following:
      a. Identification of the materials and equipment (as applicable), including manufacturer's name and address.
      b. Manufacturer's literature with description of the materials and equipment, performance and test data, and reference standards with which materials and equipment comply.
      c. Samples, when appropriate.
      d. Name and address of similar projects on which the materials and equipment were used, date of installation, and names and contact information (including telephone number) for the facility operations and maintenance manager.

1.3 SUBSTITUTE CONSTRUCTION METHODS OR PROCEDURES

A. Where construction methods or procedures are specified, for a period of 14 days after the Effective Date of the Contract, ENGINEER will consider CONTRACTOR's written requests for substitute construction methods or procedures shown or specified in the Contract Documents.

B. The provisions of the General Conditions, as may be modified by the Supplementary Conditions, regarding substitute items of materials and equipment are hereby extended to apply to substitute construction methods or procedures.

C. Procedure:
   1. Submit requests for substitution in accordance with requirements for furnishing submittals, as indicated in Section 01 33 00, Submittal Procedures.
   2. Submit separate request for each proposed substitute.
   3. Submit request for substitution using forms attached to this Section. Complete all information requested on each form, and enclose with the forms supplementary information as required. In addition to requirements of the

General Conditions and information required on substitution request forms, include with each substitute request the following:

a. Detailed description of proposed method or procedure.
b. Itemized comparison of the proposed substitution with the specified method or procedure.
c. Drawings illustrating method or procedure.
d. Other data required by ENGINEER to establish that proposed substitution is equivalent to specified method or procedure.

1.4 CONTRACTOR'S REPRESENTATIONS

A. In submitting request for substitution, CONTRACTOR represents that:
   1. CONTRACTOR has read and fully understands the provisions regarding substitutes as indicated in the General Conditions, as may be modified by the Supplementary Conditions.
   2. Substitution request is complete and includes all information required by the Contract Documents.
   3. CONTRACTOR certifications required by the General Conditions, as may be modified by the Supplementary Conditions, are valid and made with CONTRACTOR's full knowledge, information, and belief.
   4. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitute as for the specified materials, equipment, methods, or procedures, as applicable.
   5. CONTRACTOR waives all Claims for additional costs or extension of time related to proposed substitute that subsequently may become apparent.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 ATTACHMENTS

A. The documents listed below, and attached following this Section's "End of Section" designation, are part of this Specification Section.
   1. Substitution Request Form (two pages).
   2. Product Substitution Checklist (one page).

+ + END OF SECTION + +

SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ Engineer Project. No._____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitute: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 1 to 4 years old ☐ 5 to 10 years old ☐ More than 10 years old

Differences between proposed substitute and specified item: _____

_____

_____

☐ Point-by-point comparative data attached — REQUIRED BY THE CONTRACT DOCUMENTS

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Engineer: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitute: ($)
(attach detailed, itemized estimate)

_____ _____

Proposed substitute changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.
(clarify whether change is to Substantial Completion, Milestone, or time for readiness for final payment)

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SUBSTITUTION REQUEST
(Continued)

☐ Substitute product, method, or procedure is subject to payment of licensing fee or royalty (check if "yes" and attach information)

☐ Substitute product, method, or procedure is patented or copyrighted (check if "yes" and attach information)

The undersigned certifies:

- Representations in the General Conditions and in Section 01 25 00, Substitution Procedures, regarding substitutions are valid.
- Same or better warranty and guarantee will be furnished for proposed substitution as for specified item.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitute will have no adverse effect on other trades and will not affect or delay Progress Schedule.
- Cost data as stated above is complete. Claims for additional costs or time related to accepted substitution which may subsequently become apparent are waived.
- Proposed substitute does not affect dimensions and functional clearances.
- Payment will be made for Engineer's review and changes, if any, to the design and Contract Documents, and construction costs caused by the substitute.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: ☐

ENGINEER'S REVIEW AND ACCEPTANCE (OR NON-ACCEPTANCE) WILL BE DOCUMENTED IN A FIELD ORDER OR CHANGE ORDER, AS APPROPRIATE. _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ Engineer ☐ Other:

Adapted from CSI Form No. 13.0B, 2004 edition

PRODUCT SUBSTITUTION CHECKLIST

Date: _____ Re: _____

Engineer Proj No.: _____ Manufacturer's Project No.: _____

Filing No.: _____ Contract For: _____

Item Equivalence:

☐ Is the submitted item equivalent to the specified item? _____

☐ Does it serve the same function? _____

☐ Does it have the same dimensions? _____

☐ Does it have the same appearance? _____

☐ Will it last as long? _____

☐ Does it comply with the same codes, and standards and performance requirements? _____

☐ Has the item been used locally, and where are the projects? _____

_____

☐ Has a problem occurred with the item, and what was the remedy? _____

_____

Effect on the Project:

☐ Will the substitute affect other aspects of the construction? _____

☐ Are any details affected and are changes required? _____

☐ What is the cost of the changes? _____

☐ Who pays for the required changes? _____

☐ Are Contract Times affected? _____

_____

Effect on the Warranty:

☐ How does the proposed warranty differ from the specified warranty? _____

_____

☐ Does the manufacturer have a track record of standing behind the warranty? _____

_____

Adapted from CSI Form No. 20.3, 1998 edition

SECTION 01 29 73

SCHEDULE OF VALUES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall prepare and submit to ENGINEER for acceptance a Schedule of Values that allocates cost to each item of the Work. Schedule of Value list of line items shall correspond to each aspect of the Work, establishing in detail the portion of the Contract Price allocated to each major component of the Work.
   2. Upon request of ENGINEER, support values with data that substantiate their correctness.
   3. Submit preliminary Schedule of Values to ENGINEER for initial review. CONTRACTOR shall incorporate ENGINEER's comments into the Schedule of Values and resubmit to ENGINEER. ENGINEER may require corrections and re-submittals until Schedule of Values is acceptable.
   4. Schedule of Values may be used as a basis for negotiating price of changes, if any, in the Work.
   5. Schedule of Values and the Progress Schedule updates specified in Section 01 32 16, Progress Schedule, will be basis for preparing each Application for Payment.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Submit to ENGINEER Schedule of Values in the form and quantity required in Section 01 33 00, Submittal Procedures.
   2. Content of Schedule of Values submittals shall be in accordance with Article 1.3 of this Section.
   3. Timing of Submittals:
      a. Submit preliminary Schedule of Values within time limit indicated in the General Conditions.
      b. Submittal of the Schedule of Values for acceptance by ENGINEER shall be in accordance with the General Conditions. ENGINEER will not accept Applications for Payment without an acceptable Schedule of Values.
      c. When required by ENGINEER, promptly submit updated Schedule of Values to include cost breakdowns for changes in the Contract Price.

1.3 SCHEDULE OF VALUES FORMAT AND CONTENT

A. Organization and Major Elements of Schedule of Values
   1. Prepare Schedule of Values on the "progress estimate" or "continuation sheets", as applicable, of the Application for Payment form indicated in Section 01 29 76, Progress Payment Procedures.
   2. Include in Schedule of Values itemized list of Work for each major work area included in the Work, for each payment item specified in Section 01 22 13, Measurement and Payment.
   3. Organization in Accordance with Specification Sections:
      a. Within each work area, organize the Schedule of Values by the various Specifications Section numbers and titles included in the Contract Documents.
      b. Label each row in the Schedule of Values with the appropriate Specifications Section number. Include an amount for each row in the Schedule of Values.
      c. List sub-items of major products or systems, as appropriate or when requested by ENGINEER.
   4. Include in Schedule of Values unit price payment items with their associated quantity. Provide in the Schedule of Values detailed breakdown of unit prices when required by ENGINEER.

B. Requirements for preliminary Schedule of Values and Schedule of Values are:
   1. Subcontracted Work:
      a. Schedule of Values shall show division of Work between CONTRACTOR and Subcontractors.
      b. Line items for Work to be done by Subcontractor shall include the word, "(SUBCONTRACTED)".
   2. Apportionment between Materials and Equipment, and Installation:
      a. Schedule of Values shall include breakdown of costs for materials and equipment, installation, and other costs used in preparing the Bid by CONTRACTOR and each Subcontractor.
      b. List purchase and delivery costs for materials and equipment for which CONTRACTOR may apply for payment as stored materials.
   3. Sum of individual values shown on the Schedule of Values shall equal the total of associated payment item. Sum of payment item totals in the Schedule of Values shall equal the Contract Price.
   4. Overhead and Profit: Include in each line item a directly proportional amount of CONTRACTOR's overhead and profit. Do not include overhead and profit as separate item(s).
   5. Include separate line item for each allowance, and for each unit price item.
   6. Bonds and Insurance Costs: Include line item for bonds and insurance in payment item for Bid Item No. 1, in amount not exceeding 5 percent of the Contract Price. This amount may be applied for in the first Application for Payment.

7. Include relevant items for the General Conditions, permits (when applicable), construction Progress Schedule, and other items required by ENGINEER. Include such items in Applications for Payment on payment schedule acceptable to ENGINEER.
8. Line items for Site maintenance such as dust control, snow removal, compliance with storm water pollution prevention plans and permits, spill prevention control and countermeasures plans, and for construction photographic documentation; temporary utilities and temporary facilities, field offices, temporary controls, field engineering, and similar Work shall be included in the Schedule of Values and proportioned in Applications for Payment throughout duration of the Work.
9. Mobilization and Demobilization:
    a. Include separate line items under each appropriate payment item for mobilization and demobilization. Document for ENGINEER the activities included in mobilization and demobilization line items.
10. Costs for Shop Drawings, Samples, and other submittals; operations and maintenance manuals; field testing; and training of operations and maintenance personnel.
11. Schedule of Values shall include an itemized list of Work by work area, as applicable, for Work included in Section 01 14 16, Coordination with Owner's Operations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 PROGRESS PAYMENTS

A. Scope:
   1. CONTRACTOR's requests for payment shall be in accordance with the Agreement, General Conditions and Supplementary Conditions, and the Specifications.
   2. Form: Applications for Payment shall be in the form of Engineers Joint Contract Documents Committee (EJCDC) document EJCDC® C-620, "Contractor's Application for Payment", 2013 edition or later.

B. Procedure:
   1. Review with Resident Project Representative (RPR) quantities and the Work proposed for inclusion in each progress payment. Application for Payment shall cover only the Work and quantities recommended by the RPR.
   2. CONTRACTOR will be required to review with ENGINEER or RPR the status of record documents in connection with ENGINEER's review of each Application for Payment. Failure to maintain record document current will be just cause for ENGINEER to recommend a reduction in payment for record documents in accordance with Section 01 29 73, Schedule of Values, and will entitle OWNER to reduce payment amount in accordance with the Contract Documents.
   3. Submit to ENGINEER three (3) printed originals, each with CONTRACTOR's original, "wet" signature, of each complete Application for Payment and other documents to accompany the Application for Payment.
   4. ENGINEER will act on request for payment in accordance with the General Conditions and Supplementary Conditions.

C. Each request for progress payment shall include:
   1. Completed Application for Payment form, including summary/signature page, progress estimate sheets, and stored materials summary. Progress estimate sheets shall have the same level of detail as the Schedule of Values.
   2. Documentation for Stored Materials and Equipment:
      a. For materials and equipment not incorporated in the Work but suitably stored, submit documentation in accordance with the General Conditions and Supplementary Conditions.
      b. Legibly indicate on invoice or bill of sale the specific materials or equipment included in the payment request and corresponding bid/payment item number for each.

3. Listing of Subcontractors and Suppliers:
    a. In accordance with the General Conditions, submit not less than monthly updated listing of all Subcontractors and Suppliers known to CONTRACTOR, whether or not such entities have a contract directly with CONTRACTOR.
    b. Submit complete information using the form attached to this Section.
4. Partial Release or Reduction of Retainage:
    a. For each Application for Payment where CONTRACTOR requests partial release or reduction of retainage in any amount (other than request for final payment), submit with associated progress payment request consent of surety to partial release or reduction of retainage, duly completed by CONTRACTOR and surety.
    b. Acceptable form includes AIA® G707A™, "Consent of Surety to Reduction in or Partial Release of Retainage", 1994 or later edition, or other form acceptable to OWNER.
    c. For payment requests that include reduction in or payment of retainage in an amount greater than that required by the Contract Documents, obtain OWNER's concurrence for partial release or reduction in retainage prior to submitting such Application for Payment.

D. Final Payment:
1. Requirements for request for final payment are in the General Conditions, as may be modified by the Supplementary Conditions.

1.2 PAYMENT FOR STORED MATERIALS AND EQUIPMENT

A. Observation of Stored Materials and Equipment Prior to Application for Payment:
1. General:
    a. Prior to materials or equipment suitably stored but not yet incorporated into the Work can be eligible for payment, ENGINEER or Resident Project Representative (RPR) shall visit the storage location and verify the extent, condition, and storage environment of the stored items.
    b. When the same material or equipment item is stored for more than two months, such visits to storage location shall be not less than once every two months.
2. Cost Responsibility for Observations:
    a. When storage location is less than 20 miles from the Site or less than 20 miles from ENGINEER's office, CONTRACTOR is not responsible for reimbursing OWNER for cost of ENGINEER's time and expenses for observing stored materials and equipment.
    b. When storage location is more than 20 miles from the Site and more than 20 miles from ENGINEER's office, CONTRACTOR shall reimburse OWNER, via a set-off under the Contract Documents, for cost of ENGINEER's time and expenses, including travel time, to visit the storage location and observe the stored materials and equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

LIST OF SUBCONTRACTORS AND SUPPLIERS

Owner: _____
Project Name: _____

Contractor: _____ Date: _____
Contract Designation: _____

Indicate below complete information for each Subcontractor and Supplier known to Contractor, regardless of whether the firm has a direct contract with Contractor. Include all lower-tier Subcontractors and associated Suppliers. Copy and paste the paragraphs below as required to indicate all Subcontractors and Suppliers.

SUBCONTRACTORS

1. **Subcontractor Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Work Under Specifications Section Nos.*:
   - *Brief Description of Work*:
   - *Current Subcontract Price*:
   - *Approximate Subcontract Start Date*:
   - *Approximate Subcontract End Date*:

2. **Subcontractor Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Work Under Specifications Section Nos.*:
   - *Brief Description of Work*:
   - *Current Subcontract Price*:
   - *Approximate Subcontract Start Date*:
   - *Approximate Subcontract End Date*:

3. **Subcontractor Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Work Under Specifications Section Nos.*:
   - *Brief Description of Work*:
   - *Current Subcontract Price*:
   - *Approximate Subcontract Start Date*:
   - *Approximate Subcontract End Date*:

Total of Subcontract Prices for all subcontracts equals approximately ___ percent of the Contract Price *(Contractor to fill in blank monthly)*

SUPPLIERS

1. **Supplier Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Furnishing Items Under Specifications Section Nos.*:
   - *Brief Description of Items*:
   - *Current Purchase Order Amount*:
   - *Approximate Purchase Order Date*:
   - *Approximate Purchase Order End Date*:

2. **Supplier Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Furnishing Items Under Specifications Section Nos.*:
   - *Brief Description of Items*:
   - *Current Purchase Order Amount*:
   - *Approximate Purchase Order Date*:
   - *Approximate Purchase Order End Date*:

3. **Supplier Name**:
   - *Address*:
   - *Contact Person*:
   - *Telephone No.*:
   - *E-mail Address*:
   - *Furnishing Items Under Specifications Section Nos.*:
   - *Brief Description of Items*:
   - *Current Purchase Order Amount*:
   - *Approximate Purchase Order Date*:
   - *Approximate Purchase Order End Date*:

SECTION 01 31 13

PROJECT COORDINATION (SINGLE PRIME)

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall coordinate the Work, including testing agencies whether hired by CONTRACTOR, OWNER, or others; Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with the General Conditions, Supplementary Conditions, and this Section, to perform the Work within the Contract Times and in accordance with the Contract Documents.

B. Coordination:
   1. In accordance with the General Conditions as may be modified by the Supplementary Conditions, CONTRACTOR shall cooperate with and coordinate the Work with other contractors, utility owners, utility service companies, OWNER's and facility manager's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 13, Summary of Work.
   2. CONTRACTOR will not be responsible or liable for damage unless damage is through negligence of CONTRACTOR, or Subcontractors, Supplier, or other entity employed by CONTRACTOR.
   3. CONTRACTOR shall attend and participate in all project coordination and progress meetings, and report on the progress of its Work and compliance with the Progress Schedule.

C. Layout and Coordination Drawings:
   1. Maintain sufficient competent personnel, drafting and computer-aided drafting/design (CADD) equipment, software, systems, and supplies at the Site for preparing layout drawings, coordination drawings, and record documents.
   2. With the Contract Documents and Shop Drawings, use such coordination drawings as tools for coordinating the Work of various trades.
   3. Where such coordination drawings are to be prepared by mechanical, electrical, plumbing, or heating-ventilating-air conditioning Subcontractors and other Subcontractors, ensure that each Subcontractor maintains required personnel and facilities at the Site.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 31 19.13

PRE-CONSTRUCTION CONFERENCE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. A pre-construction conference will be held for the Project.
   2. CONTRACTOR shall attend the conference prepared to discuss all items on the pre-construction conference agenda.
   3. ENGINEER will distribute an agenda, preside at conference, and prepare and distribute minutes to all conference participants and others as requested.

B. Purpose of Pre-Construction Conference:
   1. Purpose of conference is to designate responsible personnel, establish working relationships, discuss preliminary schedules submitted by CONTRACTOR, and review administrative and procedural requirements for the Project.
   2. Matters requiring coordination will be discussed and procedures for handling such matters will be established.
   3. Unless otherwise indicated in the Contract Documents or otherwise agreed to by the entities involved, Site mobilization meeting will be part of the pre-construction conference.

1.2 PREPARATION FOR PRE-CONSTRUCTION CONFERENCE

A. Date, Time, and Location:
   1. Conference will be held after execution of the Contract and before Construction Work begins.
   2. ENGINEER will establish the date, time, and location of conference and notify the interested and involved entities.

B. Submittals Required Prior to Pre-construction Conference:
   1. Not less than three days prior to pre-construction conference, submit the following preliminary schedules in accordance with the General Conditions and other requirements of the Contract Documents:
      a. Preliminary Progress Schedule.
      b. Preliminary Schedule of Submittals.
      c. Preliminary Schedule of Values.
      d. Listing of identity and general scope of Work or supply (as applicable) of planned Subcontractors and Suppliers. Indicate extent of each Subcontract proposed and overall percentage of Contract Price to be subcontracted.

C. CONTRACTOR shall furnish information required and contribute appropriate items for discussion at the pre-construction conference.

D. Handouts for Pre-Construction Conference:
   1. CONTRACTOR shall bring to the conference the following, with sufficient number of copies for each attendee:
      a. Preliminary Progress Schedule, as submitted to ENGINEER.
      b. Preliminary Schedule of Submittals, as submitted to ENGINEER.
      c. Preliminary Schedule of Values, as submitted to ENGINEER.
      d. Listing of identity and general scope of Work or supply of planned Subcontractors and Suppliers.

1.3 REQUIRED ATTENDEES

A. Representative of each entity attending the conference shall be authorized to act on that entity's behalf.

B. Contractor Attendance: Conference shall be attended by CONTRACTOR's:
   1. Project manager.
   2. Site superintendent
   3. Project managers for major Subcontractors, and major equipment Suppliers as CONTRACTOR deems appropriate.

C. Other attendees will be representatives of:
   1. OWNER.
   2. ENGINEER.
   3. Resident Project Representative (RPR), if available.
   4. Authorities having jurisdiction over the Work, if available.
   5. Utility owners, as applicable.
   6. Others as requested by OWNER, CONTRACTOR, or ENGINEER.

1.4 AGENDA

A. Preliminary Agenda: Be prepared to discuss in detail the topics indicated below. Revisions, if any, to the agenda below will be furnished to required attendees prior to the pre-construction conference.
   1. Procedural and Administrative:
      a. Personnel and Teams:
         1) Designation of roles and personnel.
         2) Limitations of authority of personnel, including personnel who will sign Contract modifications and make binding decisions.
         3) Subcontractors and Suppliers in attendance.
         4) Authorities having jurisdiction.
      b. Procedures for communications and correspondence, including electronic communication protocols.

c. Copies of the Contract Documents and availability.
d. Subcontractors and Suppliers.
    1) Lists of proposed Subcontractors and Suppliers.
e. The Work and Scheduling:
    1) General scope of the Work.
    2) Contract Times, including Milestones (if any).
    3) Phasing and sequencing.
    4) Preliminary Progress Schedule.
    5) Critical path activities.
f. Safety:
    1) Responsibility for safety.
    2) Contractor's safety representative.
    3) Emergency procedures and accident reporting.
    4) Emergency contact information.
    5) Confined space entry permits.
    6) Hazardous materials communication program.
    7) Impact of Project on public safety.
g. Permits.
h. Review of insurance requirements and insurance claims.
i. Coordination:
    1) Project coordination, and coordination among contractors.
    2) Construction coordinator.
    3) Coordination with Owner's operations.
    4) Progress meetings.
    5) Preliminary Schedule of Submittals.
    6) Procedures for furnishing and processing submittals.
    7) Work not eligible for payment until submittals are approved or accepted (as required).
    8) Construction photographic documentation.
    9) Coordination of connection to other project Phases.
j. Substitutes and "Or-Equals":
    1) Product options.
    2) Procedures for proposing "or-equals".
    3) Procedures for proposing substitutes.
k. Contract Modification Procedures
    1) Requests for interpretation
    2) Written clarifications
    3) Field Orders
    4) Proposal Requests
    5) Change Proposals
    6) Work Change Directives.
    7) Change Orders.
    8) Procedure for Claims and dispute resolution
l. Payment:
    1) Owner's Project financing and funding, as applicable.
    2) Owner's tax-exempt status.

3) Preliminary Schedule of Values
4) Procedures for measuring for payment.
5) Retainage.
6) Progress payment procedures.
7) Prevailing wage rates and payrolls.

m. Testing and inspections, including notification requirements.
n. Disposal of demolition materials.
o. Record documents.
p. Preliminary Discussion of Contract Closeout:
1) Procedures for Substantial Completion.
2) Contract closeout requirements.
3) Correction period.
4) Duration of bonds and insurance.

2. Site Mobilization (if not covered in a separate meeting):
a. Working hours and overtime.
b. Field offices, storage trailers, and staging areas.
c. Temporary facilities.
d. Temporary utilities and limitations on utility consumption (where applicable).
e. Utility company coordination (if not done as a separate meeting).
f. Access to Site, access roads, and parking for construction vehicles.
g. Maintenance and protection of traffic.
h. Use of Site and premises.
i. Protection of property.
j. Security.
k. Temporary controls, such as sediment and erosion controls, noise controls, dust control, storm water controls, and other such measures.
l. Site barriers and temporary fencing.
m. Storage of materials and equipment.
n. Reference points and benchmarks; surveys and layouts.
o. Site maintenance during the Project.
p. Cleaning and removal of trash and debris.
q. Restoration.
3. General discussion and questions.
4. Next meeting.
5. Site visit, if required.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 31 19.23

PROGRESS MEETINGS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:

1. Progress meetings will be held throughout the Project.

CONTRACTOR shall attend each progress meeting prepared to discuss in detail all items on the agenda.

2. ENGINEER will preside at progress meetings and will prepare and distribute minutes of progress meetings to all meeting participants and others as requested.

1.2 PREPARATION FOR PROGRESS MEETINGS

A. Date and Time:

1. Regular Meetings: Meetings will be held weekly on a day and time agreeable to OWNER, ENGINEER, and CONTRACTOR.
2. Other Meetings: As required.

B. Location:

1. CONTRACTOR's field office at the Site or other location mutually agreed upon by OWNER, CONTRACTOR, and ENGINEER.

C. Handouts:

1. CONTRACTOR shall bring to each progress meeting not less than four copies of each of the following:
   a. List of Work accomplished since the previous progress meeting.
   b. Up-to-date Progress Schedule.
   c. Up-to-date Schedule of Submittals.
   d. Detailed "look-ahead" schedule of Work planned through the next progress meeting, with specific starting and ending dates for each activity, including shutdowns, deliveries of important materials and equipment, Milestones (if any), and important activities affecting the OWNER, Project, and Site.
   e. When applicable, list of upcoming, planned time off (with dates) for personnel with significant roles on the Project, and the designated contact person in their absence.

1.3 REQUIRED ATTENDANCE

A. Representatives present for each entity shall be authorized to act on that entity's behalf.

B. Required Attendees:
   1. CONTRACTOR:
      a. Project manager.
      b. Site superintendent.
      c. Safety representative.
      d. When needed for the discussion of a particular agenda item, representatives of Subcontractors and Suppliers shall attend meetings.
   2. Construction coordinator (if any).
   3. ENGINEER:
      a. Project manager or designated representative
      b. Resident Project Representative (if any).
      c. Others as required by ENGINEER.
   4. OWNER's representative(s), as required.
   5. Testing and inspection entities, as required.
   6. Others, as appropriate.

1.4 AGENDA

A. Preliminary Agenda: Be prepared to discuss in detail the topics listed below. Revised agenda, if any, will be furnished to CONTRACTOR prior to first progress meeting. Progress meeting agenda may be modified by ENGINEER during the Project as required.
   1. Review, comment, and amendment (if required) of minutes of previous progress meeting.
   2. Review of progress since the previous progress meeting.
   3. Planned progress through next progress meeting.
   4. Review of Progress Schedule
      a. Contract Times, including Milestones (if any)
      b. Critical path.
      c. Schedules for fabrication and delivery of materials and equipment.
      d. Corrective measures, if required.
   5. Submittals:
      a. Review status of critical submittals.
      b. Review revisions to Schedule of Submittals.
   6. Contract Modifications
      a. Requests for interpretation
      b. Written clarifications
      c. Field Orders
      d. Proposal Requests
      e. Change Proposals
      f. Work Change Directives.

g. Change Orders.
h. Claims.

7. Applications for progress payments.
8. Problems, conflicts, and observations.
9. Quality standards, testing, and inspections.
10. Coordination between parties.
11. Site management issues, including access, security, maintenance and protection of traffic, maintenance, cleaning, and other Site issues.
12. Safety.
13. Permits.
14. Construction photographic documentation.
15. Record documents status.
16. Punch list status, as applicable.
17. Other business.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 32 16

PROGRESS SCHEDULE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall prepare and submit Progress Schedules and related documents in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and this Section, unless otherwise accepted by ENGINEER.
   2. CONTRACTOR shall maintain and update Progress Schedules and related documents.
   3. Progress Schedule shall be resource loaded CPM Progress Schedule.
   4. ENGINEER's acceptance of the Progress Schedule or related documents, and comments or opinions concerning activities in the Progress Schedule and related documents shall not control CONTRACTOR's independent judgment concerning means, methods, techniques, sequences and procedures of construction, unless the associated means, method, technique, sequence, or procedure is directed by the Contract Documents. CONTRACTOR is solely responsible for complying with the Contract Times.

B. Use of Float:
   1. Float belongs to the Project and may be used by OWNER or CONTRACTOR to accommodate changes in the Work, or to mitigate the effect of events that delay performance or compliance with the Contract Times.
   2. Changes or delays that influence Activities that have float and that do not extend the Critical Path are not justification for an extension of the Contract Times.

C. Factors Affecting the Progress Schedule:
   1. In preparing the Progress Schedule, take into consideration submittal requirements and submittal review times, time for fabricating and delivering materials and equipment, source quality control (including shop testing) and field quality control (including testing at the Site), Subcontractors' work, availability and abilities of workers, availability of construction equipment, weather conditions, restrictions in operations at the Site and coordination with OWNER's operations, and other factors that have the potential to affect completion of the Work within the Contract Times.
   2. Comply with sequencing requirements indicated in the following:

a. Section 01 11 13, Summary of Work.
b. Section 01 14 16, Coordination with Owner's Operations.
c. Section 01 31 13, Project Coordination (Single Prime).

1.2 DEFINITIONS

A. The following terms are defined for this Section and supplement the terms defined in the General Conditions and Supplementary Conditions:
   1. Activity: An element of the construction work that has the following specific characteristics: consumes time, consumes resources, has a definable start and finish, is assignable, and is measurable.
   2. Constraint: An imposed date on the Progress Schedule or an imposed time between Activities. The Contract Times are Constraints.
   3. CPM Progress Schedule: Computerized Progress Schedule in Critical Path Method (CPM) format which accounts for the entire Work, defines the interrelationships between elements of the Work, reflects the uncompleted Work, and indicates the sequence with which the Work has been completed, indicates the sequence in which uncompleted Work will be completed, and indicates the duration of each Activity.
   4. Critical Path: The continuous chain of Activities with the longest duration for completion within the Contract Times.
   5. Early Start: The earliest possible date an Activity can start according to the assigned relationships among Activities.
   6. Early Finish: The earliest date an Activity can finish according to the assigned relationships among the Activities.
   7. Late Finish: The latest date an Activity can finish without extending the Contract Times.
   8. Late Start: The latest date an Activity can start without extending the Contract Times.
   9. Float: The time difference between the calculated duration of the Activity chain and the Critical Path.
   10. Total Float: The total number of days that an Activity (or chain of Activities) can be delayed without affecting the Contract Times.
   11. Network Diagram: A time-scaled logic diagram depicting the durations and relationships of the Activities.
   12. Work Areas, Area, or System: A logical breakdown of the Project elements or a group of Activities which, when collectively assembled, are readily identifiable on the Project (for example: yard piping, a structure or building, a treatment process, or other logical grouping).

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Progress Schedule Preparer:
      a. CONTRACTOR shall retain services of a scheduling consultant or shall

self-prepare and maintain the Progress Schedule using qualified employee with experience in scheduling, and experienced with the scheduling software required for the Project, and experience serving as Progress Schedule preparer on construction projects of similar type, size, and scope to this Project.

b. Progress Schedule preparer shall have not less than five years' experience using the schedule software required on construction projects of similar type, size, and scope as the Project.

c. Prior to engaging a scheduling consultant or using a qualified employee, submit to ENGINEER the following:
   1) Name and address of proposed Progress Schedule preparer and the names of personnel who will be assigned to scheduling the Project.
   2) Information sufficient to demonstrate that proposed Progress Schedule preparer and scheduling personnel to be assigned to the Project possess qualifications complying with this Section. For each person assigned, submit list of similar type (Should we set a minimum number?), size, contract value of projects, names and contact information of engineer or architect and owner.

d. Engineer's Review of Qualifications:
   1) ENGINEER will respond to CONTRACTOR whether proposed scheduling personnel are acceptable within 5 days after ENGINEER's receipt of complete qualifications.
   2) If qualifications are not acceptable, submit qualifications of acceptable personnel within 5 days of receipt of ENGINEER's non-acceptance.
   3) ENGINEER's acceptance or non-acceptance of qualifications does not release CONTRACTOR from its obligations under the Contract Documents.

1.4 SUBMITTALS

A. Quantity of each submittal required and timing of submittals are in this Section.

B. Informational Submittals: Submit the following:
   1. Initial Progress Schedules:
      a. Preliminary Progress Schedule with associated Network Diagrams, narrative report
      b. Acceptable Progress Schedule with associated Network Diagrams, narrative report
      c. Preliminary resource- loaded Progress Schedule and associated reports.
      d. Acceptable resource- loaded Progress Schedule and associated reports.
      e. Submit each Progress Schedule submittal with letter of transmittal complying with requirements of Section 01 33 00, Submittal Procedures.
   2. Progress Schedule Updates.
      a. Progress Schedule updates shall comply with requirements of this Section, and shall include updated Progress Schedule, narrative report, updated Network Diagram when relationships among Activities are

changed, and updated mathematical tabulations.

b. Submit updated Progress Schedule prior to each progress meeting. When a Progress Schedule remains unchanged from one progress meeting to the next, submit a written statement to that effect. In addition to monthly Progress Schedule submittals, also bring to progress meeting the number of printed copies of the updated Progress Schedule indicated in Section 01 31 19.23, Progress Meetings.

3. Look-Ahead Schedules
   a. Furnish two-week day look-ahead schedule at each progress meeting.
4. Time Impact Analyses: Submit in accordance with this Section.
5. Recovery Schedule: Submit in accordance with this Section.
6. Qualifications:
   a. Submit qualifications of Progress Schedule preparer, and other personnel that will assist Progress Schedule preparer in preparing and maintaining the Progress Schedule.

1.5 INITIAL PROGRESS SCHEDULES

A. Type and Organization of Progress Schedules:
   1. Prepare Progress Schedule using Microsoft Project software, unless other scheduling software is acceptable to ENGINEER.
   2. Sheet Size: 11inches by 17 inches unless otherwise accepted by ENGINEER.
   3. Time Scale: Indicate first date of each work-week.
   4. Activity Designations: Indicate title and related Specifications Section number.
   5. Progress Schedules shall be CPM Progress Schedules.
   6. Organization:
      a. Indicate on the separate Schedule of Submittals dates for submitting and reviewing Shop Drawings, Samples, and other submittals.
      b. Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.
      c. Group construction into Work Area sub-schedules (that are part of the Progress Schedule) by Activity.
      d. Clearly indicate the Critical Path on the Progress Schedule.
      e. Organize each Work Area sub-schedule by Specifications Section number.

B. Preliminary Progress Schedule:
   1. Within ten (10) days after the Contract Times commence running, CONTRACTOR shall submit to ENGINEER the preliminary Progress Schedule covering the entire Project, with associated Network Diagrams.
   2. Submit three (3) printed copies of preliminary Progress Schedule and associated reports and schedule-related documents to accompany the preliminary Progress Schedule, in accordance with the Submittals Article of this Section. Submit in accordance with Section 01 33 00, Submittal Procedures.

3. ENGINEER will conduct a timely (EPW front ends usually allow for a maximum of 10 days) review of the preliminary Progress Schedule.
4. Preliminary Progress Schedule shall comply with the Contract Documents relative to Progress Schedules, but need not be resource-loaded.

C. Initial Acceptance of Progress Schedule:
1. Not less than ten (10) days before submission of the first Application for Payment, a scheduling conference attended by CONTRACTOR, Progress Schedule preparer, ENGINEER, and others as appropriate will be held at the Site to review for acceptability to ENGINEER the preliminary Progress Schedule and associated Network Diagram and other reports and schedule-related documents required. Following the scheduling conference, CONTRACTOR shall have ten (10) days to make corrections and adjustments and to complete and resubmit the Progress Schedule and associated Network Diagram. No progress payment will be made to CONTRACTOR until acceptable Progress Schedule, Network Diagram, and other reports and schedule-related documents required are submitted to ENGINEER.
2. Submit three (3) copies each of acceptable Progress Schedule with Network Diagram, reports, and other schedule-related documents required to accompany the initial acceptable Progress Schedule, in accordance with the Submittals Article of this Section. Submit in accordance with Section 01 33 00, Submittal Procedures.
3. The Progress Schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within the Contract Times, in accordance with the Contract Documents. 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.
4. Initially-accepted Progress Schedule shall be identified as the baseline Progress Schedule.

D. If the Progress Schedule reflects completion date(s) different than the Contract Times, the Contract Times are not thereby voided, nullified, or affected. The Contract Times govern. Where the Progress Schedule reflects completion date(s) that are earlier than the Contract Times, ENGINEER may accept such Progress Schedule with CONTRACTOR to specifically understand that no Change Request or Claim for additional Contract Times or additions to the Contract Price shall be brought against OWNER resulting from CONTRACTOR's failure to complete the Work by the earlier date(s) indicated on the accepted Progress Schedule.

1.6 PROGRESS SCHEDULE UPDATES

A. Updates:
1. Update the Progress Schedule not less-often than once per month. If during progress of the Work events develop that necessitate changes in the initially accepted Progress Schedule (e.g., baseline Progress Schedule), identify updated

Progress Schedules sequentially as "Progress Schedule Revision 1", "2", "3", and continuing in sequence as required. Number the Progress Schedule submittals in accordance with Section 01 33 00, Submittal Procedures.

2. CONTRACTOR's Progress Schedule update shall include a narrative report in accordance with this Section. Narrative report shall include description of current progress and status of each Area of the Project, a description of progress for the period, a description of the Critical Path, a discussion of current or potential delays, Change Orders (pending and approved in since the previous Progress Schedule update), and other problems associated with maintaining the Work on schedule.
3. The update to the Progress Schedule shall be based on retained logic. Progress override logic is not allowed.
4. Required scheduling software, and schedule organization, format, and content for updated Progress Schedules are identical to that required in this Section for initial Progress Schedules.
5. Submit to ENGINEER 3 printed copies of the updated Progress Schedule, Network Diagrams (when required), narrative report, and other schedule-related reports and documents required, and two compact discs (CD) each with a complete software backup copy of the updated Progress Schedule.
6. Submit updated Network Diagrams when revisions are proposed to the logic. Indicate in the narrative report delays that have occurred since the previous updated Progress Schedule. ENGINEER will not recommend payment by OWNER of progress payments until updated Progress Schedule is received, reviewed, and accepted by ENGINEER. Payment for out-of-sequence Work is not allowed.

1.7 TIME IMPACT ANALYSIS

A. Time Impact Analyses – General:
   1. Prepare and submit a time impact analysis when one or more of the following occurs: a Change Proposal is prepared, a Work Change Directive is issued that will affect the Progress Schedule, or when delays are experienced. Time impact analysis shall illustrate the influence of each Change Order, Work Change Directive, allowance authorization, or delay, as applicable, on the Contract Times and schedule milestones.
   2. Each time impact analysis shall include a sketch (fragnet) demonstrating how CONTRACTOR proposes to incorporate the changes in the Work or, as applicable, delays into the Progress Schedule. Fragnet shall include all logic, resource changes, and additions required as result of said Change Order, Work Change Directive, allowance authorization, or delay.
   3. Fragnet shall show all CPM logic revisions for the Work associated with the Change Order, Work Change Directive, allowance authorization, or delay and its relationship to other Activities in the Network Diagram.
   4. Time impact analysis shall demonstrate the time impact, based on date the Change Order, Work Change Directive, or allowance authorization was given to CONTRACTOR, or as applicable the date the delay was implemented; the

status of the Work at that point in time; and the Activity duration of affected Activities. Activity duration used in the time impact analysis shall be those included in the latest update of the Progress Schedule accepted by ENGINEER, closest to the time of the start of the delay or start of the Change Order, Work Change Directive, or allowance authorization as adjusted by mutual, written agreement of the parties and ENGINEER.

5. Timing of Time Impact Analysis:
   a. Submit each time impact analysis within 10 days after the following, as applicable:
      1) Start of the delay.
      2) After the submittal of Change Proposal.
      3) After CONTRACTOR receipt of Work Change Directive.
   b. When CONTRACTOR does not submit time impact analysis for a specific change or delay, within the specified period of time for such submittal, such non-submittal shall be construed that no extension of the Contract Times is required.

B. Evaluation by Engineer and Acceptance:
   1. ENGINEER's evaluation of each time impact analysis comprised of complete information will be completed in timely manner after ENGINEER's receipt. Changes in the Contract Times will be made only by Change Order.
   2. When mutual agreement is reached between the parties on effect of the change or delay in the Project, incorporate into the next Progress Schedule update the associated fragnets illustrating the influence of changes and delays.

1.8 RECOVERY SCHEDULES

A. Recovery Schedules – General:
   1. When updated Progress Schedule indicates that the ability to comply with the Contract Times falls 5 or more days behind schedule, and there is no excusable delay, Change Order, or Work Change Directive to support an extension of the Contract Times, CONTRACTOR shall prepare and submit a Progress Schedule demonstrating CONTRACTOR's plan to accelerate the Work to achieve compliance with the Contract Times ("recovery schedule") for ENGINEER's acceptance.
   2. Submit recovery schedule within 10 days after submittal of updated Progress Schedule where need for recovery schedule is indicated.

B. Implementation of Recovery Schedule:
   1. At no additional cost to OWNER, do one or more of the following: furnish additional labor, provide additional construction equipment, provide suitable materials, employ additional work shifts, expedite procurement of materials and equipment to be incorporated into the Work, and other measures necessary to complete the Work within the Contract Times.

2. Upon acceptance of recovery schedule by ENGINEER, incorporate recovery schedule into the next Progress Schedule update.

C. Lack of Action:
   1. CONTRACTOR's refusal, failure, or neglect to take appropriate recovery action, or to submit a recovery schedule, shall constitute reasonable evidence that CONTRACTOR is not prosecuting the Work or separable part thereof with the diligence that will ensure completion within the Contract Times. Such lack of action shall constitute sufficient basis for OWNER to exercise remedies available to OWNER under the Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall retain photographer to perform services specified, including:
      a. Digital photography.
      b. Digital videography.
   2. Furnish photographic documentation for the following:
      a. Pre-construction.
      b. Construction progress.
      c. Final.

B. Image Quality:
   1. Photographic documentation shall be in color.
   2. Photographic images shall be suitably staged and set up ("framed"), focused, and shall have adequate lighting to illuminate the Work and conditions that are the subject of the photograph.
   3. For still photographs, use camera with minimum 16.0-megapixel resolution.

1.2 QUALITY ASSURANCE

A. Qualifications:
   1. Photographer:
      a. Photographer shall be a specialist regularly engaged in photography and experienced in photographing construction sites.
      b. Upon request of ENGINEER, submit documentation of photographer having successfully performed photographic documentation for not less than five previous construction projects, each lasting not less than six months.

B. At the Site, ENGINEER or Resident Project Representative will indicate the views to be taken and will select time at which images will be taken. Photographic subjects, views, and angles will vary with progress of the Work.

1.3 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Pre-construction Photographic Documentation: Submit acceptable pre-construction photographic documentation (prints and digital files) prior to mobilizing to and disturbing the Site. Submit pre-construction photographic documentation not later than the first Application for Payment, unless other schedule for pre-construction photographic documentation is accepted by ENGINEER.
   2. Construction Progress Photographic Documentation: Submit acceptable construction progress photographic documentation (digital files) not less-often than monthly. Submit with each Application for Payment, unless otherwise agreed to by ENGINEER.
   3. Qualifications Statements:
      a. When requested by ENGINEER, prior to starting photographic documentation, submit photographer qualifications and record of experience. List of construction photography experience shall include the following for each project:
         1) Project name and location
         2) Nature of construction.
         3) Photographer's client with contract information.
         4) Approximate duration of photographer's services.

B. Closeout Submittals: Submit the following:
   1. Final Photographic Documentation: Submit acceptable final photographic documentation (prints and digital files) prior to requesting the final inspection by ENGINEER.

1.4 PHOTOGRAPHIC DOCUMENTATION – GENERAL

A. Digital Files of Photographs:
   1. For each photograph taken, furnish high-quality digital image in "JPG" file format compatible with Microsoft Windows 7 and higher operating systems.
   2. Image resolution shall be sufficient for clear, high-resolution prints. Minimum resolution shall be 150 dots per inch (dpi). Minimum size of digital images shall be 3,266 pixels by 2,450 pixels.
   3. Do not imprint date and time in the image.
   4. Electronic image filename shall describe the image; do not submit filenames automatically created by digital camera. For example, an acceptable electronic filename would be, "Dewatering Building – Looking West at Centrifuge No. 2.jpg".
   5. Form of Digital Submittal – Images on Discs:
      a. Submit digital files on compact discs (CD) or digital video discs (DVD).
      b. Submit three copies of each disc with digital files of photographic images.

c. Include the following information on front of each disc containing photographic documentation:
   1) Date(s) photographs were taken.
   2) Name of OWNER.
   3) Name of the Site.
   4) Project name.
   5) Photographer name and address.

B. Videography:
   1. Video shall be high-definition (HD), high-quality video of the Site and Project work.
   2. All video files for the entire Project shall be submitted in one container file format. Video files shall be in one of the following container file formats:
      a. AVI (Microsoft systems).
      b. Flash Video (F4V, FLV; Adobe systems).
      c. QuickTime File Format (MOV, QT; Apple, Inc.).
      d. MP4 ("MPEG-4 Part 14").
   3. Video image shall have imprinted date and time that video was taken.
   4. Include audio narration sufficient to explain the scenes shown.
   5. Form of Digital Submittal – Video Discs:
      a. Submit digital files on digital video discs (DVD) in standard DVD-R or DVD+R discs.
      b. Submit three copies of each disc with digital files of video.
      c. Include the following information on front of each disc containing video documentation:
         1) Date(s) video was taken.
         2) Name of OWNER.
         3) Name of the Site.
         4) Project name.
         5) Videographer name and address.

1.5 PRE-CONSTRUCTION PHOTOGRAPHIC DOCUMENTATION

A. Pre-construction Photographic Documentation:
   1. Obtain and submit sufficient pre-construction photographic documentation to record Site conditions prior to construction. Photographs shall document work areas of all prime contracts under the Project.
   2. Pre-construction photographs are not part of required number of construction progress photographs specified in Article 1.6 of this Section.
   3. Furnish pre-construction video of all work areas included in all prime contracts on the Project, including indoor and outdoor work areas and staging areas.

B. If disagreement arises on the condition of the Site and insufficient pre-construction photographic documentation was submitted prior to the disagreement, restore the grounds or area in question to extent directed by ENGINEER and to satisfaction of ENGINEER.

1.6 CONSTRUCTION PROGRESS PHOTOGRAPHIC DOCUMENTATION

A. Progress Photographs:
   1. Take photographs not less often than twice per month.
   2. Take not less than 20 photographs each time photographer is at the Site.
   3. Maximum number of progress photographs required will be 480, based on the Contract Times to Substantial Completion of the entire Project and scope of the Project on date the Contract Times commence running. Proportionately modify the extent of photographic documentation if scope of the Project or the Contract Times are modified.
   4. Obtain and submit interior and exterior photographic documentation of each structure in the work area as directed by ENGINEER at the time photographic documentation is taken.

1.7 FINAL PHOTOGRAPHIC DOCUMENTATION

A. Final Photographs:
   1. Take photographs at time and day acceptable to ENGINEER. Do not take final photographs prior to Substantial Completion of the entire Project. Work documented in final photographs shall be generally complete, including painting and finishing, furnishings, landscaping, and other visible Work
   2. Take not less than 20 final photographs, based on scope of the Project at the time that the Contract Times commence running. Proportionately modify the number of final photographs if scope of Project is modified. Final photographs are not part of construction progress photographs required under Paragraph 1.6.A of this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall prepare and furnish submittals in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and this Section.
   2. Provide submittals well in advance of need for the material or equipment, or procedure (as applicable), in the Work and with ample time required for delivery of materials and equipment and to implement procedures following ENGINEER's approval or acceptance of the associated submittal. Work covered by a submittal will not be included in progress payments until approval or acceptance of related submittals has been obtained in accordance with the Contract Documents.
   3. CONTRACTOR is responsible for dimensions to be confirmed and corrected at the Site; quantities; information pertaining solely to fabrication processes; means, methods, sequences, procedures, and techniques of construction; safety precautions and programs incident thereto; and for coordinating the work of all trades.
   4. CONTRACTOR's signature of submittal's stamp and letter of transmittal shall be CONTRACTOR's representation that CONTRACTOR has complied with its obligations under the Contract Documents relative to that submittal. ENGINEER and OWNER shall be entitled to rely on such representations by CONTRACTOR.
   5. Provisions of the General Conditions, as may be modified by the Supplementary Conditions, apply to all CONTRACTOR-furnished submittals required by the Contract Documents, regardless of whether such submittals are other than Shop Drawings or Samples.

B. Samples:
   1. Submittal of Samples shall comply with the General Conditions, as may be modified by the Supplementary Conditions, this Section, and the Specifications Section in which the Sample is specified.
   2. Furnish at the same time those Samples and submittals that are related to the same element of the Work or Specifications Section. ENGINEER will not review submittals without associated Samples, and will not review Samples without associated submittals.
   3. Samples shall clearly illustrate functional characteristics of materials, all related parts and attachments, and full range of color, texture, pattern, and materials.

C. Restrictions on Quantity of Submittals and Compensation of OWNER:
   1. CONTRACTOR shall furnish required submittals with sufficient information and accuracy to obtain required approval or acceptance of submittal by ENGINEER with not more than the number of resubmittals indicated in the General Conditions (as may be modified by the Supplementary Conditions).
   2. Total number of CONTRACTOR's submittals shall not exceed 25 percent above the total number of first-time submittals indicated in the Schedule of Submittals initially accepted by ENGINEER in accordance with the General Conditions. ENGINEER will record ENGINEER's time for reviewing submittals of Shop Drawings, Samples, and other submittals and items requiring approval or acceptance, beyond the quantity of first-time submittals indicated in the Schedule of Submittals initially accepted by ENGINEER, and CONTRACTOR shall reimburse OWNER for ENGINEER's charges for such time.
   3. In the event that CONTRACTOR requests a substitution for a previously approved item, Contractor shall reimburse OWNER for ENGINEER's charges for such time unless the need for such substitution is beyond the control of CONTRACTOR.
   4. OWNER may impose set-offs against CONTRACTOR for the costs for which CONTRACTOR is to reimburse or compensate OWNER, in accordance with the General Conditions.

1.2 TYPES OF SUBMITTALS

A. Submittal types are classified as follows: 1) Action Submittals, 2) Informational Submittals, 3) Closeout Submittals, and 4) Maintenance Material submittals. Type of each required submittal is designated in the respective Specifications Sections; when type of submittal is not designated in the associated Specification Section, submittal will be classified as follows:
   1. Action Submittals include:
      a. Shop Drawings.
      b. Product data.
      c. Delegated design submittals, which include documents prepared, sealed, and signed by a design professional retained by CONTRACTOR, Subcontractor, or Supplier for materials and equipment to be incorporated into the completed Work. Delegated design submittals do not include submittals related to temporary construction unless specified otherwise in the related Specifications Section. Delegated design submittals include: design drawings, design data including calculations, specifications, certifications, and other submittals prepared by such design professional.
      d. Samples.
      e. Testing plans, procedures, and testing limitations.

2. Informational Submittals include:
    a. Certificates.
    b. Design data not sealed and signed by a design professional retained by CONTRACTOR, Subcontractor, or Supplier.
    c. Pre-construction test and evaluation reports, such as reports on pilot testing, subsurface investigations, testing for a potential Hazardous Environmental Condition, and similar reports.
    d. Supplier instructions, including installation data, and instructions for handling, starting-up, and troubleshooting.
    e. Source quality control submittals (other than testing plans, procedures, and testing limitations), including results of shop testing.
    f. Field or Site quality control submittals (other than testing plans, procedures, and testing limitations), including results of operating and acceptability tests at the Site.
    g. Supplier reports.
    h. Sustainable design submittals (other than sustainable design closeout documentation).
    i. Special procedure submittals, including plans for shutdowns and tie-ins and other procedural submittals.
    j. Qualifications statements.
    k. Administrative submittals including:
        1) Progress Schedules.
        2) Schedules of Submittals.
        3) Schedules of Values.
        4) Photographic documentation.
        5) Coordination drawings, when submittal of such is required.
        6) Copies of permits obtained by CONTRACTOR.
        7) Field engineering reports, survey data, and similar information.
3. Closeout Submittals include:
    a. Maintenance contracts.
    b. Operations and maintenance data.
    c. Bonds, such as special maintenance bonds and bonds for a specific material, equipment item, or system.
    d. Warranty documentation.
    e. Record documentation.
    f. Sustainable design closeout documentation.
    g. Software.
    h. Keying.
4. Maintenance Material Submittals include:
    a. Spare parts.
    b. Extra stock materials.
    c. Tools.
5. When type of submittal is not specified and is not included in the list above, request an interpretation from ENGINEER and ENGINEER will determine the type of submittal.

B. Not Included in this Section: Administrative and procedural requirements for following are covered elsewhere in the Contract Documents:
   1. Requests for interpretations of the Contract Documents.
   2. Change Orders, Work Change Directives, and Field Orders.
   3. Applications for Payment
   4. Reports, documentation, and permit applications required to be furnished by CONTRACTOR to authorities having jurisdiction.

1.3 REQUIREMENTS FOR SCHEDULE OF SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Schedule of Submittals:
      a. Timing:
         1) Furnish submittal within time frames indicated in the Contract Documents.
         2) Submit updated Schedule of Submittals with each submittal of the updated Progress Schedule.
      b. Content: In accordance with the General Conditions, and as may be modified by the Supplementary Conditions, and this Section. Requirements for content of preliminary Schedule of Submittals and subsequent submittals of the Schedule of Submittals are identical. Identify on Schedule of Submittals all submittals required in the Contract Documents. Updates of Schedule of Submittals shall show scheduled dates and actual dates for completed tasks. Indicate submittals that are on the Project's critical path. Indicate the following for each submittal:
         1) Date by which submittal will be received by ENGINEER.
         2) Whether submittal will be for a substitution or "or-equal". Procedures for requesting approval of substitutes and "or-equals" are specified in the General Conditions, Section 01 25 00, and Substitution Procedures.
         3) Date by which ENGINEER's response is required. Not less than 14 calendar days shall be allowed for ENGINEER's review, starting upon ENGINEER's actual receipt of each submittal. Allow increased time for large or complex submittals.
         4) For submittals for materials or equipment, date by which material or equipment must be at the Site to avoid delaying the Work and to avoid delaying the work of other contractors, if any.
      c. Prepare Schedule of Submittals using same software, and in same format, specified for Progress Schedules in Section 01 32 16, Progress Schedule.
      d. Coordinate Schedule of Submittals with the Progress Schedule.
      e. Schedule of Submittals that is not compatible with the Progress Schedule, or that does not indicate submittals on the Project's critical path, or that that places extraordinary demands on ENGINEER for time and resources, is unacceptable. Do not include submittals not required by the Contract Documents.

f. In preparing Schedule of Submittals:
   1) Considering the nature and complexity of each submittal, allow sufficient time for review and revision.
   2) Reasonable time shall be allowed for: ENGINEER's review and processing of submittals, for submittals to be revised and resubmitted, and for returning submittals to CONTRACTOR.
   3) Identify and accordingly schedule submittals that are expected to have long anticipated review times.

1.4 PROCEDURE FOR SUBMITTALS

A. Submittal Identification System: Use the following submittal identification system, consisting of submittal number and review cycle number.
   1. Submittal Number: Shall be separate and unique number correlating to each individual submittal required. Assign submittal numbers as follows:
      a. First part of submittal number shall be the applicable Specifications Section number, followed by a hyphen.
      b. Second part of submittal number shall be a three-digit number (sequentially numbered from 001 through 999) assigned to each separate and unique submittal furnished under the associated Specifications Section.
      c. Typical submittal number for the third submittal furnished for Section 40 05 19, Ductile Iron Process Pipe, would be "40 05 19-003".
   2. Review Cycle Number: Shall be a letter designation indicating the initial submittal or re-submittal associated with each submittal number:
      a. "A" = Initial (first) submittal.
      b. "B" = Second submittal (e.g., first re-submittal).
      c. "C" = Third submittal (e.g., second re-submittal).
   3. Examples:

Example Description	Submittal Identification	
	Submittal No.	**Review Cycle**
Initial (first) review cycle of the third submittal provided under Section 40 05 19, Ductile Iron Process Pipe	40 05 19-003-	A
Second review cycle (first re-submittal) of third submittal provided under Section 40 05 19, Ductile Iron Process Pipe	40 05 19-003-	B

B. Letter of Transmittal for Submittals:
   1. Furnish separate letter of transmittal with each submittal. Each submittal shall be for one Specifications Section.
   2. At beginning of each letter of transmittal, include a reference heading indicating: CONTRACTOR's name, OWNER's name, Project name, Contract designation, transmittal number, and submittal number.

3. For submittals with proposed deviations from requirements of the Contract Documents, letter of transmittal shall specifically describe each proposed variation.

C. Contractor's Review and Stamp:
   1. Contractor's Review: Before transmitting submittals to ENGINEER, review submittals to:
      a. Ensure proper coordination of the Work;
      b. Determine that each submittal is in accordance with CONTRACTOR's desires;
      c. Verify that submittal contains sufficient information for ENGINEER to determine compliance with the Contract Documents.
   2. Incomplete or inadequate submittals will be returned without review.
   3. Contractor's Stamp and Signature:
      a. Each submittal furnished shall bear CONTRACTOR's stamp of approval and signature, as evidence that submittal has been reviewed by CONTRACTOR and verified as complete and in accordance with the Contract Documents.
      b. Submittals without CONTRACTOR's stamp and signature will be returned without review.
      c. CONTRACTOR's stamp shall contain the following:

"Project Name: _____

Contractor's Name: _____

Contract Designation: _____

Date: _____

---------- *Reference* ----------

Submittal Title: _____

Specifications:

Section: _____

Page No.: _____

Paragraph No.: _____

Drawing No.: _____ of _____

Location of Work: _____

Submittal No. and Review Cycle: _____

Coordinated by Contractor with Submittal Nos.: _____

_____

I hereby certify that the Contractor has satisfied Contractor's obligations under the Contract Documents relative to Contractor's review and approval of this submittal.

Approved for Contractor by: " _____"

D. Submittal Marking and Organization:
   1. Mark on each page of submittal and each individual component submitted with submittal number and applicable Specifications paragraph. Mark each page of each submittal with the submittal page number.
   2. Arrange submittal information in same order as requirements are written in the associated Specifications Section.
   3. Each Shop Drawing sheet shall have title block with complete identifying information satisfactory to ENGINEER.
   4. Package together submittals for the same Specifications Section. Do not furnish required information piecemeal.

E. Format of Submittal and Recipients:
   1. Action Submittals and Informational Submittals: Furnish in accordance with Table 01 33 00-A, except that submittals of Samples shall be as specified elsewhere in this Section:

TABLE 01 33 00-A: SUBMITTAL CONTACTS AND REQUIRED FORMAT

	Address for Deliveries	Contact Person	E-mail Address	Format*	No. of Printed Copies
a.	Engineer: Brock and Bustillos	Sergio Adame	sergio@brockbustillos.com	E	Zero
b.	Resident Project Representative: At the Site.	XXXXXX	(--5--)@XXXXX.com	E & P	One
d.	Owner: El Paso Water (EPW)	Gerardo S. Gomez	GSGomez@epwu.org	E	Zero
* **Format**: E = Electronic files; P = Printed copies. TBD = To Be Determined					

   2. Samples:
      a. Securely label or tag Samples with submittal identification number. Label or tag shall include clear space at least four inches by four inches in size for affixing ENGINEER's review stamp. Label or tag shall not cover, conceal, or alter appearance or features of Sample. Label or tag shall not be separated from the Sample.
      b. Submit quantity of Samples required in Specifications. If quantity of Samples is not indicated in the associated Specifications Section, furnish not less than three identical Samples of each item required for ENGINEER's approval. Samples will not be returned to CONTRACTOR. If CONTRACTOR requires Sample(s) for CONTRACTOR's use, so advise ENGINEER in writing and furnish additional Sample(s). CONTRACTOR is responsible for furnishing, shipping, and transporting additional Samples.
      c. Deliver one Sample to ENGINEER's field office at the Site. Deliver balance of Samples to ENGINEER at address indicated in Table 01 33 00-A, unless otherwise directed by ENGINEER.

3. Closeout Submittals:
    a. Furnish the following Closeout Submittals in accordance with Table 01 33 00-A: maintenance contracts; bonds for specific materials, equipment, or systems; warranty documentation; and sustainable design closeout documentation. On documents such as maintenance contracts and bonds, include on each document furnished original ("wet") signature of entity issuing said document. When original "wet" signatures are required, furnish such submittals in printed form and electronic form to ENGINEER, and to other entities furnish as indicated in Table 01 33 00-A.
    b. Record Documentation: Submit in accordance with Section 01 78 39, Project Record Documentation.
    c. Software: Submit number of copies required in Specifications Section where the software is specified. If number of copies is not specified, provide two copies on compact disc in addition to software loaded on OWNER's computer(s) or microprocessor(s).
4. Maintenance Material Submittals: For spare parts, extra stock materials, and tools, furnish quantity of items specified in associated Specifications Section.

F. Electronic Submittals:
1. Format: Electronic files shall be in "portable document format" (.PDF). Files shall be electronically searchable.
2. Organization and Content:
    a. Each electronic submittal shall be one file; do not divide individual submittals into multiple files each.
    b. When submittal is large or contains multiple parts, furnish PDF file with bookmark for each section of submittal.
    c. Content shall be identical to printed submittal. First page of electronic submittal shall be CONTRACTOR's letter of transmittal.
3. Quality and Legibility: Electronic submittal files shall be made from the original and shall be clear and legible. Do not submit scans of faxed copies. Electronic file shall be full size of original, printed documents. Properly orient all pages for reading on a computer screen.
4. Provide sufficient Internet service and e-mail capability for CONTRACTOR's use in transferring electronic submittals, receiving responses to electronic submittals, and associated electronic correspondence. Check not less than once per day for distribution of electronic submittals, electronic responses to submittal, and electronic correspondence related to submittals.
5. Submitting Electronic Files:
    a. Transmit electronic submittals files via e-mail in accordance with Table 01 33 00-A.

G. Distribution:
   1. Distribution of ENGINEER's Response via Electronic Files: Upon completion of ENGINEER's review, electronic submittal response will be distributed by ENGINEER to
      a. CONTRACTOR.
      b. OWNER.
      c. Resident Project Representative (RPR).
      d. ENGINEER's file.

H. Resubmittals: Refer to the General Conditions for requirements regarding resubmitting required submittals.

1.5 ENGINEER'S REVIEW

A. Timing: ENGINEER's review will conform with timing indicated in the Schedule of Submittals accepted by ENGINEER.

B. Submittals not required by the Contract Documents will not be reviewed by ENGINEER and will not be recorded in ENGINEER's submittal log. All printed copies of such submittals will be returned to CONTRACTOR. Electronic copies of such submittals, if any, will not be retained by ENGINEER.

C. Action Submittals, Results of ENGINEER's Review: Each submittal will be given one of the following dispositions by ENGINEER:
   1. Approved: Upon return of submittal marked "Approved", order, ship, or fabricate materials and equipment included in the submittal (pending ENGINEER's approval or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents.
   2. Approved as Corrected: Upon return of submittal marked "Approved as Corrected", order, ship, or fabricate materials and equipment included in the submittal (pending ENGINEER's approval or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents, and in accordance with the corrections indicated in the ENGINEER's submittal response.
   3. Approved as Corrected – Resubmit: Upon return of submittal marked "Approved as Corrected – Resubmit", order, ship, or fabricate materials and equipment included in the submittal (pending ENGINEER's approval or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents, and in accordance with corrections indicated in ENGINEER's submittal response. Furnish to ENGINEER record re-submittal with all corrections made. Receipt of corrected re-submittal is required before materials or equipment covered in the submittal will be eligible for payment.

4. Revise and Resubmit: Upon return of submittal marked "Revise and Resubmit", make the corrections indicated and re-submit to ENGINEER for approval.
5. Not Approved: This disposition indicates material or equipment that cannot be approved. "Not Approved" disposition may also be applied to submittals that are incomplete. Upon return of submittal marked "Not Approved", repeat initial submittal procedure utilizing approvable material or equipment, with a complete submittal clearly indicating all information required.

D. Informational Submittals, Results of ENGINEER's Review:
   1. Each submittal will be given one of the following dispositions:
      a. Accepted: Information included in submittal complies with the applicable requirements of the Contract Documents, and is acceptable. No further action by CONTRACTOR is required relative to this submittal, and the Work covered by the submittal may proceed, and materials and equipment with submittals with this disposition may be shipped or operated, as applicable.
      b. Not Accepted: Submittal does not indicate compliance with applicable requirements of the Contract Documents and is not acceptable. Revise submittal and re-submit to indicate acceptability and compliance with the Contract Documents.

E. Closeout Submittals, Results of ENGINEER's Review: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Closeout Submittals will not receive a written response from ENGINEER. Disposition as "accepted" will be recorded in ENGINEER's submittal log. When Closeout Submittal is not acceptable, ENGINEER will provide written response to CONTRACTOR.

F. Maintenance Material Submittals, Results of ENGINEER's Review: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Maintenance Material Submittals will not receive a written response from ENGINEER. Disposition as "accepted" will be recorded in ENGINEER's submittal log. When Maintenance Material Submittal is not acceptable, ENGINEER will provide written response to CONTRACTOR, and CONTRACTOR is responsible for costs associated with transporting and handling of maintenance materials until compliance with the Contract Documents is achieved.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 41 27

EARTHMOVING PERMIT AND DUST CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for controlling fugitive dust emissions resulting from construction activities, including earthmoving, in coordination with Laws and Regulations.
   2. CONTRACTOR shall obtain, pay for, and comply with permits required for earthmoving and dust control required because of dust-generating operations related to the Work, and shall develop and comply with provisions of dust control plan.
   3. Obtain applicable earthmoving permit required to perform the work.
   4. Provide necessary labor, materials, equipment, tools, services, and incidentals to: apply sufficient dust suppressants; properly clean all track-out areas to driveways, roadways, and highways; and provide adequate physical stabilizations of soils to comply with earthmoving permits and accepted dust control plan.
   5. Control fugitive dust generation from CONTRACTOR's operations including the following:
      a. Construction areas.
      b. Vehicle and equipment parking areas.
      c. Material and equipment storage areas.
      d. Field office area(s) and staging areas.
      e. Haul and access roadways.
      f. Track-out areas.
      g. Other areas where CONTRACTOR will work, store materials or equipment, or park vehicles and equipment.
   6. Do not cause or allow dust-generating operations, earthmoving operations, use of property, or other operations that result in fugitive dust emissions that exceed limits prescribed by authorities having jurisdiction.
   7. CONTRACTOR shall pay fines and civil penalties incurred by OWNER because of CONTRACTOR's actions or violations of earthmoving permits and dust control plan. OWNER may deduct as set-offs such amounts from payments due CONTRACTOR.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Dust Control Plan:
      a. Prepare and submit to ENGINEER and OWNER in accordance with Article 1.4 of this Section. Submit within the earlier of 30 days after

the Contract Times commence running, or prior to commencing earth-disturbing operations at the Site.

2. Earthmoving Permit:
   a. Submit copy of permits obtained from authorities having jurisdiction, within seven days of CONTRACTOR's receipt of such permits. Do not commence earthmoving operations at the Site until required permits are obtained and submitted to ENGINEER.
3. Daily Logs and Reasonably-Available Control Measures (RACM) Records:
   a. Submit upon request of OWNER or ENGINEER.
4. Field Quality Control Submittals:
   a. When opacity monitoring is required, submit results not later than two days following completion of observations.

1.3 POSTING AND RECORDKEEPING

A. Post copy of earthmoving permit and accepted dust control plan at conspicuous location at the Site.

B. Recordkeeping:
   1. Maintain daily written log to record the actual application or implementation of reasonably-available control measures (RACM) described in the accepted dust control plan.
   2. Maintain the written log and supporting documentation at the Site, and submit copies to ENGINEER or OWNER upon request.
   3. Retain copies of dust control plan, RACM implementation records, and supporting documentations for not less than three years after Substantial Completion of the entire Project.

1.4 DUST CONTROL PLAN

A. Prepare and submit to ENGINEER and OWNER a dust control plan that includes the following:
   1. Names, address, office and cellular telephone numbers, and e-mail address of person(s) responsible for preparing and overseeing implementation of dust control plan. Designate one person responsible for overseeing implementation of dust control plan for the Project.
   2. Name(s), address(es), office and cellular telephone numbers, and e-mail addresses of person(s) responsible for dust generating operations.
   3. Site plan delineating total area of land surface to be disturbed. Delineate each area of phased disturbances, when applicable.
   4. Total disturbed area in acres; earthmoving and dust-generating operations and activities to be performed at the Site; actual and potential sources of fugitive dust emissions; and delivery, transportation, and storage areas for the Site, including types of materials stored and appropriate size of material stockpiles.
   5. Description of Reasonably-Available Control Measures (RACM) to be implemented during dust-generating operations at actual and potential sources of fugitive dust.

6. Description of dust suppressants to be used including product data and material safety data sheets (MSDS); method, frequency, and intensity of application; type, number, and capacity of application equipment; and certifications related to the suppressant's appropriate and safe use. Calcium chloride is not allowed.
7. Description of specific surface treatment(s) or RACM proposed for controlling material deposition along paved surfaces (e.g., "track-out" areas) where unpaved Site surfaces or Site access points meet paved surfaces.
8. As contingency measure, designate and include description of not less than one alternative RACM for each actual and potential fugitive dust source.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

A. Testing and Monitoring.
   1. Upon direction of OWNER or ENGINEER, obtain opacity observations for visible emissions of fugitive dust.
   2. Opacity Monitoring Method:
      a. USEPA Method 9, Visual Determination of Opacity of Emissions from Stationary Sources (Emission Measurement Technical Information Center Test Method 009).
   3. Location and Frequency of Opacity Observations:
      a. Obtain opacity observations from not less than six locations at downwind perimeter of the Site during construction operations.
      b. Perform opacity monitoring at frequency required by applicable earthmoving/dust control permit, unless more frequent monitoring is required by OWNER or ENGINEER.
   4. Qualifications: Opacity monitoring observations shall be by a person trained and experienced with the opacity monitoring method specified.
   5. Prepare and submit to ENGINEER written report of results of opacity monitoring and observations.
   6. No additional compensation or addition to the Contract Times will be authorized for opacity observations.

+ + END OF SECTION + +

SECTION 01 42 00

REFERENCES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. Section includes the following:
      a. Definitions and terminology in general use in the Contract Documents.
      b. Applicable codes.
      c. Abbreviations in general use throughout the Contract Documents.
      d. General requirements regarding reference standards, including a listing of standard-issuing organizations (and their acronyms) used in the Contract Documents.

1.2 DEFINITIONS AND TERMINOLOGY

A. Definitions and terminology applicable to all the Contract Documents are included in the General Conditions, as may be modified by the Supplementary Conditions.

B. Additional terminology used in the Contract Documents includes the following:
   1. "Indicated" refers to graphic representations, notes, or schedules on the Drawings, or to other paragraphs, provisions, tables, or schedules in the Specifications and similar locations in the other Contract Documents. Terminology such as "shown", "noted", "scheduled", and "specified" are used to help the user locate the reference without limitation on the location.
   2. "Installer", "applicator", or "erector" is CONTRACTOR or another person or entity engaged by CONTRACTOR, either as an employee or Subcontractor, to perform a particular construction activity, including installation, erection, application, or similar Work. Installers shall be experienced in the Work that installer is engaged to perform.
   3. Trades: Use of terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter", unless otherwise indicated in the Contract Documents or required by Laws or Regulations. Such terminology also does not imply that specified requirements apply exclusively to trade personnel of the corresponding generic name.

1.3 APPLICABLE CODES

A. References in the Contract Documents to local code(s) shall mean the following:
   1. City of El Paso Design Standards

2. El Paso Water Wastewater Division Design Standards.
3. National Electric Code in effect at the location of the Project.
4. NFPA 101, Life Safety Code.
5. El Paso County Design Standards

1.4 ABBREVIATIONS

A. Common abbreviations that may be found in the Contract Documents are indicated below, alphabetically by their written-out meaning:

alternating current	a-c
ampere	A
antemeridian	a.m.
Architectural Barriers Act	ABA
Americans with Disabilities Act	ADA
Americans with Disabilities Act Accessibility Guidelines	ADAAG
ante meridian	a.m.
average	avg
biochemical oxygen demand	BOD
five-day biochemical oxygen demand	BOD_5
brake horsepower	bhp
British thermal unit	Btu
building information model	BIM
carbonaceous biochemical oxygen demand	CBOD
five-day carbonaceous biochemical oxygen demand	$CBOD_5$
chemical oxygen demand	COD
Centigrade (or Celsius)	C
chlorinated polyvinyl chloride	CPVC
chlorofluorocarbons	CFC
Code of Federal Regulations	CFR
computer-aided drafting and design	CADD, or CAD
cubic inch	cu in
cubic foot	cu ft
cubic yard	cu yd, or CY
cubic feet per minute	cfm
cubic feet per second	cfs
decibel	db

degree Centigrade (or Celsius)	(Write)	degrees C, ^{o}C, or deg C
degrees Fahrenheit		degrees F, ^{o}F, or deg F
diameter		dia
direct current		d-c
dollars		$
each		ea
efficiency		eff
Fahrenheit		F
feet		ft
feet per hour		fph, or ft/hr
feet per minute		fpm
feet per second		fps, or ft/min
figure		fig
flange		flg
foot-pound		ft-lb
gallon		gal
gallons per hour		gph, or gal/hr
gallons per minute		gpm
gallons per second		gps
gram		g
grams per liter		g/L
Hertz		Hz
horsepower		hp or HP
hour		hr
human-machine interface		HMI
inch		in.
inches of mercury		in. Hg
inches water gage		in. w.g.
inch-pound		in.-lb
inside diameter		ID
iron pipe size		IPS
thousand pounds		kips
thousand pounds per square inch		ksi
kilovolt-ampere		kva
kilowatt		kw
kilowatt-hour		kwhr or kwh

linear foot	lin ft or LF
liter	L
Leadership in Energy and Environmental Design (USGBC)	LEED
maximum	max
mercury	Hg
milligram	mg
milligrams per liter	mg/l or mg/L
milliliter	ml
millimeter	mm
million gallons per day	mgd or MGD
million gallon	MG
minimum	min
national pipe threads	NPT
net positive suction head	NPSH
net positive suction head available	NPSHA
net positive suction head required	NPSHR
nitrogen oxide (total concentration of mono-nitrogen oxides such as nitric oxide (NO) and nitrogen dioxide (NO_2))	NOx
nominal pipe size	NPS
number	no.
operator interface terminal	OIT
ounce	oz
ounce-force	ozf
outside diameter	OD
parts per hundred	pph
parts per million	ppm
parts per billion	ppb
polyvinyl chloride	PVC
post meridian	p.m.
pound	lb
pounds per square inch	psi
pounds per square inch absolute	psia
pounds per square inch gauge	psig
pounds per square foot	psf
process control system	PCS
programmable logic controller	PLC

revolutions per minute	rpm
second	sec
specific gravity	sp gr, or SG
square	sq
square foot	sq ft, sf, or ft^2
square inch	sq in., or in^2
square yard	sq yd, or SY
standard	std
standard cubic feet per minute	scfm
total dynamic head	TDH
totally-enclosed fan-cooled	TEFC
volt	V
volts alternating current	vac
volts direct current	vdc
volatile organic compounds	VOC

1.5 REFERENCE STANDARDS

A. Refer to Article 3 of the General Conditions, as may be modified by the Supplementary Conditions, relative to reference standards and resolving discrepancies between reference standards and the Contract Documents. Provisions of reference standards are in effect in accordance with the Specifications.

B. Copies of Standards: Each entity engaged in the Work shall be familiar with reference standards applicable to its construction activity. Copies of applicable reference standards are not bound with the Contract Documents. Where reference standards are needed for a construction activity, obtain copies of standards from the publication source.

C. Abbreviations and Names: Where reference standards, specifications, codes, manuals, Laws or Regulations, or other published data of international, national, regional or local organizations are referred to in the Contract Documents, the organization issuing the standard may be referred to by their acronym or abbreviation only. The following acronyms or abbreviations that may appear in the Contract Documents shall have the meanings indicated below. Listing is alphabetical by acronym.

AA	Aluminum Association
AABC	Associated Air Balance Council

AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACS	American Chemical Society
ADSC-IAFD	International Association of Foundation Drilling.
AEIC	Association of Edison Illuminating Companies
AF&PA	American Forest and Paper Association
ABMA	American Bearing Manufacturers Association (formerly Anti-Friction Bearing Manufacturers Association (AFBMA))
AGMA	American Gear Manufacturers Association
AI	Asphalt Institute
AIA	American Institute of Architects
AIChE	American Institute of Chemical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standards Committee
AMA	Acoustical Materials Association
AMCA	Air Movement and Control Association
AMP	National Association of Architectural Metal Manufacturers, Architectural Metal Products Division
ANSI	American National Standards Institute
APA	The Engineered Wood Association
APHA	American Public Health Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASNT	American Society for Non-Destructive Testing
ASQ	American Society for Quality
ASSE	American Society of Safety Engineers
ASTM	American Society for Testing and Materials
AWCI	Association of the Wall and Ceiling Industry

AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association
CBMA	Certified Ballast Manufacturers Association
CDA	Copper Development Association
CEMA	Conveyor Equipment Manufacturers Association
CGA	Compressed Gas Association
CISCA	Ceilings and Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CMAA	Crane Manufacturers Association of America
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DIN	Deutsches Institut fur Normung eV (German Institute for Standardization)
DIPRA	Ductile Iron Pipe Research Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ETL	Intertek Testing Services, Inc. (formerly ETL Testing Laboratories, Inc.)
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Factory Mutual (FM Global)
FRPI	Fiberglass Reinforced Plastics Institute
FS	Federal Specification
GA	Gypsum Association
GANA	Glass Association of North America
HEW	United States Department of Health, Education and Welfare
HI	Hydraulic Institute
HMI	Hoist Manufacturers Institute
HUD	United States Department of Housing and Urban Development
IBC	International Building Code
ICC	International Code Council

ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IFI	Industrial Fasteners Institute
IRI	Industrial Risk Insurers
ISA	Instrumentation, Systems, and Automation Society (formerly Instrument Society of America)
ISO	Insurance Services Office
ISO	International Organization for Standardization
LPI	Lightning Protection Institute
MIA	Marble Institute of America
ML/SFA	Metal Lath/Steel Framing Association
MS	Military Specifications
MSS	Manufacturers' Standardization Society
MMA	Monorail Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NAPF	National Association of Pipe Fabricators, Inc.
NARUC	National Association of Regulatory Utilities Commissioners
NBHA	National Builders Hardware Association
NBS	United States Department of Commerce, National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NELMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NHPMA	Northern Hardwood and Pine Manufacturers Association
NIST	United States Department of Commerce, National Institute of Standards and Technology
NLGA	National Lumber Grades Authority
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	National Sanitation Foundation

NSSGA	National Stone, Sand, and Gravel Association
NTMA	National Terrazzo and Mosaic Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PEI	Porcelain Enamel Institute
PFI	Pipe Fabrication Institute
PPI	Plastics Pipe Institute
PGMC	Primary Glass Manufacturers Council
PS	Product Standards Section, United States Department of Commerce
RCSC	Research Council on Structural Connections (part of AISC)
RMA	Rubber Manufacturers Association
SAE	Society of Automotive Engineers
SCAQMD	Southern California Air Quality Management District
SCPRF	Structural Clay Products Research Foundation
SCTE	Society of Cable Telecommunications Engineers
SDI	Steel Deck Institute
SDI	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturing Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association
SPI	Society of the Plastics Industry
SPIB	Southern Pine Inspection Bureau
SSPC	Society for Protective Coatings
SWI	Steel Window Institute
TCNA	Tile Council of North America
TEMA	Tubular Exchanger Manufacturers Association
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
UL	Underwriters Laboratories, Inc.
USAB	United States Access Board
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
USGBC	United States Green Building Council
USGS	United States Geological Survey
USPHS	United States Public Health Service
WCLIB	West Coast Lumber Inspection Bureau

WCMA	Window Covering Manufacturers Association
WCMA	Wood Component Manufacturers Association
WDMA	Window and Door Manufacturers Association
WEF	Water Environment Federation
WWEMA	Water and Wastewater Equipment Manufacturers Association
WWPA	Western Wood Products Association

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 45 29.13

TESTING LABORATORY SERVICES FURNISHED BY CONTRACTOR

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall employ and pay for services of independent testing laboratory to perform specified services.
   2. Inspection, sampling, and testing shall be as specified in the Specifications including but not limited to:
      a. Section 03 00 05, Concrete.
      b. Section 31 23 16.13, Trenching.
      c. Section 32 12 00, Flexible Paving.
      d. Section 33 05 05, Buried Piping Installation.
   3. CONTRACTOR shall pay for:
      a. Tests not specifically indicated in the Contract Documents as being OWNER's responsibility.
      b. Tests made for CONTRACTOR's convenience.
      c. Repeat tests required because of CONTRACTOR's negligence or defective Work, and retesting after failure of test for the same item to comply with the Contract Documents.
   4. Testing laboratory is not authorized to approve or accept any portion of the Work or defective Work; rescind, alter, or augment requirements of Contract Documents; and perform duties of CONTRACTOR.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
   2. ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories.
   3. NIST SRM, Standard Reference Materials.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Testing Laboratory:
      a. Comply with applicable requirements of ASTM E329.

b. Testing laboratory shall be licensed to operate in the same jurisdiction as the Site. Where applicable, laboratory shall be certified by the authority having jurisdiction for the types of testing required.
c. Testing equipment used by laboratory shall be calibrated at intervals of not more than twelve months by devices of accuracy traceable to one of the following: NIST SRM, ISO/IEC 17025, certified by state or local bureau of weights and measures, or values of natural physical constants generally accepted in the engineering and scientific community.

1.4 SUBMITTALS

A. Informational Submittals: Submit the following:
1. Quality Control Submittals and Test Reports: Testing laboratory shall promptly submit to CONTRACTOR results of testing and inspections, including:
a. Date issued.
b. Project title, number, and name of the Site.
c. Testing laboratory name and address.
d. Name and signature of inspector or person obtaining samples.
e. Date of inspection or sampling.
f. Record of temperature and weather conditions.
g. Date of test.
h. Identification of material or item tested, and associated Specifications Section.
i. Location in the Project.
j. Type of inspection or test.
k. Results of tests and observations regarding compliance with the Contract Documents.
2. Qualifications Statements:
a. Testing Laboratory:
1) Qualifications statement indicating experience and facilities for tests required under the Contract Documents.
2) Copy of report of inspection of facilities during most recent NIST inspection tour. Include memorandum of remedies of deficiencies reported during inspection.
3) Copy of certificate of calibration for each instrument or measuring device proposed for use, by accredited calibration agency.

1.5 TESTING LABORATORY DUTIES

A. Testing laboratory shall:
1. Cooperate with CONTRACTOR and provide qualified personnel promptly on notice.
2. Perform required inspections, sampling, and testing of materials and methods of construction; comply with applicable reference standards and the Contract Documents; and ascertain compliance with requirements of the Contract Documents.

3. Promptly notify ENGINEER and CONTRACTOR of irregularities or deficiencies in the Work that are observed during performance of services.
4. Promptly submit to CONTRACTOR reports of inspections and tests.
5. Perform additional tests and services, as required by CONTRACTOR.

1.6 CONTRACTOR'S RESPONSIBILITIES

A. CONTRACTOR shall:
   1. Cooperate with testing laboratory personnel.
   2. Provide to testing laboratory preliminary representative samples of materials and items to be tested, in required quantities.
   3. Promptly submit to ENGINEER results of tests and inspections received from testing laboratory.
   4. Furnish to laboratory the preliminary design mix proposed for concrete and other material mixes to be tested by testing laboratory.
   5. Provide labor and facilities:
      a. For access to the Work to be tested, and where required, to Suppliers' operations.
      b. For obtaining and handling samples at the Site.
      c. For facilitating inspections and tests.
      d. For testing laboratory's exclusive use for storing and curing of test samples.
      e. Forms for preparing concrete test beams and cylinders.
   6. Notify laboratory and ENGINEER sufficiently in advance of operations to allow assignment of personnel and scheduling of tests.
   7. Arrange with laboratory and pay for additional services, sampling, and testing required for CONTRACTOR's convenience.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 45 29.23

TESTING LABORATORY SERVICES FURNISHED BY OWNER

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. OWNER will employ and pay for an independent testing laboratory to perform specified services. Testing laboratory selected will be subject to ENGINEER's acceptance.
   2. Inspection, sampling, and testing shall be as specified in the Specifications including but not limited to:
      a. Section 03 00 05, Concrete
      b. Section 09 91 00, Painting
      c. Section 32 12 00, Flexible Paving
      d. Section 31 23 16.13, Trenching
      e. Section 33 05 05, Buried Piping Installation

   3. CONTRACTOR shall pay for:
      a. Tests not specifically indicated in the Contract Documents as being OWNER's responsibility.
      b. Tests made for CONTRACTOR's convenience.
      c. Repeat tests required because of CONTRACTOR's negligence or defective Work
      d. Tests required after failure of first test to comply with the Contract Documents, for tests initially paid for by OWNER.
   4. Testing laboratory is not authorized to approve or accept any portion of the Work or defective Work; rescind, alter, or augment requirements of Contract Documents; and perform duties of CONTRACTOR.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
   2. ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories.
   3. NIST SRM, Standard Reference Materials.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Testing Laboratory:
      a. Testing laboratory will comply with applicable requirements of ASTM E329.

b. Testing laboratory will be authorized to operate in the same jurisdiction as the Site. Where applicable, laboratory will be certified by the authority having jurisdiction for the types of testing required.
c. Testing equipment used by laboratory will be calibrated at intervals of not more than twelve months by devices of accuracy traceable to one of the following: NIST SRM, ISO/IEC 17025, certified by state or local bureau of weights and measures, or values of natural physical constants generally accepted in the engineering and scientific community.

1.4 SUBMITTALS

A. Informational Submittals: Testing laboratory will submit the following:
1. Quality Control Submittals and Test Reports: Promptly submit to ENGINEER and CONTRACTOR results of testing and inspections, in accordance with Section 01 33 00, Submittal Procedures, including:
a. Date issued.
b. Project title, number, and name of the Site.
c. Testing laboratory name and address.
d. Name and signature of inspector or person obtaining samples.
e. Date of inspection or sampling.
f. Record of temperature and weather.
g. Date of test.
h. Identification of material or item tested, and associated Specifications Section.
i. Location in the Project.
j. Type of inspection or test.
k. Results of tests and observations regarding compliance with the Contract Documents.
2. Qualifications Statements: Upon CONTRACTOR's request, testing laboratory will submit the following:
a. Testing Laboratory:
1) Qualifications statement indicating experience and facilities for tests required under the Contract Documents.
2) Copy of report of inspection of facilities during most recent NIST inspection tour. Include memorandum of remedies of deficiencies reported during inspection.
3) Copy of certificate of calibration for each instrument or measuring device proposed for use, by accredited calibration agency.

1.5 TESTING LABORATORY DUTIES

A. OWNER-hired testing laboratory will:
1. Cooperate with CONTRACTOR and ENGINEER and provide qualified personnel promptly when notified.
2. Perform required inspections, sampling, and testing of materials and methods of construction; comply with applicable reference standards and the Contract

Documents; and ascertain compliance with requirements of the Contract Documents.

3. Promptly advise ENGINEER and CONTRACTOR in writing of irregularities and deficiencies in the Work observed during performance of services.
4. Submit to ENGINEER and CONTRACTOR written reports of inspections and tests required by the Contract Documents.
5. Perform additional tests and services as required by OWNER or ENGINEER to verify compliance with the Contract Documents.

1.6 CONTRACTOR'S COORDINATION WITH TESTING LABORATORY

A. CONTRACTOR shall perform and provide the following relative to OWNER-hired testing laboratory:
   1. Provide to testing laboratory representative samples of materials to be tested, in required quantities.
   2. Provide labor and facilities:
      a. For access to the Work to be tested, and where required, to Suppliers' operations.
      b. For obtaining and handling samples at the Site.
      c. For facilitating inspections and tests.
      d. For laboratory's exclusive use for storing and curing of test samples.
      e. Forms for preparing concrete test beams and cylinders.
   3. Notify testing laboratory and ENGINEER sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
   4. Arrange with testing laboratory and pay for additional services, sampling, and testing required for CONTRACTOR's convenience.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 51 05

TEMPORARY UTILITIES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all temporary utilities and temporary facilities required for the Project, including the following:
      a. Electricity.
      b. Lighting.
      c. Telephone and communications.
      d. Heating, cooling, ventilating, and temporary enclosures.
      e. Water.
      f. Sanitary facilities.
      g. First-aid facilities.
      h. Fire protection.
   2. Make all arrangements with utility owners for temporary utilities and with others as appropriate for temporary facilities. Obtain required permits and approvals for temporary utilities and temporary facilities.
   3. Pay all service costs for utilities and facilities indicated in this Section as CONTRACTOR's responsibility, including cost of electricity, water, fuel, and other utility services and temporary facilities required for the Work.
   4. Continuously maintain adequate temporary utilities and temporary facilities for all purposes for the Project, until removal of temporary utilities and temporary facilities. At minimum, provide and maintain temporary utilities and temporary facilities through Substantial Completion and removal of temporary field offices and sheds unless otherwise approved in writing by ENGINEER.
   5. Should OWNER occupy part of the Work prior to Substantial Completion of the entire Work, cost of utilities consumed via temporary utilities serving the portion occupied by OWNER will be shared proportionately by OWNER and CONTRACTOR as mutually agreed to by the parties.
   6. Maintain, including cleaning, temporary utilities and temporary facilities, and continuously provide consumables as required.
   7. Temporary utilities and temporary facilities shall be adequate for personnel using the Site and the needs of the Project.
   8. Provide temporary utilities and temporary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

1.2 REQUIREMENTS FOR TEMPORARY UTILITIES AND TEMPORARY FACILITIES

A. Electrical:
   1. Provide temporary electrical service required for the Work, including continuous power for temporary field offices and sheds. Provide temporary outlets with circuit breaker protection and ground fault protection.

B. Lighting.
   1. Provide lighting at the Site of not less than five foot-candles for open areas and not less than ten foot-candles for stairs and shops. Provide not less than one, 300-watt lamp every 15 feet in indoor work areas. Provide night security lighting of not less than five foot-candles within 50 feet of all parts of the Site during hours of darkness, controlled by photocell.
   2. Do not work in areas with insufficient lighting. Where lighting is insufficient for the work activities to be performed, provide additional temporary lighting.
   3. Provide temporary lighting sufficient for observation of the Work by ENGINEER and inspection by CONTRACTOR and authorities having jurisdiction. Where required by ENGINEER, provide additional temporary lighting.

C. Telephone and Communications.
   1. Provide temporary telephone and communications required for CONTRACTOR's operations at the Site and for summoning emergency medical assistance.

D. Heating, Ventilating, and Enclosures.
   1. Provide sufficient temporary heating, cooling, ventilating, and enclosures to ensure safe working conditions and prevent damage to existing facilities and the Work.
   2. Except where otherwise specified, temporary heating shall maintain temperature of the space served between 50 degrees F and maximum design temperature of building or facility and its contents.
   3. Maintain temperature of areas occupied by OWNER's personnel or electronic equipment, including offices, lunch rooms, locker rooms, toilet rooms, and rooms containing computers, microprocessors, and control equipment, between 65 degrees F and 80 degrees F with relative humidity less than 75 percent.
   4. Required temperature range for storage areas and certain elements of the Work, including preparation of materials and surfaces, installation or application, and curing as applicable, shall be in accordance with the Contract Documents for the associated Work and the Supplier's recommended temperature range for storage, application, or installation, as appropriate.
   5. Provide temporary ventilation sufficient to prevent accumulation in construction areas and areas occupied by OWNER of hazardous and nuisance levels or concentrations of dust and particulates, mist, fumes or vapors, odors, and gases, associated with construction.

6. Provide temporary enclosures and partitions required to maintain required temperature and humidity.

E. Water:
   1. General:
      a. Provide temporary water facilities including piping, valves, meters if not provided by owner of existing waterline, backflow preventers, pressure regulators, and other appurtenances. Provide freeze-protection as required.
      b. Continuously maintain adequate water flow and pressure for all purposes during the Project, until removal of temporary water systems.
   2. Water for Construction Purposes:
      a. Provide water for Site maintenance and cleaning and, water necessary for construction activities, and water for disinfecting and testing of systems.
   3. Water for Human Consumption and Sanitation:
      a. Provide potable water in accordance with Laws and Regulations for consumption by personnel at the Site, for field offices, and for sanitary facilities.
      b. When necessary, provide bottled, potable water for use and consumption by personnel at the Site, including CONTRACTOR, ENGINEER, and visitors to the Site.

F. Sanitary Facilities.
   1. Provide suitably-enclosed chemical or self-contained toilets for CONTRACTOR's employees, Subcontractors, Suppliers, ENGINEER, and visitors to the Site. Location of temporary toilets shall be acceptable to OWNER and ENGINEER.
   2. Refer to Paragraph 1.2.E of this Section for requirements for water intended for human consumption during construction.
   3. Provide suitable temporary washing facilities for employees and visitors.

G. First-aid Facilities.
   1. Provide temporary first-aid stations at or immediately adjacent to the Site's work areas, and inside CONTRACTOR's temporary field office. Locations of first-aid stations shall be determined by CONTRACTOR's safety representative. Replenish supplies in first-aid stations as items are used, prior to expiration of items, and as necessary.
   2. Provide list of emergency telephone numbers at each hardwired telephone at the Site.

H. Fire Protection.
   1. Provide temporary fire protection, including portable fire extinguishers rated not less than 2A or 5B in accordance with NFPA 10, Portable Fire Extinguishers, for each temporary building and for every 3,000 square feet of floor area under construction.

2. Provide Class A (ordinary combustibles), Class B (combustible liquids and gases), and Class C (electrical equipment) fire extinguishers as necessary.
3. Comply with NFPA 241, Standard for Safeguarding Construction, Alternation, and Demolition Operations, and requirements of fire marshals and authorities having jurisdiction at the Site.

1.3 USE OF OWNER'S SYSTEM

A. Use of Permanent Utility Systems Provided Under the Project:
   1. Permanent electrical, lighting, water, heating, ventilating, and fire protection systems and first-aid facilities may be used to provide temporary utilities and temporary facilities if the following are met:
      a. Obtain OWNER's written permission to use permanent systems.
      b. Permanent systems to be used for temporary utilities or temporary facilities shall be substantial complete, including complete functionality of all controls.
      c. CONTRACTOR shall pay all costs while using permanent system, including operation, maintenance, replacement of consumables, and provide replacement parts.
   2. Do not use the following permanent facilities:
      a. Telephone and communication facilities.
      b. Sanitary facilities.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for temporary utilities and temporary facilities may be new or used, but shall be adequate for purposes intended and shall not create unsafe conditions, and shall comply with Laws and Regulations.

B. Provide required materials, equipment, and facilities, including piping, cabling, controls, and appurtenances.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install temporary utilities and temporary facilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Utilities and Temporary Facilities:
   1. Locate temporary systems for proper function and service.

2. Temporary systems shall not interfere with or provide hazards or nuisances to: the Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, and work of utility owners and others.
3. Do not install temporary utilities on the ground, with the exception of temporary extension cords, hoses, and similar systems in place for short durations.

C. Modify and extend temporary systems as required by progress of the Work.

3.2 USE

A. Maintain temporary systems to provide safe, continuous service as required.

B. Properly supervise operation of temporary systems:
1. Enforce compliance with Laws and Regulations.
2. Enforce safe practices.
3. Prevent abuse of services.
4. Prevent nuisances and hazards caused by temporary systems and their use.
5. Prevent damage to finishes.
6. Ensure that temporary systems and equipment do not interrupt continuous progress of construction.

C. At end of each work day, check temporary systems and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

3.3 REMOVAL

A. Completely remove temporary utilities, temporary facilities, equipment, and materials when no longer required. Repair damage caused by temporary systems and their removal and restore the Site to condition required by the Contract Documents; if restoration of damaged areas is not specified, restore to preconstruction condition.

B. Where temporary utilities are disconnected from existing utility, provide suitable, watertight or gastight (as applicable) cap or blind flange, as applicable, on service line, in accordance with requirements of utility owner.

C. Where permanent utilities and systems were used for temporary utilities, upon Substantial Completion replace all consumables such as filters and light bulbs and parts used during the Work.

+ + END OF SECTION + +

SECTION 01 51 41

TEMPORARY PUMPING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for temporary pumping in collection systems, such as sanitary sewers, combined sewers, and storm sewers.
   2. CONTRACTOR shall provide all labor, materials, tools, equipment, and incidentals shown, specified, and/or required for temporary pumping and handling of fluids during the Project.
   3. Design and provide temporary pumping systems, including plugs, bulkheads, and line stops as necessary and/or required; pumps; piping, supports, and valves; temporary instrumentation and control systems; fuel and electricity as required; personnel; and appurtenances. Comply with Laws and Regulations and requirements of authorities having jurisdiction. System shall be suitable for its service and operating environment.
   4. Capacity – General:
      a. Provide temporary pumping system of necessary capacity with not less than one of the largest pumps out of service.
      b. Pay costs associated with repairing damage to property, including cleaning, caused by undersized or inadequate temporary pumping systems.
      c. ENGINEER's acceptance of temporary pumping submittals does not relieve or mitigate CONTRACTOR from responsibility for the temporary pumping system in accordance with the Contract Documents.
   5. Temporary Pumping Capacity for Collector Sewers and Larger Sewers:
      a. Required capacity of each temporary pumping system shall be determined by CONTRACTOR.
      b. Each temporary pumping system shall be adequate to convey the discharge rate conveyed through the associated permanent conduits. Temporary pumping systems shall not result in: flow back-ups into buildings or structures; overflows to storm sewers or receiving waters; or adverse effects on system of OWNER, utility owners, or owners of transportation systems (including streets and roads).
      c. Basis of capacity of each temporary pumping system shall consider flow metering data (if available), results of system hydraulic modeling (if available), sewer inspection video and associated data (if available), capacity of the pipe or conduit temporarily removed from service, whether system experiences surcharges during high-flow events, nature of drainage area tributary to the pipe or conduit temporary removed from service, weather, and other factors.
   6. Temporary Pumping Capacity for Service Laterals:
      a. Maintain flow through service laterals for buildings or structures that discharge to permanent pipe or conduit that has been temporarily

removed from service.

b. Capacity for temporary pumping for service laterals not listed in this Section shall be determined by CONTRACTOR.

c. Temporary pumping systems for service laterals shall be adequate to pump the discharge rate conveyed through the service lateral. Temporary pumping systems shall not result in: flow back-ups into buildings or structures; overflows to storm sewers or receiving waters; and adverse effects on property owner's systems, utility owners, or owners of transportation systems (including streets and roads).

7. Location of temporary pumping systems shall not affect OWNER's operations, utility owners, public access to streets and drives, or access to private property, unless approved by authorities having jurisdiction.

8. Obtain ENGINEER's acceptance of each temporary pumping system submittal.

B. Coordination:

1. Review installation procedures under other Sections and coordinate Work that must be performed with or before Work specified in this Section.

2. Written Notice to Property Owners and Occupants:

a. Provide written notice delivered to property owners and occupants of each building and structure that will be affected by temporary pumping.

b. Deliver written notices thirty days, seven days, and one day prior to starting temporary pumping.

c. Each such written notice shall include: estimated start and end days and times that permanent pipe or conduit will be temporarily out of service; and instructions for building or structure occupants during the outage.

C. Related Sections:

1. Section 01 32 16, Progress Schedule.

1.2 QUALITYASSURANCE

A. Qualifications:

1. Temporary Pumping System Supplier:

a. Supplier shall have not less than five years of experience providing temporary pumping systems similar in size or larger than those required for the Project.

b. Upon request, submit evidence of providing not less than five temporary pumping systems on other projects similar in size (or larger) and similar in service to temporary pumping systems required for the Project.

B. Component Supply and Compatibility:

1. Obtain each temporary pumping system from a single Supplier who shall be responsible for providing a complete system.

C. Regulatory Requirements:
   1. Secondary containment for fuel tanks shall be in accordance with Laws and Regulations.
   2. Leakage from temporary pumping system or improper discharge is not allowed.
   3. Quality of exhaust emissions from internal-combustion engines associated with temporary pumping systems shall comply with Laws and Regulations, including applicable air permits. Before furnishing temporary pumping system, verify compliance with air quality standards and provide temporary emissions controls to comply with such standards when required.

1.3 SUBMITTALS

A. Timing: Furnish to ENGINEER submittals for temporary pumping system not less than 30 days prior to delivery of temporary pumping system to the Site.

B. Informational Submittals: Submit the following:
   1. Draft Notification Letter: Draft of typical notice letters for property owners and occupants of buildings and structures.
   2. Schedule for Temporary Pumping in Collection System:
      a. Schedule for temporary pumping for each work area. Include dates of mobilizing each temporary pumping system, testing, starting and ending dates of temporary pumping, and demobilizing each temporary pumping system in each work area.
      b. At CONTRACTOR's option, such information may be included on the Progress Schedule prepared and maintained in accordance with Section 01 32 16, Progress Schedule. When such option is exercised, however, upon request of ENGINEER break out as separate sub-schedule the schedule of temporary pumping in collection system and furnish to ENGINEER.
      c. Maintain and update schedule for temporary pumping for collection system, and submit updated schedules in accordance with requirements for updating the Progress Schedule as indicated in Section 01 32 16, Progress Schedule.
   3. Temporary Pumping Submittal: Submit the following for each temporary pumping system:
      a. Basis for capacity of the system proposed.
      b. System curve of flow plotted against total dynamic head, and calculations that substantiate the proposed temporary pumping system, including comparison of net positive suction head required and net positive suction head available.
      c. Manufacturer's data and specifications on each type and size of pump proposed and its capacity, including pump curves.
      d. Manufacturer's data and specifications for engines and other equipment required for temporary pumping system, including expected exhaust emissions data.
      e. Technical information and specifications on noise controls for noise-emitting equipment.

f. Technical data on temporary piping, pipe joints, valves, pipe supports, controls, flow meter, secondary containment for fuel tanks, emissions controls when required, and other information pertinent to the temporary pumping system.

g. Layout Drawings:
   1) Sketches showing proposed layout of temporary pumping system, including locations of temporary plugs, bulkheads, and line stops, suction and discharge locations, location of the pumps and associated piping and valves, and source of power and fuel (as applicable) for temporary pumping system. Sketches shall be scale drawings acceptable to ENGINEER, and shall include site plans similar to those in the Contract Documents.
   2) Details of system suction and discharge locations. Discharge details shall include measures to protect the receiving structure and dissipate energy of the pumped fluid.
   3) Where it is necessary to bury temporary piping, submit trench details for buried temporary piping, including temporary surfacing proposed for traveled areas. Submit sketches and information on other types of protection proposed for temporary piping. Obtain approvals of owners of surfaces that will be disturbed by burying temporary pumping.

h. Temporary Plugs, Bulkheads, and Line Stops: Manufacturer's literature and fabrication drawings showing type of plug, bulkhead or line stop as applicable, materials, and hydrostatic head the plug, bulkhead, or line stop is designed to withstand. Submit complete technical information for CONTRACTOR-proposed line stops, installation procedures, name of proposed line stop installer, and documentation of experience on at least five similar projects.

i. Narrative describing proposed operation of temporary pumping system, including who will operate system, staffing, planned frequency of fueling, contingency plan in event of pump failure, and statement of existing systems that may be affected during operation of temporary pumping system.

4. Qualifications Statements:
   a. Submit qualifications of temporary pumping system Supplier.

PART 2 – PRODUCTS

2.1 TEMPORARY PUMPING SYSTEM

A. General:
   1. System components shall be suitable for continuous operation with the fluid pumped.
   2. Noise Controls: Provide noise controls for temporary pumping system. Noise emitted from temporary pumping system shall comply with Laws and Regulations and shall not exceed 70 db at a distance of thirty feet from noise source.

3 Fuel-consuming temporary pumping system components intended for use when CONTRACTOR is not present shall include fuel tanks sized for not less than 24 hours of uninterrupted operation at system's operating capacity, and means to automatically notify CONTRACTOR upon high and low suction water level and low fuel level.

B. Instrumentation and Controls:
   1. Controls: Provide controls for temporary pumping system to maintain suction structure liquid level that does not result in flow backups and that does not adversely affect OWNER's system and private property.

C. Temporary Piping System:
   1. Durable hoses in good condition and suitable for system pressures can be used where accepted by ENGINEER.
   2. Piping system shall have watertight joints of the following types: fused joints, restrained couplings, flanged coupling adapters, quick-connects by Camlok or equal, flanged joints, grooved and shouldered end-type couplings, and other watertight joints accepted by ENGINEER.
   3. Size discharge piping for flow velocity of not greater than 10 feet per second.
   4. Provide check valves or pump control valves as required.
   5. Provide air valves on discharge piping as required. Air valves shall expel air upon pipe filling and admit air upon pipe dewatering, and release small quantities of entrained air during operation. Air valves shall be suitable for service with the pumped fluid.
   6. Discharge from temporary pumping system shall not adversely affect collection system structures, pipe or conduits, OWNER's operations, private property, and shall not result in flow backups, flooding, or damage. Provide energy-dissipating measures at discharge point as necessary.

D. Temporary Plugs, Bulkheads, and Line Stops:
   1. Acceptable temporary plugs and bulkheads include inflatable dams specifically designed for such service, brick bulkheads, timber bulkheads, sandbags, and other bulkhead methods suitable for the service and conduit conditions. Line stops, when required, are specified in Division 40 of the Contract Documents.
   2. Each plug, temporary bulkhead, and line stop shall be suitable for the maximum pressure encountered.
   3. Where temporary plugs and bulkheads are under pressure or surcharged, provide either two plugs or a plug and temporary bulkhead.

PART 3 – EXECUTION

3.1 PREPARATION

A. General:
   1. Provide written notice delivered to owners and occupants of each building and structure affected by temporary pumping.

2. Temporary piping shall be located off of roads, driveways, and sidewalks. Piping shall not be located in environmentally-sensitive areas such as wetlands.
3 Where shown or indicated in the Contract Documents, bury temporary piping that would otherwise inhibit access to buildings, structures, streets, and driveways. In paved areas, provide temporary surfacing, sufficient for AASHTO H-20 wheel loads over buried temporary piping.
4. Hydrostatic Testing of Temporary Piping System:
    a. Perform successful hydrostatic testing of temporary piping system using clean water at pressure equal to 1.2 times highest expected system operating pressure, for 15 minutes while maintaining test pressure within 3.0 psig of required test pressure.
    b. ENGINEER will witness hydrostatic test.
    c. Hydrostatic test criteria for acceptance: No leakage.
5. Verify that entire temporary pumping system is ready for operation before commencing temporary pumping. Verify that controls and flow meter are properly connected and functional.

3.2 TEMPORARY PUMPING

A. During Operation of the Temporary Pumping System:
    1. Temporary pumping system shall operate continuously. In the event of equipment failure, immediately make repairs or replace equipment. Provide spare parts and redundant units as necessary for continuous operation.
    2. Provide personnel to monitor, operate, and maintain temporary pumping system 24 hours per day when system is in service

3.3 DEMOBILIZATION

A. Upon Conclusion of Temporary Pumping:
    1. Remove plugs, bulkheads, and line stops in manner that allows flow to slowly return to normal, without surging, surcharging, and adverse effects on existing system.
    2. Flush out temporary pumping system with clean water discharged to an appropriate location.
    3. Remove temporary pumping system and appurtenances from the Site.
    4. When CONTRACTOR has obtained permit(s) for temporary pumping from authorities having jurisdiction, furnish written notice to such authorities that temporary pumping has been completed.

+ + END OF SECTION + +

SECTION 01 55 26

MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall keep all roads, streets, and traffic ways open for safe passage of traffic and pedestrians during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable.
   2. Unless otherwise shown or indicated in the Contract Documents, maintenance and protection of traffic shall be in accordance with El Paso County Road and Bridge and Texas Department of Transportation requirements as applicable.

B. Coordination:
   1. Coordinate with owner of the highway or street right-of-way, as applicable, for maintenance and protection of traffic requirements.
   2. Give required advance notice to fire departments, police departments, and other emergency services as applicable of proposed construction operations.
   3. Give reasonable notice to owners or tenants of private property who may be affected by construction operations. Give such notice not less than 14 days prior to when such property will or may be affected by construction operations.
   4. Coordinate with requirements of the following:
      a. Section 31 23 16.13, Trenching, for temporary barriers at excavations.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Procedure Submittals: Detailed plan, procedures, and sequencing for maintaining and protecting traffic in accordance with the Contract Documents and requirements of authorities having jurisdiction. Include in the submittal the following:
      a. Traffic staging plan, and construction sequencing as applicable to maintain and protect traffic.
      b. Product data, including manufacturer's catalog information and specifications, for temporary signage, temporary signals, temporary illumination devices, and other products to be utilized in maintaining and protecting traffic.
      c. Indication of number and types of personnel dedicated to maintaining and protecting traffic during construction.
      d. Indication of plan acceptance from authorities having jurisdiction.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment used for maintenance and protection of traffic shall comply with the reference specification indicated in Paragraph 1.1.A.3 of this Section.

PART 3 – EXECUTION

3.1 GENERAL PROVISIONS

A. When required to cross, obstruct, or temporarily close a street or traffic way, provide and maintain suitable bridges, detours, or other acceptable temporary expedient for the accommodation of traffic. Closings shall be for shortest duration practical, and passage shall be restored immediately after completion of filling and temporary paving or bridging.

B. Temporary Control Devices:
   1. Provide temporary signs, signals, barricades, flares, lights and other equipment, services, and personnel required to regulate and protect traffic and warn of hazards.
   2. Such Work shall comply with requirements of OWNER and authorities having jurisdiction at the Site.
   3. Remove temporary equipment and facilities when no longer required, and restore grounds to condition indicated in the Contract Documents; if not indicated, resort to pre-construction conditions.

C. Keep accessible for use permanent facilities such as hydrants, valves, fire alarm boxes, postal boxes, delivery service boxes, and other facilities that may require access during construction.

3.2 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate temporary traffic controls and directional signals required to direct and maintain an orderly flow of traffic in areas under CONTRACTOR's control, and areas affected by construction operations.

B. Provide temporary traffic controls and directional signs, mounted on temporary barriers or standard posts, at the following locations:
   1. Each change of direction of a roadway and at each crossroad.
   2. Detours and areas of hazard.
   3. Parking areas.
   4. Traffic entrance to and exit from each construction area.

3.3 TRAFFIC CONTROL PERSONNEL

A. General:
   1. When construction operations encroach on traffic lanes, furnish qualified and suitably-equipped traffic control personnel as required for regulating traffic and in accordance with requirements of authorities having jurisdiction.
   2. Traffic control personnel shall use appropriate flags or mobile signs.
   3. Equip traffic control personnel with appropriate personal protection equipment and suitable attire.
   4. Attire and conduct of traffic control personnel shall be appropriate and shall not create nuisances or distractions for traffic.

3.4 FLARES AND LIGHTS

A. During periods of low visibility provide temporary flares and lights for the following:
   1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazardous areas.
   2. For use by traffic control personnel directing traffic.

B. Provide adequate illumination of critical traffic and parking areas.

3.5 PARKING CONTROL

A. Control CONTRACTOR-related vehicular parking at the Site to preclude interfering with: traffic and parking, access by emergency vehicles, OWNER's and facility manager's operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

B. Control parking of construction and private vehicles at the Site as follows:
   1. Maintain free vehicular access to and through parking areas.
   2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
   3. Construction vehicles shall possess current vehicle registration.
   4. Private vehicles shall park only in designated areas.

3.6 HAUL ROUTES

A. Submit proposed haul routes to ENGINEER and OWNER and obtain approval of authorities having jurisdiction.

B. Confine construction traffic to designated haul routes.

C. Provide temporary traffic controls at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

3.7 REMOVAL

A. Maintain and protect traffic until Substantial Completion and at all times thereafter when CONTRACTOR is working at the Site. Provide maintenance and protection of traffic measures at the Site until no longer required due to the progress of the Work. When no longer required, completely remove maintenance and protection of traffic measures and restore the Site to condition required by the Contract Documents or, when not indicated in the Contract Documents, to pre-construction conditions.

+ + END OF SECTION + +

SECTION 01 57 05

TEMPORARY CONTROLS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide and maintain methods, materials, equipment, and temporary construction as required for controlling environmental conditions at the Site and adjacent areas during construction.
   2. Maintain controls until no longer required. Provide temporary controls at all times when CONTRACTOR is working at the Site.
   3. Temporary controls include, but are not limited to, the following:
      a. Erosion and sediment controls.
      b. Noise controls.
      c. Dust controls.
      d. Pest and rodent controls.
      e. Control of water, including storm water runoff.
      f. Pollution controls.

B. Related Sections:
   1. Section 01 41 27, Earthmoving Permit and Dust Control.
   2. Section 31 23 16.13 Trenching.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with applicable provisions and recommendations of the following:
   1. Texas Commission on Environmental Quality (TCEQ).

1.3 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Plan for construction staging and maintenance of the Site relative to erosion and sediment controls. Indicate on a site plan approximate areas of planned disturbance of soils and soil cover over time during the Project. For areas not indicated in the Contract Documents as being disturbed and that CONTRACTOR proposes to disturb, Shop Drawing shall include proposed erosion and sediment control measures for the additional area.

2. Product Data:
    a. Silt fencing materials.

B. Informational Submittals: Submit the following:
    1. Procedural Submittals:
        a. Proposed dust control measures, when submittal is requested by ENGINEER.

PART 2 – PRODUCTS

2.1 MATERIALS FOR TEMPORARY EROSION AND SEDIMENT CONTROLS

A. General:
    1. Materials utilized for temporary erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.2 of this Section, unless otherwise shown or indicated in the Contract Documents.

B. Silt Fencing:
    1. Filter Cloth:
        a. Products and Manufacturers: Provide one of the following:
            1) Contech “Silt Fence”.
            2) Hanes Geo Components “Silt Fence”.
            3) Atlantic Construction Fabrics (ACF) Environmental “Silt Fence”.
            4) Or equal.
        b. Height: Two feet, minimum.
        c. Securely fasten filter cloth to wire mesh using ties spaced at maximum intervals of two feet on centers at top and mid-height of wire mesh.
    2. Wire Mesh: Support filter cloth with wire mesh complying with the following:
        a. Woven wire mesh, 14-gauge steel wire, maximum mesh size six-inch by six-inch.
        b. Height: To match filter cloth height.
        c. Fasten wire mesh to fence supports with wire ties or staples.
    3. Fence Support Posts:
        a. Length: Not less than three feet.
        b. Material: Metal or other acceptable material with "U", “T”, or "I" cross section, or hardwood measuring not less than 1.25-inch by 1.25-inch in cross-section.

C. Straw Bale Dike.
    1. Bales shall be firmly-packed, unrotted straw bound firmly with baling wire. Cross-sectional area on the small end of each bale shall be approximately 12 inches by 12 inches or larger.
    2. Posts shall comply with requirements for silt fencing support posts, or may be suitable reinforcing steel rods.

D. Mulch Materials and Soil Stabilization.
   1. Mulch shall be unrotted straw or salt hay.
   2. Soil stabilization emulsions, when used, shall be an inert, eco-friendly chemical manufactured for the specific purpose of erosion control and soil stabilization, applied with mulch or stabilization fibers.
   3. Wood-fiber or paper-fiber, when used, shall be 100 percent natural and biodegradable.
   4. Erosion control mat or netting shall be biodegradable. Acceptable materials include jute, excelsior, straw or coconut fiber, and cotton.

E. Protection of Storm Water Drainage Inlets and Catch Basins:
   1. Inlet Filter Bag:
      a. Product and Manufacturer: Provide one of the following for each drainage inlet or catch basin to be protected:
         1) Atlantic Construction Fabrics (ACF) Environmental, “Silt Sack”.
         2) Mutual Industries, Inc. “Silt Sack”.
         3) Or equal.
      b. Inlet filter bag permeability shall be not less than 40 gallons per square foot of bag area exposed to the flow. Fabric shall be woven polypropylene with double stitching to prevent bursting.
      c. Inlet filter bags shall:
         1) Fit inside the drainage inlet or catch basin and shall be secured by the structure's grate or by other acceptable means.
         2) Have means of removing inlet filter bag and the silt and sediment collected therein without dumping filter bag's contents into the drainage inlet or catch basin.

F. Temporary Settlement Basin.
   1. Embankment Material: Comply with requirements for general fill in Division 31 Specifications Sections on earthwork, excavation, and fill.
   2. Provide outfall structure consisting of overflow weir and discharge pipe, and provide emergency spillway.
   3. Overflow Weir and Discharge Pipe: Suitably-sized piping of corrugated metal, high-density polyethylene, or other suitable material. Pipe may be new or used; if used, pipe shall be in good condition.

G. Temporary Stone Construction Entrance:
   1. Stone: Tough, hard, durable stone complying with the following gradation requirements:

Sieve Size	Total Percent Passing
Four-inch (100 mm)	100
3.5-inch (90 mm)	90 to 100
2.5-inch (65 mm)	25 to 60
1.5-inch (37.5 mm)	Zero to 15

.

2. Geotextile Separation Fabric: As recommended by geotextile manufacturer for separating stone from subgrade, for the vehicle weight and traffic frequency required.

PART 3 – EXECUTION

3.1 NOISE CONTROL

A. Noise Control – General:
   1. CONTRACTOR's vehicles and equipment shall minimize noise emissions to greatest degree practicable. When necessary, provide mufflers and silencers on construction equipment, and provide temporary sound barriers onsite when necessary.
   2. Noise levels shall comply with Laws and Regulations, including OSHA requirements and local ordinances.
   3. Noise emissions shall not interfere with the work of OWNER, facility manager, or others.

3.2 DUST CONTROL

A. Dust Control – General:
   1. Control objectionable dust caused by CONTRACTOR's operation of vehicles and equipment, clearing, demolition, cleaning, and other actions. To minimize airborne dust, apply water or use other methods subject to acceptance of ENGINEER and approval of authorities having jurisdiction.
   2. CONTRACTOR shall prevent blowing and movement of dust from exposed soil surfaces and access roads to reduce onsite and off-Site damage, nuisances, and health hazards associated with dust emissions.
   3. Comply with Section 01 41 27, Earthmoving Permit and Dust Control.

B. Dust Control Methods:
   1. Dust control may be achieved by irrigation in which the dust-prone area of the Site shall be sprinkled with water until the surface is moist.
   2. Apply dust controls as frequently as required without creating nuisances such as excessive mud and ponding of water at the Site. Do not use water for dust control when water will cause hazardous or objectionable conditions such as ice, mud, ponds, and pollution.
   3. Provide dust control that is non-polluting and does not contribute to tracking-out of dirt and dust onto pavement.

C. Removal of Dust and Dirt from Travelled Surfaces:
   1. Remove dust and dirt from roadways, drives, parking areas, and other travelled surfaces not less than the frequency indicated in Section 01 74 05, Cleaning.

2. Perform dust and dirt removals from travelled surfaces by mechanical sweeping or other method acceptable to ENGINEER.

3.3 PEST AND RODENT CONTROL

A. Pest and Rodent Control – General:
   1. Provide pest and rodent controls as required to prevent infestation of the Site and storage areas.
   2. Employ methods and use materials that do not adversely affect conditions at the Site or on adjoining properties.
   3. In accordance with Laws and Regulations, promptly and properly dispose of pests and rodents trapped or otherwise controlled.

3.4 WATER CONTROL

A. Water Control – General:
   1. Provide methods to control surface water and water from excavations and structures to prevent damage to the Work, the Site, and adjoining properties.
   2. Control fill, grading, and ditching to direct water away from excavations, pits, tunnels and other construction areas and to direct drainage to proper runoff courses to prevent erosion, damage, or nuisance. Avoid directing to adjoining properties runoff from the Site and construction operations.

B. Equipment and Facilities for Water Control:
   1. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.

C. Discharge and Disposal:
   1. Dispose of storm water and ground water in manner to prevent flooding, erosion, and other damage to any and all parts of the Site and adjoining areas, and that complies with Laws and Regulations.

3.5 POLLUTION CONTROL

A. Pollution Control – General:
   1. Provide means, methods, and facilities required to prevent contamination of soil, water, and atmosphere caused by discharge of noxious substances from or caused by construction operations.
   2. Equipment used during construction shall comply with Laws and Regulations.
   3. Comply with Section 01 35 43.13, Environmental Procedures for Hazardous Materials.

B. Spills and Contamination:
   1. Provide equipment and personnel to perform emergency measures required to contain spills and to remove contaminated soils and liquids.

2. Excavate contaminated material and properly dispose of off-Site, and replace with suitable compacted fill and topsoil.

C. Protection of Surface Waters and Ground Water:
   1. Provide and maintain special measures to prevent harmful substances from entering surface waters and ground water. Prevent disposal of wastes, effluents, chemicals, and other such substances in or adjacent to surface waters and open drainage routes, in sanitary sewers, or in storm sewers, and in ground water.

D. Atmospheric Pollutants:
   1. Provide and maintain systems for controlling atmospheric pollutants related to the Work.
   2. Prevent toxic concentrations of chemicals and vapors.
   3. Prevent harmful dispersal of pollutants into atmosphere.

E. Solid Waste:
   1. Provide and maintain systems for controlling and managing solid waste related to the Work.
   2. Prevent solid waste from becoming airborne, and from discharging to surface waters and drainage routes.
   3. Properly handle and dispose of solid waste.
   4. Comply with requirements for cleaning and disposal of debris in the General Conditions, as may be modified by the Supplementary Conditions, and Section 01 74 05, Cleaning.

3.6 EROSION AND SEDIMENT CONTROLS

A. Installation and Maintenance of Erosion and Sediment Controls – General:
   1. General:
      a. Provide temporary erosion and sediment controls as shown and indicated on the Drawings and as indicated elsewhere in the Contract Documents. Provide erosion and sediment controls as the Work progresses into previously-undisturbed areas.
      b. Installation of erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.2 of this Section, unless more-stringent methods are otherwise shown or indicated in the Contract Documents.
      c. Use necessary methods to successfully control erosion and sedimentation, including ecology-oriented construction practices, vegetative measures, and mechanical controls. Use best management practices (BMP) in accordance with Laws and Regulations, and regulatory requirements indicated in Article 1.2 of this Section, to control erosion and sedimentation during the Project.
      d. Plan and execute construction, disturbances of soils and soil cover, and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and

sedimentation. Provide temporary measures for controlling erosion and sedimentation, as indicated in the Contract Documents and as required for the Project.

e. Where areas must be cleared for storage of materials or equipment, or for temporary facilities, provide measures for regulating drainage and controlling erosion and sedimentation, subject to the ENGINEER'S approval.

f. Provide erosion and sediment controls, including stabilization of soils, at the end of each workday.

2. Coordination:
   a. Coordinate temporary erosion and sediment controls with construction of permanent drainage facilities and other Work to the extent necessary for economical, effective, and continuous erosion and sediment controls.
3. Before commencing activities that will disturb soil or soil cover at the Site, provide all erosion and sediment control measures required by the Contract Documents for the areas where soil or soil cover will be disturbed.
4. In general, implement construction procedures associated with, or that may affect, erosion and sediment control to ensure minimum damage to the environment during construction.
5. Vegetation Removal: Remove only those shrubs, grasses, and other vegetation that must be removed for construction. Protect remaining vegetation.
6. Access Roads and Parking Areas: When possible, access roads and temporary roads and parking shall be located and constructed to avoid adverse effects on the environment. Provide measures to regulate drainage, avoid erosion and sedimentation, and minimize damage to vegetation.
7. Earthwork and Temporary Controls:
   a. Perform excavation, fill, and related operations in accordance with Section 31 23 16.13, Trenching.
   b. Control erosion to minimize transport of silt from the Site into existing waterways and surface waters. Such measures shall include, but are not limited to, using berms, silt fencing, baled straw silt barriers, gravel or crushed stone, mulching and soil stabilization, slope drains, and other methods. Apply such temporary measures to erodible materials exposed by activities associated with the construction of the Project.
   c. Hold to a minimum the areas of bare soil exposed at one time.
   d. Construct fills and waste areas by selectively placing fill and waste materials to eliminate surface silts and clays that will erode.
   e. In performing earthwork, eliminate depressions that could serve as mosquito breeding pools.
   f. CONTRACTOR shall provide special care in areas with steep slopes, where disturbance of vegetation shall be minimized to maintain soil stability.
8. Inspection and Maintenance:
   a. Periodically inspect areas of earthwork and areas where soil or soil cover are disturbed to detect evidence of the start of erosion and sedimentation; promptly implement corrective measures as required to control erosion

and sedimentation. Continue inspections and corrective measures until soils are permanently stabilized and permanent vegetation has been established

b. Inspect not less often than the frequency indicated in the Storm Water Pollution Prevention Plan and Permit.

c. Repair or replace damaged erosion and sediment controls within 24 hours of CONTRACTOR becoming aware of such damage.

d. Periodically remove silt and sediment that has accumulated in or behind sediment and erosion controls. Properly dispose of silt and sediment.

9. Duration of Erosion and Sediment Controls:

a. Maintain erosion and sediment controls in effective working condition until the associated drainage area has been permanently stabilized.

b. Maintain erosion and sediment controls until the Site is restored and site improvements including landscaping, if any, are complete with underlying soils permanently stabilized.

10. Work Stoppage:

a. If the Work is temporarily stopped or suspended for any reason, CONTRACTOR shall provide additional temporary controls necessary to prevent environmental damage to the Site and adjacent areas while the Work is stopped or suspended.

11. Failure to Provide Adequate Controls:

a. In the event CONTRACTOR repeatedly fails to satisfactorily control erosion and sedimentation, OWNER reserves the right to employ outside assistance or to use OWNER's own forces for erosion and sediment control.

b. Cost of such work by OWNER, plus engineering and inspection costs, will be deducted from amounts due CONTRACTOR, as set-offs in accordance with the Contract Documents.

B. Silt Fencing:

1. Install and maintain silt fencing in a vertical plane, at the location(s) shown or indicated in the Contract Documents and where required.

2. Locations of Silt Fencing:

a. Where possible, install silt fencing along contour lines so that each given run of silt fencing is at the same elevation.

b. On slopes, install silt fencing at intervals that do not exceed the maximum intervals indicated in the following table:

Slope (percent)	**Maximum Length of Slope Above Each Silt Fence (feet)**
2 and less	150
2.1 to 5	100
5.1 to 10	50
10.1 to 20	25
20.1 to 25	20
25.1 to 40	15
40.1 to 50	10

c. Provide silt fencing around perimeter of each stockpile of topsoil, general fill material, and excavated material. Install silt fencing before expected precipitation and maintain until stockpile is removed.
d. Do not install silt fencing at the following types of locations:
1) Area of concentrated storm water flows such as ditches, swales, or channels.
2) Where rock or rocky soils prevent full and uniform anchoring of silt fencing.
3) Across upstream or discharge ends of storm water piping or culverts.

3. Installation:
a. Securely fasten wire mesh to posts, and securely fasten filter cloth to wire mesh.
b. When two sections of filter cloth abut each other, fold over edges and overlap by not less than six inches and securely fasten to wire mesh.
c. Embed posts in the ground to the depth necessary for proper controls; embed posts to not less than 16 inches below ground.
d. Filter cloth and wire mesh shall extend not less than eight inches below ground and not less than 16 inches above ground.
e. Remove sediment accumulated at silt fencing as required. Repair and reinstall silt fencing as required.

4. Maintenance:
a. Do not allow formation of concentrated storm water flows on slopes above silt fencing unless so shown or indicated in the Contract Documents. If unauthorized concentrated storm water flows occur, stabilize the slope via earthmoving and other stabilization measures as required to prevent flow of concentrated storm water flows toward silt fencing.

C. Straw Bale Dike.
1. Install straw bale dikes where shown or indicated, including in swales, along contours, and along toe of slopes.
2. Install straw bales in shallow excavation as wide as the bale and approximately four to six inches below surrounding grade.
3. Ends of straw bales shall tightly abut ends of adjacent straw bales.
4. Securely install straw bales using two support posts per straw bale, driven into the ground not less than 1.5 to two feet below bottom of straw bale. Top of post shall be flush with top of straw bale. Angle first post for each straw bale toward the previously-installed straw bale.
5. Frequently inspect straw bales and repair or replace as required. Remove accumulated silt and debris from behind straw bales.

D. Mulching and Soil Stabilization:
1. Use mulching to temporarily stabilize exposed soil and fill material.
a. Immediately following final grading, provide mulch and stabilize with mats or netting, or sprayed soil stabilization emulsion with fiber additive.
b. Application of mulching for soil stabilization shall be as follows.

1) Unrotted Straw or Salt Hay: 1.5 to two tons per acre.
2) Soil stabilization emulsions, when used, shall be applied in accordance with manufacturer's instructions, and shall be applied with mulch or stabilization fibers.
3) Wood-fiber or Paper-fiber Application: 1,500 lbs. per acre, installed by hydroseeding.

c. Where mats or netting are used:
1) Cover entire area to be stabilized with mats or netting.
2) Provide anchoring trenches at the top and bottom of slopes to receive mats or netting. Bury at least the top and bottom ends of mat or netting, four inches or more wide, at top and bottom of slope. Tamp trench full of soil. Four inches from trench, secure mat or netting with appropriate staples spaced at intervals of 10 inches.
3) Overlap adjacent strips of mat or netting by not less than four inches.

E. Protection of Storm Water Drainage Inlets and Catch Basins:
1. Protect each drainage inlet and catch basin that has the potential to receive storm water runoff from exposed soils, and does not discharge into a storm water settlement basin.
2. Install inlet filter bags inside of drainage inlet or catch basin in accordance with manufacturer's instructions. Secure inlet filter bag with the structure's grate or by other acceptable means.
3. Inlet filter bags shall not pose any obstruction above the pre-construction elevation of the drainage inlet or catch basin grate requiring barricades or flashers.
4. When removing silt and sediment from inlet filter bag, do not dump filter bag's contents into the drainage inlet or catch basin.
5. Remove silt and sediment from inlet filter bag, or replace inlet filter bag, when inlet filter bag is not more than half full.

F. Temporary Settlement Basin:
1. For constructing embankments comply with requirements in Division 31 Sections on earthwork, embankments, excavation, and fill.
2. Overflow Weir and Discharge Pipe:
a. Install piping in accordance with manufacturer's instructions.
b. Install overflow weirs at elevations shown or indicated on the Drawings or approved Shop Drawings, as applicable, to avoid overtopping and overfilling of settlement basin without short-circuiting the settlement basin's hydraulic performance.
c. Wrap and secure geotextile material specified for silt fencing around discharge structures of temporary settlement basins
3. Crushed Stone and Riprap: Install in accordance with Division 31 Sections on earthwork, fill, and riprap. Provide in areas of temporary settlement basin subject to erosion, and at upstream and downstream ends of discharge piping.
4. Remove sediment when required based on accumulation of material.

5. When temporary settlement basin is no longer required, remove the temporary settlement basin discharge weir, discharge piping, and spillway, fill the temporary settlement basin to required grade in accordance with requirements of Division 31 Section on excavation and fill, and provide landscaping.

G. Filter Bag on Dewatering Pump Discharge:
   1. Provide dewatering of excavations in compliance with Division 31 Sections on earthmoving, excavation, and fill.
   2. Locate filter bags and temporary pump discharge lines to avoid interfering with the public, use of private property, and OWNER's and facility manager's operations. Relocate filter bags and appurtenances when required.
   3. Filter bag discharge shall be directed to appropriate storm water drainage route. Do not discharge into roadways, driveways, access roads, parking areas, or overland. When temporary settlement basin is used, locate filter bags to discharge to temporary settlement basin when practicable.
   4. Provide filter bag on discharge of each dewatering pump drawing from an excavation.
   5. Securely attach filter bag to pump discharge pipe or hose.
   6. Maintain, clean out, and replace filter bags as required.

H. Temporary Stone Construction Entrance:
   1. Where shown on the Drawings, and where construction vehicles will regularly transit to paved surfaces from unstabilized surfaces, provide temporary stone construction entrance. CONTRACTOR vehicles shall use temporary stone construction entrances.
   2. Provide temporary stone construction entrances of the width, length, and thickness shown or indicated on the Drawings. When not shown or indicated on the Drawings, temporary stone construction entrance shall be not less than 50 feet long, by 20 feet wide, by eight inches deep.
   3. Installation:
      a. Ensure that subgrade under each temporary stone construction entrance is suitably dense for the intended purpose. Suitably prepare subgrade as required for temporary stone construction entrance.
      b. Provide on subgrade a layer of geotextile separation fabric, installed in accordance with geotextile separation fabric manufacturer's recommendations for separation.
      c. Provide stone on installed geotextile separation fabric. Grade the stone for passage of vehicles.
   4. Maintenance:
      a. Maintain temporary stone construction entrance at not less than the minimum required thickness. Add stone as required to maintain thickness.
      b. When upper layer of temporary stone construction entrance becomes contaminated with soil, remove the contaminated material and replace with clean stone.

c. Using water to wash down temporary construction entrance or paved areas onto which soil material has been tracked is unacceptable.

3.7 REMOVAL OF TEMPORARY CONTROLS

A. Removals – General:
   1. Upon completion of the Work, remove temporary controls and restore Site to specified condition; if condition is not specified, restore Site to pre-construction condition.
   2. After soils are permanently stabilized, remove from the Site temporary erosion and sediment controls.

+ + END OF SECTION + +

TCEQ Office Use Only
Permit No.:
RN:
CN:
Region:

TCEQ Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

IMPORTANT:

- Use the INSTRUCTIONS to fill out each question in this form.
- Use the CHECKLIST to make certain all you filled out all required information. Incomplete applications **WILL** delay approval or result in automatic denial.
- Once processed your permit can be viewed at: http://www2.tceq.texas.gov/wq_dpa/index.cfm

ePERMITS: Sign up now for online NOI: https://www3.tceq.texas.gov/steers/index.cfm
Pay a $225 reduced application fee by using ePermits.

APPLICATION FEE:

- You must pay the **$325** Application Fee to TCEQ for the paper application to be complete.
- Payment and NOI must be mailed to separate addresses.
- Did you know you can pay on line?
  - Go to https://www3.tceq.texas.gov/epay/index.cfm
  - Select Fee Type: GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION
- **Provide your payment information below, for verification of payment:**

☐ Mailed — Check/Money Order No.: _____
Name Printed on Check: _____

☐ EPAY — Voucher No.: _____
Is the Payment Voucher copy attached? ☐ Yes

RENEWAL: Is this NOI a Renewal of an existing General Permit Authorization? (Note: A permit cannot be renewed after June 3, 2013.)

☐ Yes The Permit number is: TXR15_____
(If a permit number is not provided, a new number will be assigned.)
☐ No

1) OPERATOR (Applicant)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? You may search for your CN at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

CN_____

b) What is the Legal Name of the entity (applicant) applying for this permit?

_____

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

c) What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in TAC 305.44(a).
Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____

d) What is the Operator Contact's (Responsible Authority) contact information and mailing address as recognized by the US Postal Service (USPS)? You may verify the address at: http://zip4.usps.com/zip4/welcome.jsp
Phone #:_____ ext:_____ Fax #:_____
E-mail: _____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____ State:_____ ZIP Code:_____
If outside USA: Territory:_____ Country Code:_____ Postal Code:_____

e) Indicate the type of Customer (The instructions will help determine your customer type):

☐ Individual	☐ Limited Partnership	☐ Sole Proprietorship-DBA
☐ Joint Venture	☐ General Partnership	☐ Corporation
☐ Trust	☐ Estate	☐ Federal Government
☐ State Government	☐ County Government	☐ City Government
☐ Other Government		

f) Independent Operator? ☐ Yes ☐ No
(If governmental entity, subsidiary, or part of a larger corporation, check "No".)

g) Number of Employees:
☐ 0-20; ☐ 21-100; ☐ 101-250; ☐ 251-500; or ☐ 501 or higher

h) Customer Business Tax and Filing Numbers:
(REQUIRED for Corporations and Limited Partnerships. Not Required for Individuals, Government, or Sole Proprietors)
State Franchise Tax ID Number: _____
Federal Tax ID: _____
Texas Secretary of State Charter (filing) Number: _____
DUNS Number (if known): _____

2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3). ☐ No, complete section below.

Prefix (Mr. Ms. Miss):_____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____

Organization Name:_____
Phone No.:_____ ext:_____ Fax Number:_____
E-mail:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____State:_____ZIP Code:_____
Mailing Information if outside USA:
Territory:_____Country Code:_____Postal Code:_____

3) REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

If the site of your business is part of a larger business site or if other businesses were located at this site before yours, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch.

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

a) TCEQ issued RE Reference Number (RN): RN_____

b) Name of project or site (the name known by the community where located):
_____

c) In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code):
_____

d) County (or counties if > 1) _____

e) Latitude:_____ Longitude: _____

f) Does the site have a physical address?
☐ Yes, complete Section A for a physical address.
☐ No, complete Section B for site location information.

Section A: Enter the physical address for the site.
Verify the address with USPS. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergency or other online map tools to confirm an address.

Physical Address of Project or Site:
Street Number: _____ Street Name: _____
City: _____State: Texas ZIP Code: _____

Section B: Enter the site location information.
If no physical address (Street Number & Street Name), provide a written location access description to the site. (Ex.: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

City where the site is located or, if not in a city, what is the nearest city:

State: Texas ZIP Code where the site is located: _____

4) GENERAL CHARACTERISTICS

a) Is the project/site located on Indian Country Lands?

☐ Yes - If the answer is Yes, you must obtain authorization through EPA, Region 6.

☐ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes - If the answer is Yes, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA, Region 6.

☐ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?
Primary SIC Code: _____

d) If applicable, what is the Secondary SIC Code(s): _____

e) What is the total number of acres disturbed? _____

f) Is the project site part of a larger common plan of development or sale?

☐ Yes - If the answer is Yes, the total number of acres disturbed can be less than 5 acres.

☐ No - If the answer is No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.

g) What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?

_____

h) What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?

_____

i) Is the discharge into an MS4?

☐ Yes - If the answer is Yes, provide the name of the MS4 operator below.

☐ No

If Yes, provide the name of the MS4 operator:

_____

Note: The general permit requires you to send a copy of the NOI to the MS4 operator.

j) Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) List of impaired waters?

☐ Yes - If the answer is Yes, provide the name(s) of the impaired water body(s) below.

☐ No

If Yes, provide the name(s) of the impaired water body(s):

_____

k) Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer as defined in 30 TAC Chapter 213?

☐ Yes - If the answer is Yes, complete certification below by checking "Yes."

☐ No

I certify that a copy of the TCEQ approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) is either included or referenced in the Stormwater Pollution Prevention Plan.

☐ Yes

5) CERTIFICATION

Check Yes to the certifications below. Failure to indicate Yes to ***ALL*** items may result in denial of coverage under the general permit.

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☐ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☐ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☐ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator. ☐ Yes

Operator Certification:

I,_____ _____
Typed or printed name Title

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

I further certify that I am authorized under 30 Texas Administrative Code 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date:_____
(Use blue ink)

NOTICE OF INTENT CHECKLIST (TXR150000)

- Did you complete everything? Use this checklist to be sure!
- Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

This checklist is for use by the operator to ensure a complete application. Missing information may result in denial of coverage under the general permit. (See NOI process description in the Instructions)

Application Fee:

If paying by Check:

- ☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)
- ☐ Check number and name on check is provided in this application.

If using ePay:

- ☐ The voucher number is provided in this application or a copy of the voucher is attached.

PERMIT NUMBER:

- ☐ Permit number provided – if this application is for renewal of an existing authorization.

OPERATOR INFORMATION - Confirm each item is complete:

- ☐ Customer Number (CN) issued by TCEQ Central Registry
- ☐ Legal name as filed to do business in Texas (Call TX SOS 512/463-5555)
- ☐ Name and title of responsible authority signing the application
- ☐ Mailing address is complete & verifiable with USPS. www.usps.com
- ☐ Phone numbers/e-mail address
- ☐ Type of operator (entity type)
- ☐ Independent operator
- ☐ Number of employees
- ☐ For corporations or limited partnerships – Tax ID and SOS filing numbers
- ☐ Application contact and address is complete & verifiable with USPS. http://www.usps.com

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE - Confirm each item is complete:

- ☐ Regulated Entity Reference Number (RN) (if site is already regulated by TCEQ)
- ☐ Site/project name/regulated entity
- ☐ Latitude and longitude http://www.tceq.texas.gov/gis/sqmaview.html
- ☐ County
- ☐ Site/project physical address. Do not use a rural route or post office box.
- ☐ Business description

GENERAL CHARACTERISTICS - Confirm each item is complete:

- ☐ Indian Country Lands –the facility is not on Indian Country Lands
- ☐ Construction activity related to facility associated to oil, gas, or geothermal resources
- ☐ Standard Industrial Classification (SIC) Code www.osha.gov/oshstats/sicser.html
- ☐ Acres disturbed is provided and qualifies for coverage through a NOI
- ☐ Common plan of development or sale
- ☐ Receiving water body(s)
- ☐ Segment number(s)
- ☐ Impaired water body(s)
- ☐ MS4 operator
- ☐ Edwards Aquifer rule

CERTIFICATION

- ☐ Certification statements have been checked indicating "Yes"
- ☐ Signature meets 30 Texas Administrative Code (TAC) 305.44 and is original.

Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

General Information and Instructions

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

BY REGULAR U.S. MAIL
Texas Commission on
Environmental Quality
Stormwater Processing Center
(MC228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on
Environmental Quality
Stormwater Processing Center
(MC228)
12100 Park 35 Circle
Austin, TX 78753

TCEQ Contact List:

Application – status and form questions:	*512/239-3700, swpermit@tceq.texas.gov*
Technical questions:	*512/239-4671, swgp@tceq.texas.gov*
Environmental Law Division:	*512/239-0600*
Records Management - obtain copies of forms:	*512/239-0900*
Reports from databases (as available):	*512/239-DATA (3282)*
Cashier's office:	*512/239-0357 or 512/239-0187*

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

1) **Administrative Review:** Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(s) on the form must be verified with the US Postal service as receiving regular mail delivery. Never give an overnight/express mailing address.

2) **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.

3) **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

   -or-

   Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.texas.gov. Search using key word TXR150000.

General Permit Forms

The Notice of Intent (NOI), Notice of Termination (NOT), and Notice of Change (NOC) (including instructions) are available in Adobe Acrobat PDF format on the TCEQ web site http://www.tceq.texas.gov.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number.

You can find the information on the Central Registry web site at http://www12.tceq.texas.gov/crpub/index.cfm. You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Additional ID". Capitalize all letters in the permit number.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area.

Fees associated with a General Permit

Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Application Fee: This fee is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit.

Mailed Payments:

Payment must be mailed under separate cover at one of the addresses below using the attached Application Fee submittal form. (DO NOT SEND A COPY OF THE NOI WITH THE APPLICATION FEE SUBMITTAL FORM)

BY REGULAR U.S. MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

ePAY Electronic Payment: http://www.tceq.texas.gov/epay

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied a new permit number will be issued.

1. Operator (Applicant)

a) Enter assigned Customer Number (CN)
TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number.**
If this customer has not been assigned a CN, leave the space for the CN blank.
If this customer has already been assigned this number, enter the permittee's CN.

b) Legal Name
Provide the current legal name of the permittee, as authorized to do business in Texas. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512/463-5555, for more information related to filing in Texas. If filed in the county where doing business, provide a copy of the legal documents showing the legal name.

c) Person Signing Application
Provide information about person signing section 5) Certification.

d) Operator Contact's (Responsible Authority) Contact Information and Mailing Address
Provide a complete mailing address for receiving mail from the TCEQ. The address must be verifiable with the US Postal Service at http://www.usps.com for regular mail delivery (not overnight express mail). If you find that the address is not verifiable using the USPS web search, please indicate the address is used by the USPS for regular mail delivery.

The area code and phone number should provide contact to the operator. Leave Extension blank if not applicable.

The fax number and e-mail address are optional and should correspond to the operator.

e) Type of Customer (Entity Type)
Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for a permit, registration or authorization.

Sole Proprietorship – DBA

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

- be under the person's name
- have its own name (doing business as or d.b.a.)
- have any number of employees

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

- A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). A Limited Partnership or Limited Liability Partnership (Partnership) is required to file with the Texas Secretary of State. A General Partnership or Joint Venture is not required to register with the state.
- **Partnership (Limited Partnership or Limited Liability Partnership):** A limited partnership is defined in the Act as a partnership formed by two or more persons under the provisions of Section 3 of the Uniform Limited Partnership Act (Art. 6132a, Revised Civil Statutes of Texas) and having as members one or more general partners and one or more limited partners. The limited partners as such are not bound by the obligations of the partnership. Limited partners may not take part in the day-to-day operations of the business. A Limited Partnership must file with the Texas Secretary of State. A registered limited liability partnership is a general or limited partnership that is registered with the Texas Secretary of State. The partnership's name must contain the words "Registered Limited Liability Partnership" or the abbreviation "L.L.P." as the last words or letters of its name.
- **General Partnership:** A general partner may or may not invest, participates in running the partnership and is liable for all acts and debts of the partnership and any member of it. A General Partnership does not have limited partners. For a General Partnership, there is no registration with the state or even written agreement necessary for a general partnership to be formed. The legal definition of a partnership is generally stated as "an association of two or more persons to carry on as co-owners a business for profit" (Revised Uniform Partnership Act § 101 [1994]).
- **Joint Venture:** A joint venture is but another name for a special partnership. It might be distinguished from a general partnership in that the latter is formed for the transaction of a general business, while a joint venture is usually limited to a single transaction. That is, a joint venture is a special combination of persons in the nature of a partnership engaged in the joint prosecution of a particular transaction for mutual benefit or profit.

Corporation

A customer meets all of these conditions:

- is a legally incorporated entity under the laws of any state or country
- is recognized as a corporation by the Texas Secretary of State

- has proper operating authority to operate in Texas.
- The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)
The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization should not be included as a part of the 'legal name' as applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Other Government

A utility district, water district, tribal government, college district, council of governments, or river authority. Write in the specific type of government.

f) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

g) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

h) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter this number here.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512/463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

2. APPLICATION CONTACT

Provide the name, title and communication information of the person that TCEQ can contact for additional information regarding this application.

3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) Regulated Entity Reference Number (RN)

A number issued by TCEQ's Central Registry to sites (a location where a regulated activity occurs) regulated by TCEQ. This is not a permit number, registration number, or license number. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch

If the site is found, provide the assigned Regulated Entity Reference Number (RN) and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Site/Project Name/Regulated Entity

Provide the name of the site as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Identify the county or counties in which the regulated entity is located.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to: http://www.tceq.texas.gov/gis/sqmaview.html or http://nationalmap.gov/ustopo

f) Site/Project (RE) Physical Address/Location Information

Enter the complete address for the site in Section A if the address can be validated through the US Postal Service. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street (or house) number and street name, enter NO ADDRESS for the street name in Section A. In Section B provide a complete written location description. For example: "The site is located 2 miles west from intersection of Hwy 290 & IH35, located on the southwest corner of the Hwy 290 South bound lane."
Provide the city (or nearest city) and zip code of the facility location.

4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA, Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization from EPA Region 6. For more information, see:
http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the Railroad Commission's jurisdiction must be authorized by the EPA and the Railroad Commission of Texas, as applicable. Activities under Railroad Commission of Texas jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the Railroad Commission of Texas; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The Railroad Commission of Texas also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the Railroad Commission of Texas. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from "field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities" unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the Railroad

Commission of Texas prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

c) Primary Standard Industrial Classification (SIC) Code
Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Bldgs. Other than Single Family Homes
- 1541 - Construction of Industrial Bldgs. and Warehouses
- 1542 - Construction of Non-residential Bldgs, other than Industrial Bldgs. and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, go to:
http://www.osha.gov/pls/imis/sicsearch.html

d) Secondary SIC Code
Secondary SIC Code(s) may be provided. Leave blank if not applicable. For help with SIC Codes, go to:
http://www.osha.gov/pls/imis/sicsearch.html

e) Total Number of Acres Disturbed
Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at (512)239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development
Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on "What is a common plan of development?" go to:
www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage at:
www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If

you have any further questions about this item, please call the stormwater technical staff at (512)239-4671.

g) Identify the water body(s) receiving stormwater runoff
The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

h) Identify the segment number(s) of the classified water body(s)
Identify the classified segment number(s) receiving a discharge directly or indirectly. Go to the following link to find the segment number of the classified water body where stormwater will flow from the site: www.tceq.texas.gov/waterquality/monitoring/viewer.html

You may also find the segment number in TCEQ publication GI-316:
www.tceq.texas.gov/publications/gi/gi-316

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at (512)239-4671 for further assistance.

i) Discharge into MS4 – Identify the MS4 Operator
The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at (512)239-4671.

j) Surface Water bodies on list of impaired waters – Identify the impaired water body(s)
Indicate Yes or No if any surface water bodies receiving discharges from the construction site are on the latest EPA-approved CWA 303(d) List of impaired waters. Provide the name(s) of surface water bodies receiving discharges or potential discharges from the construction site that are on the latest EPA-approved CWA 303(d) List of impaired waters. The EPA-approved CWA 303(d) List of impaired waters in Texas can be found at:
www.tceq.texas.gov/waterquality/assessment/305_303.html

NOTE: Do not use any "draft" documents.

k) Discharges to the Edwards Aquifer Recharge Zone and Certification

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer at: www.tceq.texas.gov/field/eapp/viewer.html

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin. The certification must be answered "Yes" for coverage under the Construction General Permit. The TCEQ approved plan must be readily available for TCEQ staff to review at the time that the NOI is submitted.

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

5. CERTIFICATIONS

Failure to indicate **Yes** to ALL of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. (Electronic applications submitted through ePermits have immediate provisional coverage). You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site: www.tceq.texas.gov/goto/construction

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at (512)463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under this Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and

filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Operator Certification:
The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

IF YOU ARE A CORPORATION:
The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:
The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at (512)239-0600.

30 Texas Administrative Code
§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality
General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- Do not mail this form with your NOI form.
- Do not mail this form to the same address as your NOI.

Mail this form and your check to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA	General Permit: TXR150000

1. Check / Money Order No: _____
2. Amount of Check/Money Order: _____
3. Date of Check or Money Order: _____
4. Name on Check or Money Order: _____
5. NOI INFORMATION

   If the check is for more than one NOI, list each Project/Site (RE) Name and Physical Address exactly as provided on the NOI. DO NOT SUBMIT A COPY OF THE NOI WITH THIS FORM AS IT COULD CAUSE DUPLICATE PERMIT ENTRIES.

   See Attached List of Sites (If more space is needed, you may attach a list.)

   Project/Site (RE) Name: _____

   Project/Site (RE) Physical Address:

Staple Check in This Space

SECTION 01 65 00

PRODUCT DELIVERY REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for preparing for shipping, delivering, and handling materials and equipment to be incorporated into the Work.
   2. CONTRACTOR shall make all arrangements for transporting, delivering, and handling of materials and equipment required for prosecution and completion of the Work.
   3. When required, move stored materials and equipment without changes to the Contract Price or Contract Times.

1.2 SUBMITTALS

A. Refer to individual Specifications Sections for submittal requirements relative to delivering and handling materials and equipment.

1.3 PREPARING FOR SHIPMENT

A. When practical, factory-assemble materials and equipment. Mark or tag separate parts and assemblies to facilitate field-assembly. Cover machined and unpainted parts that may be damaged by the elements or climate with strippable, protective coating.

B. Package materials and equipment to facilitate handling, and protect materials and equipment from damage during shipping, handling, and storage. Mark or tag outside of each package and crate to indicate the associated purchase order number, bill of lading number, contents by name, OWNER's contract designation, CONTRACTOR name, equipment number, and approximate weight. Include complete packing lists and bills of materials with each shipment.

C. Protect materials and equipment from exposure to the elements and damage by climate, and keep thoroughly dry and dust-free at all times. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Lubricate bearings and other items requiring lubrication in accordance with manufacturer's instructions.

D. Advance Notification of Shipments:
   1. Keep ENGINEER informed of delivery of all materials and equipment to be incorporated in the Work.
   2. Upon receipt of Supplier's advance notice of shipment, not less than seven days prior to delivery of materials and equipment, provide ENGINEER written notification of anticipated date and place of arrival of the following:
      a. Sewer Pipe
      b. Pre-cast manholes
      c. Manhole rings and covers

E. Do not ship materials and equipment until:
   1. Related Shop Drawings, Samples, and other submittals required by the Contract Documents have been approved or accepted (as applicable) by ENGINEER, including, but not necessarily limited to, all Action Submittals associated with the materials and equipment being delivered.
   2. Manufacturer's instructions for handling, storing, and installing the associated materials and equipment have been submitted to and accepted by ENGINEER in accordance with the Specifications.
   3. Results of source quality control testing (factory testing), when required by the Contract Documents for the associated materials or equipment, have been submitted to and accepted by ENGINEER.
   4. Facilities required for handling materials and equipment in accordance with the Contract Documents and manufacturer's instructions are in place and available.
   5. Required storage facilities have been provided.

1.4 DELIVERY

A. Scheduling and Timing of Deliveries:
   1. Arrange deliveries of materials and equipment in accordance with the Progress Schedule accepted by ENGINEER and in ample time to facilitate inspection and observation prior to installation.
   2. Schedule deliveries to minimize space required for and duration of storage of materials and equipment at the Site or other delivery location, as applicable.
   3. Coordinate deliveries to avoid conflicting with the Work and conditions at Site, and to accommodate the following:
      a. Work of other contractors and OWNER.
      b. Storage space limitations.
      c. Availability of equipment and personnel for handling materials and equipment.
      d. OWNER's use of premises.
   4. Deliver materials and equipment to the Site during regular working hours.
   5. Deliver materials and equipment to avoid delaying the Work and the Project, including work of other contractors, as applicable. Deliver anchor system

materials, including anchor bolts to be embedded in concrete or masonry, in ample time to avoid delaying the Work.

B. Deliveries:
   1. Shipments shall be delivered with CONTRACTOR's name, Subcontractor's name (if applicable), Site name, Project name, and contract designation (example: "ABC Construction Co., City of Happy Beach, Idaho, Wastewater Treatment Plant Primary Clarifier Improvements, Contract 25, General Construction") clearly marked.
   2. Site may be listed as the "ship to" or "delivery" address; but OWNER shall not be listed as recipient of shipment unless otherwise directed in writing by ENGINEER.
   3. Provide CONTRACTOR's telephone number to shipper; do not provide OWNER's telephone number.
   4. Arrange for deliveries while CONTRACTOR's personnel are at the Site. CONTRACTOR shall receive and coordinate shipments upon delivery. Shipments delivered to the Site when CONTRACTOR is not present will be refused by OWNER, and CONTRACTOR shall be responsible for the associated delays and additional costs, if incurred.

C. Containers and Marking:
   1. Have materials and equipment delivered in manufacturer's original, unopened, labeled containers.
   2. Clearly mark partial deliveries of component parts of materials and equipment to identify materials and equipment, to allow easy accumulation of parts, and to facilitate assembly.

D. Inspection of Deliveries:
   1. Immediately upon delivery, inspect shipment to verify that:
      a. Materials and equipment comply with the Contract Documents and approved or accepted (as applicable) submittals.
      b. Quantities are correct.
      c. Materials and equipment are undamaged and of the required quality.
      d. Containers and packages are intact and labels are legible.
      e. Materials and equipment are properly protected.
   2. Promptly remove damaged materials and equipment from the Site and expedite delivery of new, undamaged materials and equipment, and remedy incomplete or lost materials and equipment. Furnish materials and equipment in accordance with the Contract Documents, to avoid delaying progress of the Work.
   3. Advise ENGINEER in writing when damaged, incomplete, or defective materials and equipment are delivered, and advise ENGINEER of the associated impact on the Progress Schedule.

1.5 HANDLING OF MATERIALS AND EQUIPMENT

A. Provide equipment and personnel necessary to handle materials and equipment, including those furnished by OWNER, by methods that prevent soiling or damaging materials and equipment and packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring, and otherwise damaging materials and equipment and surrounding surfaces.

C. Handle materials and equipment by methods that prevent bending and overstressing.

D. Lift heavy components only at designated lifting points.

E. Handle materials and equipment in safe manner and as recommended by the manufacturer to prevent damage. Do not drop, roll, or skid materials and equipment off delivery vehicles or at other times during handling. Hand-carry or use suitable handling equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 66 00

PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for storing and protecting materials and equipment.
   2. CONTRACTOR shall provide all labor, materials, tools, equipment, and incidentals to store and handle materials and equipment to be incorporated into the Work, and other materials and equipment at the Site.

1.2 STORAGE

A. Store and protect materials and equipment in accordance with manufacturer's recommendations and the Contract Documents.

B. General:
   1. CONTRACTOR shall make all arrangements and provisions necessary for, and pay all costs for, storing materials and equipment.
   2. Excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed to avoid injuring the Work and existing facilities and property, and so that free access is maintained at all times to all parts of the Work and to public utility installations in vicinity of the Work.
   3. Store materials and equipment neatly and compactly in locations that cause minimum inconvenience to OWNER, facility manager, other contractors, public travel, and owners, tenants, and occupants of adjoining property.
   4. Arrange storage in manner to allow easy and safe access for inspection by ENGINEER and Resident Project Representative (RPR).

C. Storage Location:
   1. Identification and procurement of areas available at the Site for storing materials and equipment is the sole responsibility of the CONTRACTOR. Proposed storage areas are subject to ENGINEER approval.
   2. Restrictions:
      a. Do not store materials or equipment in structures being constructed unless approved by ENGINEER in writing.
      b. Do not use lawns or other private property for storage without written permission of the owner or other person in possession or control of such premises.

D. Protection of Stored Materials:
   1. Store materials and equipment to become OWNER's property to ensure preservation of quality and fitness of the Work, including proper protection against damage by freezing, moisture, and with outdoor ambient air high temperatures as high as 114 degrees F; temperature and humidity inside crates, containers, storage sheds, and packaging may be significantly higher than the outdoor ambient air temperature.
   2. Store in indoor, climate-controlled storage areas all materials and equipment subject to damage by moisture, humidity, heat, cold, and other elements, unless otherwise acceptable to OWNER.
   3. When placing orders to Suppliers for equipment and controls containing computer chips, electronics, and solid-state devices, CONTRACTOR shall obtain, coordinate, and comply with specific temperature and humidity limitations on materials and equipment, because temperature inside cabinets and components stored in warm temperatures can approach 200 degrees F.
   4. CONTRACTOR shall be fully responsible for loss or damage (including theft) to stored materials and equipment.
   5. Do not open manufacturer's containers until time of installation, unless recommended by the manufacturer or otherwise specified in the Contract Documents.
   6. Comply with requirements of Article 1.3 of this Section.

1.3 PROTECTION – GENERAL

A. Equipment to be incorporated into the Work shall be boxed, crated, or otherwise completely enclosed and protected during shipping, handling, and storage, in accordance with Section 01 65 00, Product Delivery Requirements.

B. Store all materials and equipment off the ground (or floor) on raised supports such as skids or pallets.

C. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Painted equipment surfaces that are damaged or marred shall be repainted in their entirety in accordance with equipment manufacturer and paint manufacturer requirements, to the satisfaction of ENGINEER.

D. Protect electrical equipment, controls, and instrumentation against moisture, water damage, humidity, heat, cold, and dust. Space heaters provided in equipment shall be connected and operating at all times until equipment is placed in operation and permanently connected.

1.4 UNCOVERED STORAGE

A. The following types of materials may be stored outdoors without cover on supports so there is no contact with the ground:

1. Reinforcing steel.
2. Precast concrete materials.
3. Structural steel.
4. Grating.
5. Checker plate.
6. Metal access hatches.
7. Castings.
8. Fiberglass items.
9. Rigid electrical conduit, except PVC-coated conduit.
10. Piping, except PVC or chlorinated PVC (CPVC) pipe.

1.5 COVERED STORAGE

A. The following materials and equipment may be stored outdoors on supports and completely covered with covering impervious to water:
   1. Grout and mortar materials.
   2. Rough lumber.
   3. Soil materials and granular materials such as aggregate.
   4. PVC and CPVC pipe.

B. Tie down covers with rope, and install covering properly sloped to prevent accumulation of water.

C. Store loose granular materials, with covering impervious to water, in well-drained area or on solid surfaces to prevent mixing with foreign matter.

1.6 FULLY PROTECTED STORAGE

A. Store all material and equipment not indicated in Articles 1.4 and 1.5 of this Section on supports in buildings or trailers that have concrete or wooden flooring, roof, and fully-closed walls on all sides. Covering with visquine plastic sheeting or similar material in space without floor, roof, and walls is unacceptable. Comply with the following:
   1. Provide heated storage for materials and equipment that could be damaged by low temperatures or freezing.
   2. Provide air-conditioned storage for materials and equipment that could be damaged by high temperatures or humidity.
   3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.
   4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

1.7 HAZARDOUS MATERIALS AND EQUIPMENT

A. Prevent contamination of personnel, storage areas, and the Site.

1.8 MAINTENANCE OF STORAGE

A. On a scheduled basis, periodically inspect stored materials and equipment to ensure that:
   1. Condition and status of storage facilities is adequate to provide required storage conditions.
   2. Required environmental conditions are maintained on continuing basis.
   3. Materials and equipment exposed to elements are not adversely affected.

1.9 RECORDS

A. Keep up-to-date account of materials and equipment in storage to facilitate preparation of Applications for Payment, if the Contract Documents provide for payment for materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 71 23

FIELD ENGINEERING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes field engineering, surveying, and layouts by CONTRACTOR, and associated requirements. This Section supplements the General Conditions' provisions on reference points and other matters.
   2. CONTRACTOR shall provide field engineering services, surveying and layout services, and professional services of the types indicated for the Project, including:
      a. Furnishing civil, structural, and other professional engineering services specified or required to execute CONTRACTOR's construction methods.
      b. Developing and making all detail surveys and measurements required for construction; including slope stakes, batter boards, and all other working lines, elevations, and cut sheets.
      c. Providing materials required for benchmarks, control points, batter boards, grade stakes, structure and pipeline elevation stakes, and other items.
      d. Keeping a transit, theodolite, or total station (i.e., theodolite with electronic distance measurement device); leveling instrument; and related implements such as survey rods and other measurement devices, at the Site at all times, and having a skilled instrument person available when necessary for laying out the Work.
      e. Being solely responsible for all locations, dimensions and levels. No data other than Change Order, Work Change Directive, or Field Order shall justify departure from dimensions and levels required by the Contract Documents.
      f. Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.
      g. Providing such facilities and assistance necessary for ENGINEER and Resident Project Representative (if any) or Owner's Site Representative (if any) to check lines and grade points placed by CONTRACTOR. Do not perform excavation or embankment work until all cross-sectioning necessary for determining payment quantities for Unit Price Work have been completed and accepted by ENGINEER.

B. Coordination:
   1. Review requirements of this and other Sections and coordinate installation of items to be installed with or before field engineering, surveying, and layout Work.

1.2 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Certificates:
      a. When requested by ENGINEER, submit certificate signed by professional engineer or professional surveyor, as applicable, certifying that elevations and locations of the Work comply with the Contract Documents. Explain each deviation, if any.
   2. Field Engineering:
      a. Submit daily reports as indicated in this Section.
      b. When requested by ENGINEER, submit documentation verifying accuracy of field engineering.
   3. Surveying:
      a. Complete plan for performing survey work, submitted not less than 10 days prior to beginning survey Work.
      b. Example of proposed survey field books to be maintained by CONTRACTOR's surveyor. Example shall have sufficient information and detail, including example calculations and notes, to demonstrate that field books will be organized and maintained in a professional manner in accordance with the Contract Documents and professional industry standards.
      c. Submit original field books within two days after completing survey Work.
      d. Submit certified survey in accordance with this Section.
   4. Qualifications Statements:
      a. Field Engineer: Name, employer, and professional address. When requested by ENGINEER, submit qualifications, including resume'.
      b. Surveyor: Name, employer, and professional address of firm, and resumes of each professional land surveyor and crew chief that will be engaged in survey Work. Submit not less than 10 days prior to beginning survey Work. During the Project, submit resume for each new registered, licensed land surveyor and crew chief employed by or retained by CONTRACTOR not less than 10 days prior to starting on the survey Work.

1.3 CONTRACTOR'S SURVEYOR

A. Qualifications:
   1. Employ or retain the services, as needed, at the Site a surveyor with experience and capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work.
   2. CONTRACTOR's surveyor shall possess not less than five years of experience performing duties similar in scope and extent to those required of CONTRACTOR's surveyor on this Project.
   3. Surveyor shall be a professional land surveyor registered and licensed in the jurisdiction where the Project is located, or a professional engineer registered and licensed as a professional engineer in the jurisdiction where the Project is located and authorized under Laws and Regulations to practice surveying.

B. Responsibilities of Contractor's Surveyor:
   1. Providing required surveying equipment, including transit, theodolite, or total station; level; stakes; and surveying accessories.
   2. Establishing required lines and grades for constructing all facilities, structures, pipelines, and site improvements, including outdoor electrical equipment and feeders.
   3. Preparing and maintaining professional-quality, accurate, well-organized, legible notes of all measurements and calculations made while surveying and laying out the Work.
   4. Prior to backfilling operations, survey, locate, and record on a copy of the Contract Documents accurate representation of buried Work and Underground Facilities provided and encountered.
   5. Locating on a site plan of the Site the actual location of above-ground Work to be indicated on record documents.
   6. Complying with requirements of the Contract Documents relative to surveying and related Work, including requirements of this Section's Articles 1.5 and 3.1.

1.4 RECORDS

A. Records – General:
   1. Maintain at the Site a complete and accurate log of control and survey Work as such Work progresses.

B. Field Books and Records:
   1. Survey data and records shall be in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the locality where the Site is located.
   2. Original field notes, computations, and other surveying data shall be recorded by CONTRACTOR's surveyor in CONTRACTOR-furnished hard-bound field books, and shall be signed and sealed by CONTRACTOR's surveyor.

3. Completeness and accuracy of survey Work, and completeness and accuracy of survey records, including field books, shall be responsibility of CONTRACTOR.
4. Failure to organize and maintain survey records in an appropriate manner that allows reasonable and independent verification of calculations, and to allow identification of elevations, dimensions, and grades of the Work, shall be cause for rejecting the survey records, including field books.
5. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by ENGINEER.

C. Certified Survey of Surface Structures:
1. Upon completion of foundation walls and major site improvements, prepare a certified survey, signed and sealed by professional surveyor, showing or indicating dimensions, locations, angles and elevations of construction and locations and elevations of Underground Facilities installed and encountered during the Work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 SURVEYING

A. Reference Points:
1. Refer the General Conditions, as may be modified by the Supplementary Conditions, for requirements regarding reference points.
2. OWNER's established reference points that are damaged or destroyed by CONTRACTOR will be re-established by OWNER at CONTRACTOR's expense. OWNER may deduct from payments owed CONTRACTOR such amounts as set-offs in accordance with the Contract Documents.
3. From OWNER-established reference points, establish lines, grades, and elevations necessary to control the Work. Obtain measurements required for executing the Work to tolerances specified in the Contract Documents.
4. Establish, place, and replace as required, such additional stakes, markers, and other reference points necessary for control, intermediate checks, and guidance of construction operations.

B. Surveys to Determine Quantities for Payment:
1. For each application for progress payment, perform such surveys and computations necessary to determine quantities of Work performed or placed.

Perform surveys necessary for ENGINEER to determine final quantities of Work in place.

2. Notify ENGINEER not less than 24 hours before performing survey services for determining quantities to be included in Application for Payment. Unless waived in writing by ENGINEER, perform quantity surveys in presence of ENGINEER or Resident Project Representative (if any).

C. Construction Surveying: Comply with the following:
   1. Alignment Staking: Provide alignment stakes at 50-foot intervals on tangent, and at 25-foot intervals on curves.
   2. Slope Staking: Provide slope staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Re-stake at every ten-foot difference in elevation.
   3. Structure: Stake-out structures, including elevations, and check prior to and during construction.
   4. Pipelines: Stake-out pipelines including elevations, and check prior to and during construction.
   5. Roads, Drives, and Paved Areas: Stake-out roadway, driveway, and paved area elevations at 50-foot intervals on tangent, and at 25-foot intervals on curves.
   6. Cross-sections: Provide original, intermediate, and final staking as required, for site work other locations as necessary for quantity surveys.
   7. Easement Staking: Provide easement staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Also provide wooden laths with flagging at maximum intervals of 100 feet.
   8. Record Staking: Provide permanent stake at each blind flange and each utility cap provided for future connections. Stakes for record staking shall be material acceptable to ENGINEER.

D. Accuracy:
   1. Establish CONTRACTOR's temporary survey references points for CONTRACTOR’s use to not greater than second-order accuracy (e.g., 1:10000). Construction staking used as a guide for the Work shall be set at not greater than third-order accuracy (e.g., 1:5000). Basis on which such orders are established shall provide the absolute margin for error specified below.
   2. Horizontal accuracy of easement staking shall be plus or minus 0.1 feet. Accuracy of other staking shall be plus or minus 0.04 feet horizontally and plus or minus 0.02 feet vertically.
   3. Survey calculations shall include an error analysis sufficient to demonstrate required accuracy.

+ + END OF SECTION + +

SECTION 01 73 24

CONNECTIONS TO EXISTING FACILITIES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for connections to existing facilities. Requirements for tie-ins and shutdowns necessary to complete the Work are in Section 01 14 16, Coordination with Owner's Operations.
   2. CONTRACTOR shall provide labor, materials, tools, equipment, and incidentals shown, specified, and required for performing connections to existing facilities.

B. Coordination:
   1. Review installation procedures under other Sections and coordinate Work that will be performed with or before the Work specified in this Section.

C. Related Sections:
   1. Section 01 14 16, Coordination with Owner's Operations.
   2. Section 01 51 41, Temporary Pumping.
   3. Section 01 73 29, Cutting and Patching.

D. General:
   1. Requirements for shutdowns, tie-ins, and other provisions on connections to existing facilities, are indicated in Section 01 14 16, Coordination with Owner's Operations.
   2. Requirements for temporary pumping for connections to existing facilities are in Section 01 14 16, Coordination with Owner's Operations, and Section 01 51 41, Temporary Pumping.
   3. Requirements for cutting and patching are in Section 01 73 29, Cutting and Patching.
   4. To extent possible, materials, equipment, systems, piping, and appurtenances that will be placed into service upon completion of connection to existing facilities shall be checked, successfully tested, and in condition for operation prior to making connections to existing facilities, if valves, gates, or similar watertight and gastight isolation devices are not provided at the connection point.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for cutting and patching Work.
   2. CONTRACTOR shall perform cutting and coring, and rough and finish patching of holes and openings in existing construction.
   3. Provide cutting, coring, fitting and patching, including attendant excavation and fill, required to complete the Work, and to:
      a. Remove and replace defective Work;
      b. Remove samples of installed Work as specified or required for testing;
      c. Remove construction required to perform required alterations or additions to existing construction;
      d. Uncover the Work for ENGINEER's observation of covered Work, testing or inspection by testing entities, or observation by authorities having jurisdiction;
      e. Connect to completed Work not performed in proper sequence;
      f. Remove or relocate existing utilities and piping that obstruct the Work in locations where connections are to be made;
      g. Make connections or alterations to existing or new facilities.

1.2 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Cutting and Patching Request:
      a. Submit written request to ENGINEER, well in advance of executing cutting or alteration that affects one or more of the following:
         1) Design function or intent of Project.
         2) Work of OWNER or other contractors.
         3) Structural value or integrity of an element of the Project.
         4) Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
         5) Efficiency, operational life, maintenance, or safety of operational elements.
         6) Visual qualities of sight-exposed elements.
      b. Request shall include:
         1) Identification of Project and Contract designation.
         2) Description of affected Work of CONTRACTOR and work of others (if any).
         3) Necessity for cutting.

4) Effect on work or operations of OWNER, other contractors (if any), and on structural or weatherproof integrity of Project.
5) Description of proposed Work, describing: scope of cutting and patching; trades who will be executing the Work; materials and equipment to be used; extent of refinishing; schedule of operations; alternatives to cutting and patching, if any, and net effect on aesthetics following completion of finishing Work.
6) Designation of entity responsible for cost of cutting and patching, when applicable.
7) Written permission of other prime contractors (if any) whose work will or may be affected.

2. Recommendation Regarding Cutting and Patching:
   a. Should conditions of work or schedule indicate a change of materials or methods, submit written recommendation to ENGINEER including:
      1) Conditions indicating change.
      2) Recommendations for alternative materials or methods.
      3) Items required with request for approval of substitute, in accordance with the substitution request requirements of the Contract Documents.
3. Product Data:
   a. Submit manufacturer's data for the protective compound to be applied to core-drilled surfaces and cut concrete surfaces.
   b. When not required under other Sections, submit manufacturer's data on materials to be used for finishing around the cut or patched area.
   c. Furnish submittals for patching materials under the associated Specifications Section.

B. Informational Submittals: Submit the following:
1. Written Notification of Cutting and Patching:
   a. Submit written indication designating the day and time that the construction associated with cutting and patching will be uncovered to allow for observation. Do not begin cutting or patching operations until submittal is accepted by ENGINEER.
2. X-ray Investigations:
   a. Proposed method of investigation. Submit and obtain ENGINEER's acceptance prior to performing X-ray inspections.
   b. Report of X-ray evaluation of slabs, floors, and walls to be cut or core-drilled.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials - General:
1. Use materials that comply with the Contract Documents.

2. If not shown or indicated in the Contract Documents, use materials that are identical to existing materials affected by cutting and patching Work.
3. For exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible. If identical materials are unavailable or cannot be used, use materials whose installed performance will equal or surpass that of existing materials.
4. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using materials that do not void required or existing warranties.

B. Compound Applied to Core-Drilled Surfaces and Cut Concrete Surfaces:
1. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with solvent-free, two-component, protective, epoxy resin coating.
2. Color shall approximate the finish color of the existing surface to be coated.
3. Product and Manufacturer: Provide one of the following:
a. Sikagard 62, by Sika Corporation.
b. Or equal.

PART 3 – EXECUTION

3.1 GENERAL

A. Perform cutting and coring in such manner that limits extent of patching required.

B. Structural Elements:
1. Do not cut or patch structural elements in manner that would change the element's structural load-carrying capacity as load deflection ratio.

C. Operating Elements:
1. Do not cut or patch operating elements in manner that would reduce their capacity to perform as intended.
2. Do not cut or patch operating elements or related components in manner that would increase maintenance requirements or decrease operational life or safety.

D. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using methods that do not void required or existing warranties.

3.2 INSPECTION

A. Examine surfaces to be cut or patched, and conditions under which cutting or patching will be performed before starting cutting or patching Work.

B. Report unsatisfactory or questionable conditions to ENGINEER in writing. Do not proceed with cutting or patching Work until unsatisfactory conditions are corrected.

C. Non-Destructive Investigation:
   1. In advance of cutting or coring through existing slabs or walls, use X-ray or other non-destructive methods accepted by ENGINEER to determine location of reinforcing steel, electrical conduits, and other items embedded in slabs or walls.
   2. Submit to ENGINEER written report of findings of evaluation.
   3. Perform X-ray investigation and submit results to ENGINEER sufficiently in advance of cutting Work to allow time to identify and implement alternatives, if changes to the Work are necessary because of conduit or other features in floor or wall.

3.3 PREPARATION

A. Provide temporary support required to maintain structural integrity of facilities, to protect adjacent work from damage during cutting, and to support the element(s) to be cut.

B. Protection of Existing Construction during Cutting and Patching:
   1. Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project and facility that will be exposed during cutting and patching operations.
   2. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
   3. Do not cut existing pipe, conduit, ductwork, or other utilities serving facilities scheduled to be removed or relocated until provisions have been made to bypass them.

3.4 CORING

A. Use core-drilling to make penetrations through concrete and masonry walls, slabs, or arches, unless otherwise accepted by ENGINEER in writing.

B. Coring:
   1. Perform coring with non-impact rotary tool using diamond core-drills. Size holes for pipe, conduit, sleeves, equipment or mechanical seals, as required, to be installed through the penetration.

C. Protection:
   1. Protect existing equipment, utilities, and adjacent areas from water and other damage caused by or resulting from core-drilling operations.
   2. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.1.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

D. Cleaning:
   1. After core-drilling, vacuum or otherwise remove slurry and tailings from the work area.

3.5 CUTTING

A. Cutting – General:
   1. Cut existing construction using methods least-likely to damage elements retained and adjoining construction and that provide proper surfaces to receive subsequent installation or repair.
   2. In general, use hand tools or small power tools suitable for sawing or grinding. When possible, avoid using hammering and avoid chopping.
   3. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces.
   4. Prior to starting cutting, provide adequate bracing of area to be cut.
   5. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed side.
   6. Provide equipment of adequate size to remove the cut panel or "coupon".
   7. Provide temporary covering over cut openings where not in use.

B. Cutting – Concrete and Masonry:
   1. Cut through concrete and masonry using concrete wall saw with diamond saw blades.
   2. On both of the element being cut, provide for control of slurry generated during sawing.
   3. After cutting concrete and before installing subsequent construction on or through the opening, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.1.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

3.6 PATCHING

A. Patching – General:
   1. Patch construction by filling, repairing, refinishing, closing-up, and similar operations following performance of other Work.
   2. Patch with durable seams that are as inconspicuous as possible. Provide materials and comply with installation requirements indicated in the Contract Documents.
   3. Patch to provide airtight and watertight connections to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
   4. Where feasible, test patched areas to demonstrate integrity of installation.

B. Restoration:
   1. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in manner that eliminates evidence of patching and refinishing.

2. For continuous surfaces, refinish to nearest intersection.
3. For an assembly, refinish the entire unit that was patched.
4. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 CLEANING

A. Cleaning and Restoration:
   1. Clean areas and spaces where cutting, coring, or patching were performed.
   2. Clean piping, conduit, and similar constructions before applying paint or other finishing materials.
   3. Restore damaged coverings of pipe and other utilities to original condition.

+ + END OF SECTION + +

SECTION 01 74 05

CLEANING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for keeping the Site free of accumulations of waste materials during construction ("progress cleaning") and cleaning for Substantial Completion and prior to final inspection (collectively, "closeout cleaning").
   2. CONTRACTOR shall perform cleaning during the Project, including progress cleaning, upon completion of the Work, and as required by the General Conditions, as may be modified by the Supplementary Conditions, and this Section.
   3. Maintain in a clean manner the Site, the Work, and areas adjacent to or affected by the Work.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PROGRESS CLEANING

A. General:
   1. Clean the Site, work areas, and other areas occupied by CONTRACTOR not less than weekly. Dispose of materials in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and the following:
      a. Comply with NFPA 241 for removing combustible waste materials and debris.
      b. Provide suitable containers for storage of waste materials and debris.
      c. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately.

B. Site:
   1. Keep outdoor, dust-generating areas wetted down or otherwise control dust emissions.
   2. Not less than weekly, brush-sweep roadways and paved areas at the Site that are used by construction vehicles or otherwise affected by construction activities.
   3. Comply with dust control requirements of Section 01 57 05, Temporary Controls, and Section 01 41 27, Earthmoving Permit and Dust Control.

C. Work Areas:
   1. Clean areas where the Work is in progress to maintain the extent of cleanliness necessary for proper execution of the Work.
   2. Remove liquid spills promptly. Immediately report spills to OWNER, ENGINEER, and authorities having jurisdiction, in accordance with the Contract Documents and Laws and Regulations.
   3. Where dust would impair proper execution of the Work, broom-clean or vacuum entire work area, as appropriate.
   4. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

D. Installed Work:
   1. Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of material or equipment installed, using only cleaning agents and methods specifically recommended by material or equipment manufacturer. If manufacturer does not recommend specific cleaning agents or methods, use cleaning agents and methods that are not hazardous to health and property and that will not damage exposed surfaces.

E. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until Substantial Completion.

F. Cutting and Patching:
   1. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, trailings and cuttings, and similar materials.
   2. Thoroughly clean piping, conduits, and similar features before applying patching material, paint, or other finishing materials. Restore damaged coverings on piping, ducting, and similar items to its pre-construction condition.

G. Cleaning of Hydraulic Structures: Clean hydraulic structures that will contain fluid, such as tanks and channels, in accordance with this Section and Section 01 45 53, Cleaning, Testing, and Disinfecting Hydraulic Structures.

H. Waste Disposal:
   1. Properly dispose of waste materials, surplus materials, debris, and rubbish off the Site.

2. Do not burn or bury rubbish and waste materials at the Site.
3. Do not discharge volatile or hazardous substances, such as mineral spirits, oil, or paint thinner, into storm sewers or sanitary sewers.
4. Do not discharge wastes into surface waters or drainage routes.
5. CONTRACTOR is solely responsible for complying with Laws and Regulations regarding storing, transporting, and disposing of waste generated by CONTRACTOR's operations or brought to the Site by CONTRACTOR.

I. During handling and installation of materials and equipment, clean and protect construction in progress and adjoining materials and equipment already in place. Apply protective covering where required for protection from damage or deterioration, until Substantial Completion.

J. Clean completed construction as frequently as necessary throughout the construction period.

3.2 CLOSEOUT CLEANING

A. Complete the following prior to requesting inspection for Substantial Completion:
1. Clean and remove from the Site rubbish, waste material, debris, and other foreign substances.
2. Sweep paved areas broom-clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Hose-clean sidewalks and loading areas.
4. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
5. Leave surface waterways, drainage routes, storm sewers, and gutters open and clean.
6. Repair pavement, roads, sod, and other areas affected by construction operations and restore to specified condition; if condition is not specified, restore to pre-construction condition.
7. Clean exposed exterior and interior hard-surfaced finishes to dirt-free condition, free of spatter, grease, stains, fingerprints, films, and similar foreign substances.
8. Clean, wax, and polish wood, vinyl, and painted floors.
9. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
10. In unoccupied spaces, sweep concrete floors broom-clean.
11. Clean transparent materials, including mirrors and glazing in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
12. Remove non-permanent tags and labels.
13. Surface Finishes:
    a. Touch-up and otherwise repair and restore chipped, scratched, dented or otherwise marred surfaces to specified finish and match adjacent surfaces.

b. Do not paint over “UL” or similar labels, including mechanical and electrical nameplates.

14. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint, and mortar droppings, and other foreign substances.
15. Clean plumbing fixtures to sanitary condition, free of stains, including stains resulting from water exposure.
16. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
17. Clean lighting fixtures, lamps, globes, and reflectors to function with full efficiency. Replace temporary lamps provided in permanent fixtures. Replace existing lighting fixture components that are burned out or noticeably dimmed from use during construction. Replace defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
18. Leave the Site clean, and in neat, orderly condition, satisfactory to OWNER and ENGINEER.

B. Complete the following prior to requesting final inspection:
   1. Following completion of the Work on the “punch list” of Work uncompleted at Substantial Completion, clean in accordance with Paragraph 3.2.A of this Section.

+ + END OF SECTION + +

SECTION 01 78 36

WARRANTIES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This section describes general requirements for warranties required in the various Specifications.
   2. Provisions on the Contract's correction period, CONTRACTOR'S general warranty and guarantee, and CONTRACTOR's warranty of title are in the General Conditions, as may be modified by the Supplementary Conditions.
   3. This section includes general requirements for:
      a. Suppliers' standard warranties.
      b. Suppliers' special warranties.
      c. Implied warranties.
      d. Commencement and duration of warranties.

1.2 SUBMITTALS

A. General:
   1. For each item of material or equipment furnished under the Contract, submit Supplier's standard warranty, regardless of whether such warranty or submittal thereof is required by the associated Specifications for that item.
   2. For each item of material or equipment where Supplier's special (or extended) warranty is required by the Contract Documents, submit appropriate special warranty that complies with the Contract Documents.
   3. Supplier's warranties shall be specifically endorsed solely to OWNER by the entity issuing such warranty.
   4. Submit Suppliers' standard warranties and special warranties as submittals in accordance with Schedule of Submittals accepted by ENGINEER.

1.3 SUPPLIERS' WARRANTIES FOR MATERIALS AND EQUIPMENT

A. Warranty Types:
   1. Required by the General Conditions:
      a. Warranties specified for materials and equipment shall be in addition to, and run concurrent with, CONTRACTOR's general warranty and guarantee and requirements for the Contract's correction period.
      b. Disclaimers and limitations in specific materials and equipment warranties do not limit CONTRACTOR's general warranty and

guarantee, nor does such affect or limit CONTRACTOR's performance obligations under the correction period.

2. Material or equipment manufacturer's standard warranty is pre-printed, written warranty published by item's manufacturer and specifically endorsed by manufacturer to OWNER.
3. Special warranty is written warranty required by the Contract Documents, either to extend the duration of material or equipment manufacturer's standard warranty or to provide other, increased rights to OWNER. Where the Contract Documents indicate specific requirements for warranties that differ from the manufacturer's standard warranty for that item, special warranty is implied.

B. Requirements for Special Warranties:
1. Submit written special warranty document that contains appropriate provisions and identification, ready for execution by material or equipment manufacturer and OWNER. Submit draft warranty with submittals required prior to fabrication and shipment of the item from the Supplier's facility.
2. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed by product manufacturer and other entities as appropriate.
3. Specified Form: When specified forms for special warranties are included in the Contract Documents, prepare written document, properly executed by item manufacturer and OWNER, using the required form.
4. Refer to the Specifications for content and requirements for submitting special warranties.

1.4 IMPLIED WARRANTIES

A. Warranty of Title and Intellectual Rights:
1. Except as may be otherwise indicated in the Contract Documents, implied warranty of title required by Laws and Regulations is applicable to the Work and to materials and equipment incorporated therein.
2. Provisions on intellectual rights, including patent fees and royalties, are in the General Conditions, as may be modified by the Supplementary Conditions.

B. Warranty of Merchantability:
1. Notwithstanding any other provision of the Contract to the contrary, implied warranties of merchantability required by Laws and Regulations apply to the Work, including the materials and equipment incorporated therein.

C. Warranty of Fitness-for-Purpose:
1. Implied warranty of fitness-for-purpose for materials and equipment to be incorporated into the Work is hereby disclaimed by OWNER and CONTRACTOR.

1.5 COMMENCEMENT AND DURATION OF WARRANTIES

A. Commencement of Warranties:
   1. Contract correction period and CONTRACTOR's general warranty commence as indicated in the General Conditions, as may be modified by the Supplementary Conditions.
   2. Suppliers' general warranties and special warranties commence running on the date that the associated item is certified by ENGINEER as substantially complete. In no event shall special warranties commence running prior to ENGINEER's review and acceptance of special warranty submittal for the item.
   3. Implied warranties commence in accordance with Laws and Regulations.

B. Duration of Warranties:
   1. Duration of correction period is in accordance with the General Conditions, as may be modified by the Supplementary Conditions.
   2. Duration of CONTRACTOR's general warranty and guarantee is in accordance with Laws and Regulations.
   3. Duration of Suppliers' general warranties is in accordance with the applicable general warranty document accepted by ENGINEER.
   4. Duration of required Suppliers' special warranties shall be in accordance with the requirements of the Contract Documents for the subject item.
   5. Duration of implied warranties shall be in accordance with Laws and Regulations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. This Section includes requirements for Project record documents, to supplement the requirements of the General Conditions, as may be modified by the Supplementary Conditions.
   2. CONTRACTOR shall provide all labor, materials, equipment, and services to maintain and submit to ENGINEER Project record documents in accordance with the Contract Documents.

B. Maintenance of Record Documents:
   1. Maintain in CONTRACTOR's field office, in clean, dry, legible condition, complete sets of the following record documents: Drawings, Specifications, and Addenda; Shop Drawings, Samples, and other CONTRACTOR submittals, including records of test results, approved or accepted as applicable, by ENGINEER; Change Orders, Work Change Directives, Field Orders, copies of all interpretations and clarifications issued, photographic documentation, survey data, and all other documents pertinent to the Work.
   2. Provide files and racks for proper storage and easy access to record documents. File record documents in accordance with the edition of the Construction Specification Institute's *MasterFormat*™ used for organizing the Project Manual, unless otherwise accepted by ENGINEER.
   3. Promptly make record documents available for observation and review upon request of ENGINEER or OWNER. Requirements for review of record documents status as a condition precedent to progress payments is in Section 01 29 73, Schedule of Values, and Section 01 29 76, Progress Payment Procedures.
   4. Do not use record documents for any purpose other than serving as Project record. Do not remove record documents from CONTRACTOR's field office without ENGINEER's approval.

1.2 SUBMITTALS

A. Closeout Submittals: Submit the following:
   1. Record Documents:
      a. Submit the following Project record documents:
         1) Drawings.
         2) Project Manual including Specifications and Addenda (bound).

b. Prior to readiness for final payment, submit to ENGINEER one copy of Project's final record documents and obtain ENGINEER's acceptance of same. Submit complete record documents; do not make partial submittals.
c. Submit record documents with transmittal letter on CONTRACTOR letterhead in accordance with requirements in Section 01 33 00, Submittal Procedures.

2. Certifications:
   a. Record documents submittal shall include certification, with original signature of official authorized to execute legal agreements on behalf of CONTRACTOR, reading as follows:

"[*Insert Contractor's corporate name*] has maintained and submitted Project record documentation in accordance with the General Conditions and Supplementary Conditions, Section 01 78 39, Project Record Documents, and other elements of Contract Documents, for El Paso Water, El Paso, TX, Montana Vista Wastewater Collection System Phase __ Project. We certify that each record document submitted is complete, accurate, and legible relative to the Work performed under our Contract, and that the record documents comply with the requirements of the Contract Documents.

[*Provide signature, print name, print signing party's corporate title, and date*]"

1.3 RECORDING CHANGES

A. Recording Changes – General:
   1. At the start of the Project, label each record document to be submitted as, "PROJECT RECORD" using legible, printed letters. Letters on record copy of the Drawings shall be two inches high.
   2. Keep record documents current consistent with the progress of the Work. Make entries on record documents within two working days of receipt of information required to record the change.
   3. Do not permanently conceal the Work until required information has been recorded for Project record documents.
   4. Accuracy of record documents shall be such that future searches for items shown on the record documents may rely reasonably on information obtained from ENGINEER-accepted record documents.
   5. Marking of Entries:
      a. Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.
      b. Clearly describe the change by graphic line and make notations as required. Use straight-edge to mark straight lines. Writing shall be legible and sufficiently dark to allow scanning of record documents into legible electronic files in portable document format (".PDF").
      c. Date each entry on record documents.

d. Indicate changes by drawing a “cloud” around the change(s) indicated.
e. Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.

B. Drawings:
1. Record changes on copy of the Drawings. Submittal of CONTRACTOR-originated or -produced drawings as a substitute for recording changes on a copy of the Drawings is unacceptable.
2. Record changes on plans, sections, elevations, schematics, schedules, and details as required for clarity, making reference dimensions and elevations (to Project datum) for complete record documentation.
3. Record actual construction including:
a. Depths of various elements of foundation relative to Project datum.
b. Horizontal and vertical location of Underground Facilities referenced to permanent surface improvements and project elevation datum. For each Underground Facility, including pipe fittings, show and indicate dimensions to not less than two permanent, visible surface improvements.
c. Location of exposed utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure and, where applicable, to Project elevation datum.
d. Changes in structural and architectural elements of the Work, including changes in reinforcing.
e. Field changes of dimensions, arrangements, and details.
f. Changes made in accordance with Addenda, Change Orders, Work Change Directives, and Field Orders.
g. Changes in details on the Drawings. Submit additional details prepared by CONTRACTOR when required to document such changes.
4. Recording Changes for Schematic Layouts:
a. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items are shown schematically and are not intended to portray physical layout. For such cases, the final physical arrangement shall be determined by CONTRACTOR subject to acceptance by ENGINEER.
b. Record on the Project record documents all revisions to schematics on the Drawings, including: piping schematics, ducting schematics, process and instrumentation diagrams, control and circuitry diagrams, electrical one-line diagrams, motor control center layouts, and other schematics when included in the Drawings. Show and indicate actual locations of equipment, lighting fixtures, in-place grounding system, and other pertinent data.
c. When dimensioned plans and dimensioned sections or elevations on the Drawings show the Work schematically, indicate on the record documents, by dimensions accurate to within one inch in the field, centerline location of items of Work such as conduit, piping, ducts, and similar items

1) Clearly identify each item of the Work by accurate notations such as "cast iron drain", "rigid electrical conduit", "copper waterline", and similar descriptions.
2) Show by symbol or by note the vertical location of each item of the Work; for example, "embedded in slab", "under slab", "in ceiling plenum", "exposed", and similar designations. For piping not embedded, also indicate elevation dimension relative to Project elevation datum.
3) Descriptions shall be sufficiently detailed to be related to the Specifications.

d. ENGINEER may furnish written waiver of requirements relative to schematic layouts shown on plans, sections, and elevations when, in ENGINEER's judgment, dimensioned layouts of Work shown schematically will serve no useful purpose. Do not rely on such waiver(s) being issued.

5. Supplemental Drawings:
   a. In some cases, drawings produced during construction by ENGINEER or CONTRACTOR supplement the Drawings and shall be included with Project record documents submitted by CONTRACTOR. Supplemental record drawings shall include drawings or sketches that are part of Change Orders, Work Change Directives, and Field Orders and that cannot be incorporated into the Drawings because of space limitations.
   b. Supplemental drawings submitted with record drawings shall be integrated with the Drawings and include necessary cross-references between drawings. Supplemental record drawings shall be on sheets the same size as the Drawings.
   c. When supplemental drawings developed by CONTRACTOR using computer-aided drafting/design (CADD) software are to be included in record drawings, submit electronic files for such drawings in AutoCAD format as part of record drawing submittal. Submit electronic files on compact disc labeled, "Supplemental Record Drawings", including CONTRACTOR's name, Project name, and Contract designation.

C. Specifications and Addenda:
   1. Mark each Specifications Section to record:
      a. Manufacturer, trade name, catalog number, and Supplier of each material and equipment item actually provided.
      b. Changes made by Addendum, Change Orders, Work Change Directives, and Field Orders.

1.4 ELECTRONIC FILES FURNISHED BY ENGINEER

A. CADD files of the Drawings will be furnished by ENGINEER upon the following conditions:
   1. CONTRACTOR shall submit to ENGINEER a letter on CONTRACTOR letterhead requesting CADD files of the Drawings and indicating specific

definition(s) or description(s) of how such files will be used, and specific description of benefits to OWNER (including credit proposal, if applicable) if the request is granted.

2. CONTRACTOR shall execute ENGINEER's standard agreement for release of electronic files and shall abide by the provisions of such agreement for release of electronic files.
3. Layering system incorporated in CADD files shall be maintained as transmitted by ENGINEER. CADD files transmitted by ENGINEER containing cross-referenced files shall not be bound by CONTRACTOR. Drawing cross-references and paths shall be maintained. If CONTRACTOR alters layers or cross-reference files, CONTRACTOR shall restore all layers and cross-references prior to submitting record documents to ENGINEER.
4. CONTRACTOR shall submit record drawings to ENGINEER in same CADD format that files were furnished to CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

+ + END OF SECTION + +

DIVISION 02

SECTION 02 41 00

DEMOLITION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified and required for demolition, removal, and disposal Work.
   2. The Work under this Section includes, but is not necessarily limited to:
      a. Demolition and removal of existing materials and equipment as shown or indicated in the Contract Documents. The Work includes demolition of piping, paving, curbs, sidewalks, gutters, fencing and similar existing facilities.
      b. Demolition and removal of all Underground Facilities underneath, and above-grade piping and utilities unless the Underground Facilities or above-grade facilities are shown or indicated as to remain.
      c. Remove from slabs, foundations, and footings that are to be demolished all utilities and appurtenances embedded in such construction.
   3. Demolitions and removals specified under other Sections shall comply with requirements of this Section.
   4. Perform demolition Work within areas shown or indicated.
   5. Pay all costs associated with transporting and, as applicable, disposing of materials and equipment resulting from demolition.

B. Coordination:
   1. Comply with Section 01 14 16, Coordination with Owner's Operations.
   2. Review procedures under this and other Sections and coordinate the Work that will be performed with or before demolition and removals.

C. Related Sections:
   1. Section 31 11 00, Clearing and Grubbing.

1.2 QUALITY ASSURANCE

A. Qualifications:
   1. Plumbing Removals: Entity and personnel performing plumbing removals shall be plumber legally qualified to perform plumbing construction and plumbing work in the jurisdiction where the Site is located.

B. Regulatory Requirements:
   1. Demolition, removal, and disposal Work shall be in accordance with 29 CFR 1926.850 through 29 CFR 1926.860 (Subpart T - Demolition), and all other Laws and Regulations.
   2. Comply with requirements of authorities having jurisdiction.

1.3 SUBMITTALS

A. Informational Submittals: Submit the following:
   1. Procedure Submittals:
      a. Demolition and Removal Plan: Not less than ten days prior to starting demolition Work, submit acceptable plan for demolition and removal Work, including:
         1) Plan for coordinating shut-offs, capping, temporary services, and continuing utility services.
         2) Other proposed procedures as applicable.
         3) Equipment proposed for use in demolition operations.
         4) Recycling/disposal facility (ies) proposed, including facility owner, facility name, location, and processes. Include copy of appropriate permits and licenses, and compliance status.
         5) Planned demolition operating sequences.
         6) Detailed schedule of demolition Work in accordance with the accepted Process Schedule.
   2. Notification of Intended Demolition Start: Submit in accordance with Paragraph 3.1.A of this Section.
   3. Qualifications Statements:
      a. Name and qualifications of entity performing electrical removals, including copy of licenses required by authorities having jurisdiction.
      b. Name and qualifications of entity performing plumbing removals, including copy of licenses required by authorities having jurisdiction.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PREPARATION

A. Notification:
   1. At least 48 hours prior to commencing demolition or removal, notify ENGINEER in writing of planned start of demolition Work. Do not start removals without permission of ENGINEER.

B. Protection of Surrounding Areas and Facilities:
   1. Perform demolition and removal Work in manner that prevents damage and injury to property, structures, occupants, the public, and facilities. Do not interfere with use of, and free and safe access to and from, structures and properties.
   2. Closing or obstructing of roads, drives, sidewalks, and passageways adjacent to the Work is not allowed unless indicated otherwise in the Contract Documents.

Conduct the Work with minimum interference to vehicular and pedestrian traffic.

3. Provide temporary barriers, lighting, sidewalk sheds, and other necessary protection.
4. Repair damage to facilities that are to remain.

C. Existing Utilities: In addition to requirements of the General Conditions, Supplementary Conditions, and Division 01 Specifications, do the following:
   1. Should uncharted or incorrectly charted Underground Facilities be encountered, CONTRACTOR responsibilities shall be in accordance with the General Conditions as may be modified by the Supplementary Conditions. Cooperate with utility owners in keeping adjacent services and facilities in operation.
   2. Sanitary Sewer: Before proceeding with demolition, locate and cap all sewer lines and service laterals discharging from the building or structure being demolished.
   3. Storm Water: Existing storm water system shall remain in place until demolitions of existing building or structure is completed. Upon completing demolition, cut and cap storm sewer laterals at locations shown on the Drawings. Remove existing storm water piping and related structures between points of cutting, and backfill, restore to grade, and stabilize the area over the removed facilities.
   4. Water Piping: Before proceeding with demolition, locate and cap all potable and non-potable waterlines and service laterals serving the building or structure being demolished.
   5. Other Utilities: Before proceeding with demolition, locate and cap as required all other utilities, such as fuel and gas; heating, ventilating, and air conditioning; electric; and communications; and service laterals serving the building or structure being demolished.
   6. Shutdown of utility services shall be coordinated by CONTRACTOR, assisted by OWNER as required relative to contacting utility owners.

3.2 DEMOLITION – GENERAL

A. Locate construction equipment used for demolition Work and remove demolished materials and equipment to avoid imposing excessive loading on supporting and adjacent walls, floors, framing, facilities, and Underground Facilities.

B. Pollution Controls:
   1. Use water sprinkling, temporary enclosures, and other suitable methods to limit emissions of dust and dirt to lowest practical level. Comply with Section 01 57 05, Temporary Controls, and Laws and Regulations.
   2. Do not use water when water may create hazardous or objectionable conditions such as icing, flooding, or pollution.
   3. Clean adjacent structures, facilities, properties, and improvements of dust, dirt, and debris caused by demolition Work, in accordance with the General Conditions and Section 01 74 05, Cleaning.

C. Explosives:
   1. Will not be permitted.

D. Demolition of Site Improvements:
   1. Pavement, Sidewalks, Curbs, and Gutters: Demolition of asphalt or concrete pavement, sidewalks, curbs, and gutters, as applicable, shall terminate at cut edges. Edges shall be linear and have a vertical cut face. Sidewalks shall be cut and removed to the nearest joint.
   2. Fencing, Guardrails, and Bollards: Remove to the limits shown or indicated on the Drawings. Completely remove below-grade posts and concrete.
   3. Manholes, Vaults, Chambers, and Handholes: Remove to the limits shown or indicated on the Drawings.
   4. Underground Facilities Other than Manholes, Vaults, Chambers, and Handholes: Remove to the extent shown or indicated on the Drawings. Unless otherwise shown or indicated, cap ends of piping to remain in place in accordance with the "Mechanical Removals" Article in this Section.
   5. Landscaping: Comply with Section 31 11 00, Clearing and Grubbing.

E. Salvage and Ownership:
   1. Refer to Section 01 11 13, Summary of Work, for requirements on salvage, ownership, and handling of equipment and materials removed during demolition and removal Work.
   2. Materials and equipment to remain OWNER's property shall be carefully removed and appropriately handled by CONTRACTOR to avoid damage and invalidation of warranties in effect, and shall be cleaned and stored at the Site (or other site specified in the Contract Documents) at place designated by ENGINEER or OWNER.

F. Finishing of Surfaces Exposed by Removals: Unless otherwise shown or indicated in the Contract Documents, surfaces of walls, floors, ceilings, and other areas exposed by removals, and that will remain as finished surfaces, shall be repaired and re-finished with materials that match existing adjacent surface, or as otherwise approved by ENGINEER.

3.3 STRUCTURAL REMOVALS

A. Remove structures to lines and grades shown or indicated, unless otherwise directed by ENGINEER. Where limits are not shown or indicated, limits shall be four inches outside item to be installed. Removals beyond limits shown or indicated shall be at CONTRACTOR's expense and such excess removals shall be reconstructed to satisfaction of ENGINEER without additional cost to OWNER.

3.4 MECHANICAL REMOVALS

A. Mechanical demolition and removal Work includes dismantling and removing existing piping, ductwork, pumps, equipment, tanks, and appurtenances as shown,

indicated, and required for completion of the Work. Mechanical removals include cutting and capping as required, except that cutting of existing piping and ductwork to make connections is included under Section 01 14 16, Coordination with Owner's Operations; and applicable Sections of Division 40, Process Integration.

B. Demolition and Removals of Piping, Ductwork, and Similar Items:
   1. Purge piping and tanks (as applicable) of chemicals or fuel (as applicable) and make safe for removal and capping. Remove to the extent shown or indicated existing process, water, waste and vent, chemical, gas, fuel, and other piping. Remove piping to the nearest solid piping support, and provide caps on ends of remaining piping. Where piping to be demolished passes through existing walls to remain, cut off and cap pipe on each side of the wall.
   2. Caps, Closures, Blind Flanges, and Plugs:
      a. Provide closure pieces, such as blind flanges and caps, where shown or required to complete the Work.
      b. Where used in this Section, the term "cap" means the appropriate type closure for the piping or ductwork being closed, including caps, blind flanges, and other closures.
      c. Caps shall be compatible with the piping or ductwork to which the cap is attached, fluid-tight and gastight, and appropriate for the fluid or gas conveyed in the pipe or duct.
      d. Unless otherwise shown or indicated, caps shall be mechanically fastened, fused, or welded to pipe or duct. Plug piping with means other than specified in this Section only when so shown or indicated in the Contractor Documents or when allowed by ENGINEER.
   3. When Underground Facilities are altered or removed, properly cut and cap piping left in place, unless otherwise shown or indicated.
   4. Remove waste and vent piping, and ductwork to extent shown and cap as required. Where demolished vent piping, stacks, and ductwork passes through existing roofing, patch the roof with the same or similar materials. Completed patch shall be watertight and comply with roofing manufacturer's recommendations.
   5. Modifications to potable water piping and other plumbing and heating system work shall comply with Laws and Regulations. All portions of potable water system that have been modified or opened shall be hydrostatically tested and disinfected in accordance with the Contract Documents, and Laws and Regulations. Hydrostatically test other, normally-pressurized, plumbing piping and heating piping.

C. Equipment Demolition and Removals:
   1. To the extent shown or indicated, remove existing process equipment; pumps; storage tanks; hoisting and conveying equipment; heating, ventilating, and air conditioning equipment; generators; and other equipment.
   2. Where required, disassemble equipment to avoid imposing excessive loading on supporting walls, floors, framing, facilities, and Underground Facilities. Disassemble equipment as required for access through and egress from building

or structure. Disassembly shall comply with Laws and Regulations. Provide required means to remove equipment from building or structure.

3. Remove control panels, operator stations, and instruments associated with equipment being removed, unless shown or indicated otherwise.
4. Remove fuel appurtenances as applicable, including fuel storage tanks. Dispose of tank contents in accordance with Laws and Regulations.
5. Remove equipment supports as applicable, anchorages, base, grout, and piping. Remove anchorage systems in accordance with the "Structural Removals" Article in this Section. Remove small-diameter piping back to header unless otherwise indicated.
6. Remove access platforms, ladders, and stairs related to equipment being removed, unless otherwise shown or indicated.

3.5 DISPOSAL OF DEMOLITION DEBRIS

A. Remove from the Site all debris, waste, rubbish, and material resulting from demolition operations and equipment used in demolition Work. Comply with the General Conditions, Supplementary Conditions, and Section 01 74 05, Cleaning. Comply with Section 01 74 19, Construction Waste Management and Disposal.

B. Transportation and Disposal:
   1. Non-hazardous Material: Properly transport and dispose of non-hazardous demolition debris at appropriate landfill or other suitable location, in accordance with Laws and Regulations. Non-hazardous material does not contain Asbestos, PCBs, Petroleum, Hazardous Waste, Radioactive Material, or other material designated as hazardous in Laws and Regulations.
   2. Hazardous Material: When handling and disposal of hazardous materials is included in the Work, properly transport and dispose of hazardous materials in accordance with the Contract Documents and Laws and Regulations.

C. Submit to ENGINEER information required in this Section on proposed facility(ies) where demolition material will be recycled. Upon request, ENGINEER or OWNER, shall be allowed to visit recycling facility(ies) to verify adequacy and compliance status. During such visits, recycling facility operator shall cooperate and assist ENGINEER and OWNER.

+ + END OF SECTION + +

DIVISION 03

SECTION 03 00 05

CONCRETE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install concrete, reinforcing, and related materials.
   2. The Work includes:
      a. Providing concrete consisting of portland cement, fine and coarse aggregates, water, and approved admixtures; combined, mixed, transported, placed, finished, and cured.
      b. Fabricating and placing reinforcing, including ties and supports.
      c. Design, erection, and removal of formwork.
      d. Building into the concrete all sleeves, frames, anchorage devices, inserts, and other items required to be embedded in concrete.
      e. Providing openings in concrete as required accommodating Work under this and other Sections.

B. Coordination:
   1. Review installation procedures under other Sections and coordinate installation of items to be installed in the concrete Work.

C. Classifications of Concrete:
   1. Class “A” concrete shall be steel-reinforced and includes all concrete unless otherwise shown or indicated.
   2. Class “B” concrete shall be placed without forms or with simple forms, with little or no reinforcing and includes the following:
      a. Concrete fill.
      b. Duct banks.
      c. Unreinforced encasements.
      d. Curbs and gutters.
      e. Sidewalks.
      f. Thrust blocks.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ACI 224R, Control of Cracking in Concrete Structures.
   2. ACI 301, Specifications for Structural Concrete for Buildings.

3. ACI 304R, Guide for Measuring, Mixing, Transporting and Placing Concrete.
4. ACI 305R, Specification for Hot Weather Concreting.
5. ACI 306R, Cold Weather Concreting.
6. ACI 309R, Guide for Consolidation of Concrete.
7. ACI 318, Building Code Requirements for Structural Concrete and Commentary.
8. ACI 347, Guide to Formwork for Concrete.
9. ACI SP-66, ACI Detailing Manual.
10. ASTM A82/A82M, Specification for Steel Wire, Plain, for Concrete Reinforcement.
11. ASTM A185/A185M, Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
12. ASTM A615/A615M, Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
13. ASTM C31/C31M, Practice for Making and Curing Concrete Test Specimens in the Field.
14. ASTM C33/C33M, Specification for Concrete Aggregates.
15. ASTM C39/C39M, Test Method for Compressive Strength of Cylindrical Concrete Specimens.
16. ASTM C42/C42M, Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
17. ASTM C94/C94M, Specification for Ready-Mixed Concrete.
18. ASTM C138/C138M, Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
19. ASTM C143/C143M, Test Method for Slump of Hydraulic-Cement Concrete.
20. ASTM C150/C150M, Specification for Portland Cement.
21. ASTM C172, Practice for Sampling Freshly Mixed Concrete.
22. ASTM C231, Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
23. ASTM C260, Specification for Air-Entraining Admixtures for Concrete.
24. ASTM C309, Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
25. ASTM C494/C494M, Specification for Chemical Admixtures for Concrete.
26. ASTM C579, Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
27. ASTM C1064/C1064M, Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
28. ASTM D1752, Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.
29. ASTM E96/E96M, Test Methods for Water Vapor Transmission of Materials
30. ASTM E154, Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
31. CRD-C 572, U. S. Army Corps of Engineers Specification for Polyvinylchloride Waterstops.
32. CRSI 1MSP, Manual of Standard Practice.

1.3 QUALITY ASSURANCE

A. Laboratory Trial Batch:
   1. Employ independent testing laboratory experienced in design and testing of concrete materials and mixes to perform material evaluation tests and to design concrete mixes.
   2. Each concrete mix design specified shall be verified by laboratory trial batch, unless indicated otherwise.
   3. Perform the following testing on each trial batch:
      a. Aggregate gradation for fine and coarse aggregates.
      b. Slump.
      c. Air content.
      d. Compressive strength based on three cylinders each tested at seven days and at 28 days.
   4. Submit for each trial batch the following information:
      a. Project identification name and number (if applicable).
      b. Date of test report.
      c. Complete identification of aggregate source of supply.
      d. Tests of aggregates for compliance with the Contract Documents.
      e. Scale weight of each aggregate.
      f. Absorbed water in each aggregate.
      g. Brand, type, and composition of cementitious materials.
      h. Brand, type, and amount of each admixture.
      i. Amounts of water used in trial mixes.
      j. Proportions of each material per cubic yard.
      k. Gross weight and yield per cubic yard of trial mixtures.
      l. Measured slump.
      m. Measured air content.
      n. Compressive strength developed at seven days and 28 days, from not less than three test cylinders cast for each seven day and 28-day test, and for each design mix.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. List of concrete materials and concrete mix designs proposed for use. Include results of tests performed to qualify the materials and to establish the mix designs. Do not start laboratory trial batch testing until this submittal is approved by ENGINEER.
      b. Laboratory Trial Batch Reports: Submit laboratory test reports for concrete cylinders, materials, and mix design tests.
      c. Concrete placement drawings showing the location and type of all joints.
      d. Drawings for fabricating, bending, and placing concrete reinforcing. Comply with ACI SP-66. For walls and masonry construction, provide elevations to a minimum scale of 1/4-inch to one foot. Show bar schedules, stirrup spacing, adhesive dowels, splice lengths, diagrams of

bent bars, arrangements, and assemblies, as required for fabricating and placing concrete reinforcing.

2. Product Data:
    a. Manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
3. Samples:
    a. Samples: Submit samples of materials as specified and as otherwise requested by ENGINEER, including names, sources, and descriptions.

B. Informational Submittals: Submit the following:
1. Delivery Tickets: Copies of all delivery tickets for each load of concrete delivered to or mixed at the Site. Each delivery tickets shall contain the information in accordance with ASTM C94/C94M along with project identification name and number (if any), date, mix type, mix time, quantity and amount of water introduced.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Transportation, Delivery, and Handling:
1. Deliver concrete reinforcing products to Site bundled, tagged, and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings on approved Shop Drawings.
2. Materials used for concrete shall be clean and free from foreign matter during transportation and handling, and kept separate until measured and placed into concrete mixer.
3. Implement suitable measures during hauling, piling, and handling to ensure that segregation of coarse and fine aggregate particles does not occur and grading is not affected.
4. Deliver grout materials from manufacturers in unopened containers that bear intact manufacturer labeling.
5. Comply with Section 01 65 00, Product Delivery Requirements.

B. Storage:
1. Store formwork materials above ground on framework or blocking. Cover wood forms and other accessory materials with protective, waterproof covering. Provide for adequate air circulation or ventilation under cover.
2. Store concrete reinforcing materials to prevent damage and accumulation of dirt and excessive rust. Store on heavy wood blocking so that reinforcing does not come into contact with the ground. Space framework or blocking supports to prevent excessive deformation of stored materials.
3. Store concrete joint materials on platforms or in enclosures or covered to prevent contact with ground and exposure to weather and direct sunlight.
4. For storage of concrete materials, provide bins or platforms with hard, clean surfaces.
5. Comply with Section 01 66 00, Product Storage and Handling Requirements.

PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

A. Portland Cement: ASTM C150/C150M, Type II.

B. Aggregates: ASTM C33/C33M.
   1. Fine Aggregate: Clean, sharp, natural sand free of loam, clay, lumps, and other deleterious substances. Dune sand, bank run sand, and manufactured sand are unacceptable.
   2. Coarse Aggregate:
      a. Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter.
      b. Coarse aggregate shall comply with the following:
         1) Crushed stone, processed from natural rock or stone.
         2) Washed gravel, either natural or crushed. Slag, pit gravel, and bank-run gravel are not allowed.
      c. Coarse Aggregate Size: ASTM C33/C33M, Nos. 57 or 67, unless otherwise approved by ENGINEER.

C. Water: Clean, potable.

D. Admixtures:
   1. Air-Entraining Admixture: ASTM C260.
   2. Water-Reducing Admixture: ASTM C494/C494M, Type A.
   3. Water Reducing and Set-Adjusting Admixtures: ASTM C494/C494M, Types D and E.
   4. High Range Water-Reducing Admixture: ASTM C494/C494M, Type F/G.
   5. Use only admixtures that have been tested and approved in the mix designs.
   6. Do not use calcium chloride or admixtures containing chloride ions.

2.2 CONCRETE MIX

A. General:
   1. Normal weight: 145 pounds per cubic foot.
   2. Use air-entraining admixture in all concrete. Provide not less than four percent, nor more than eight percent, entrained air for concrete exposed to freezing and thawing, and provide from three to five percent entrained air for other concrete.

B. Proportioning and Design of Class “A” Concrete Mix:
   1. Minimum compressive strength at 28 days: 4,500 psi.
   2. Maximum water-cement ratio by weight: 0.42.
   3. Minimum cement content: 564 pounds per cubic yard.

C. Proportioning and Design of Class “B” Concrete Mix:
   1. Minimum compressive strength at 28 days: 3,000 psi.

2. Maximum water-cement ratio by weight: 0.50.
3. Minimum cement content: 517 pounds per cubic yard.

D. Slump Limits:
1. Proportion and design mixes to result in concrete slump at point of placement of not less than one inch and not more than four inches.
2. When using high-range water reducers, slump prior to addition of admixture shall not exceed three inches. Slump after adding admixture shall not exceed eight inches at point of placement.

E. Adjustment of Concrete Mixes:
1. Concrete mix design adjustments may be requested by CONTRACTOR when warranted by characteristics of materials, Site conditions, weather, test results, or other, similar circumstances.
2. Submit for ENGINEER's approval laboratory test data for adjusted concrete mix designs, including compressive strength test results.
3. Implement adjusted mix designs only after ENGINEER's approval.
4. Adjustments to concrete mix designs shall not result in additional costs to OWNER.

2.3 FORM MATERIALS

A. Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection. CONTRACTOR shall be responsible for designing the formwork system to resist all applied loads including pressures from fluid concrete and construction loads.

B. Smooth Form Surfaces: Acceptable panel-type to provide continuous, straight, smooth, as-cast surfaces in accordance with ACI 301.

C. Unexposed Concrete Surfaces: Material to suit project conditions.

D. Provide 3/4-inch chamfer at all external corners. Chamfer is not required at re-entrant corners unless otherwise shown or indicated.

E. Form Ties:
1. Provide factory-fabricated, removable, or snap-off metal form ties that prevent form deflection and prevent spalling of concrete surfaces upon removal. Materials used for tying forms are subject to approval of ENGINEER.
2. Unless otherwise shown or indicated, provide ties so that portion remaining within concrete after removal of exterior parts is at least 1.5 inches from outer surface of concrete. Unless otherwise shown or indicated, provide form ties that, upon removal, will leave a uniform, circular hole not larger than one-inch diameter in the concrete surface.
3. Ties for exterior walls, below-grade walls, and walls subject to hydrostatic pressure shall be provided with waterstops.
4. Wire ties are unacceptable.

2.4 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A615M, Grade 60 deformed bars.

B. Welded Wire Fabric: ASTM A185/A185M.

C. Steel Wire: ASTM A82/A82M.

D. Provide supports for reinforcing including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing in place.
   1. Use wire bar-type supports complying with CRSI MSP1 recommendations, except as specified in this Section. Do not use wood, brick, or other unacceptable materials.
   2. For slabs on grade, use precast concrete blocks, four inches square minimum with compressive strength equal to or greater than the surrounding concrete, or supports with sand plates or horizontal runners where base materials will not support chair legs.
   3. For all concrete surfaces where legs of supports are in contact with forms, provide supports having either hot-dip galvanized, plastic-protected, or stainless steel legs in accordance with CRSI MSP1.
   4. Provide precast concrete supports over waterproof membranes.

E. Adhesive Dowels:
   1. Dowels:
      a. Dowel reinforcing bars shall comply with ASTM A615, Grade 60.

2.5 RELATED MATERIALS

A. Waterstops:
   1. PVC Waterstops:
      a. Manufacturers: Provide products of one of the following:
         1) W.R. Meadows, Inc.
         2) Greenstreak Plastic Products Company.
         3) Or equal.
      b. Waterstops shall comply with CRD-C 572. Do not use reclaimed or scrap material.
      c. Minimum Thickness: 3/8-inch.
      d. Provide waterstops with minimum of seven ribs equally spaced at each end on each side with the first rib located at the edge. Each rib shall be minimum 1/8-inch in height.
      e. Construction Joints: Waterstops shall be six-inch wide flat-strip type.
      f. Expansion Joints: Waterstops shall be nine-inch wide centerbulb type.
   2. Hydrophilic Waterstops:
      a. Products and Manufacturers: Provide one of the following:
         1) Duroseal Gasket, by BBZ USA, Inc.
         2) Adeka Ultraseal MC-2010M, by Asahi Denka Kogyo K.K.

3) Hydrotite, by Greenstreak Plastic Products Company.
4) Or equal.

b. Hydrophilic waterstop materials shall be bentonite-free and shall expand by minimum of 80 percent of dry volume in the presence of water to form a watertight joint seal without damaging the concrete in which it is cast.
c. Waterstop material shall be composed of resins and polymers that absorb water and cause a completely reversible and repeatable increase in volume.
d. Waterstop material shall be dimensionally stable after repeated wet-dry cycles with no deterioration of swelling potential.
e. Select material in accordance with manufacturer's recommendations for type of liquid to be contained.
f. Minimum cross-sectional dimensions: 3/16-inch by 3/4-inch.
g. Location of hydrophilic waterstops shall be as shown or indicated on the Drawings, or where approved by ENGINEER.
h. Hydrophilic Sealant: Shall adhere firmly to concrete, metal, and PVC in dry or damp condition and be indefinitely elastic when cured.
1) Products and Manufacturers: Provide one of the following:
a) Duroseal Paste, by BBZ USA, Inc.
b) Adeka Ultraseal P-201, by Asahi Denka Kogyo K.K.
c) Hydrotite, by Greenstreak Plastic Products Company.
d) Or equal.

B. Vapor Retarder:
1. Products and Manufacturers: Provide one of the following:
a. Stego Wrap 10-mil Vapor Retarder, by Stego Industries LLC.
b. Griffolyn 10-mil, by Reef Industries.
c. Moistop Ultra, by Fortifiber Industries.
d. Or equal.
2. Vapor retarder membrane shall comply with the following.
a. Water Vapor Transmission Rate, ASTM E96/E96M: 0.04 perms or lower.
b. Water Vapor Retarder, ASTM E1745: Meets or exceeds Class C.
c. Thickness of Retarder (plastic), ACI 302 1R: Not less than 10 mils.
d. Provide accessories by same manufacturer as vapor retarder.

C. Membrane-Forming Curing Compound: ASTM C309, Type I.

D. Epoxy Bonding Agent:
1. Two-component epoxy resin bonding agent.
2. Products and Manufacturers: Provide one of the following:
a. Sikadur 32, Hi-Mod LPL, by Sika Corporation.
b. Eucopoxy LPL, by the Euclid Chemical Company.
c. Or equal.

E. Epoxy-Cement Bonding Agent:
   1. Three-component blended epoxy resin-cement bonding agent.
   2. Products and Manufacturers: Provide one of the following:
      a. Sika Armatec 110 EpoCem, by Sika Corporation.
      b. Duralprep A.C., by Euclid Chemical Company.
      c. Or equal.

F. Preformed Expansion Joint Filler:
   1. Provide preformed expansion joint filler complying with ASTM D1752, Type I (sponge rubber) or Type II (cork).

2.6 GROUT

A. Non-shrink Grout:
   1. Pre-packaged, non-metallic, cementitious grout requiring only the addition of water at the Site.
   2. Minimum 28-day Compressive Strength: 7,000 psi.
   3. Products and Manufacturers: Provide one of the following:
      a. NS Grout by Euclid Chemical Company.
      b. Set Grout by Master Builders, Inc.
      c. NBEC Grout by Five Star Products, Inc.
      d. Or equal.

B. Epoxy Grout:
   1. Pre-packaged, non-shrink, non-metallic, 100 percent solids, solvent-free, moisture-insensitive, three-component epoxy grouting system.
   2. Minimum Seven-day Compressive Strength: 14,000 psi, when tested in accordance with ASTM C579.
   3. Products and Manufacturers: Provide one of the following:
      a. Euco High Strength Grout, by Euclid Chemical Company.
      b. Sikadur 42, Grout Pak, by Sika Corporation.
      c. Five Star Epoxy Grout, by Five Star Products, Inc.
      d. Or equal.

C. Grout Fill:
   1. Grout mix shall consist of cement, fine and coarse aggregates, water, and admixtures complying with requirements specified in this Section for similar materials in concrete.
   2. Proportion and mix grout fill as follows:
      a. Minimum Cement Content: 564 pounds per cubic yard.
      b. Maximum Water-Cement Ratio: 0.45.
      c. Maximum Coarse Aggregate size: 1/2-inch, unless otherwise indicated.
      d. Minimum 28-day Compressive Strength: 4,000 psi.

PART 3 – EXECUTION

3.1 INSPECTION

A. CONTRACTOR shall examine the substrate and the conditions under which the Work will be performed and notify ENGINEER in writing of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions are corrected.

3.2 FORMWORK

A. Construct formwork in accordance with ACI 347 such that concrete members and structures are of correct size, shape, alignment, elevation, and position.

B. Provide openings in formwork to accommodate the Work of other trades. Accurately place and securely support items required to be built into formwork.

C. Clean and adjust forms prior to placing concrete. Apply form release agents or wet forms as required. Re-tighten forms during and after concrete placing, when required, to eliminate cement paste leaks.

D. Removing Formwork:
   1. Comply with ACI 301 and ACI 347, except as otherwise indicated in the Contract Documents.
   2. Do not remove formwork and shoring until supported concrete members have acquired minimum of 90 percent of specified compressive strength. Results of suitable quality control tests of field-cured specimens may be submitted to ENGINEER for review as evidence that concrete has attained sufficient strength for removal of supporting formwork and shoring prior to removal times indicated in the Contract Documents.
   3. Removal time for formwork is subject to ENGINEER's acceptance.
   4. Repair form tie-holes following in accordance with ACI 301.

3.3 REINFORCING, JOINTS, AND EMBEDDED ITEMS

A. Comply with the applicable recommendations of Laws and Regulations and standards referenced in this Section, including CRSI MSP1, for details and methods of placing and supporting reinforcing.

B. Clean reinforcing to remove loose rust and mill scale, earth, ice, and other materials which act to reduce or destroy bond between reinforcing material and concrete.

C. Position, support, and secure reinforcing against displacement during formwork construction and concrete placing. Locate and support reinforcing by means of metal chairs, runners, bolsters, spacers, and hangers, as required.
   1. Place reinforcing to obtain minimum concrete coverages as shown on the Drawings and as required in ACI 318. Arrange, space, and securely tie bars and

bar supports together with 16-gage wire to hold reinforcing accurately in position during concrete placing. Set with ties so that twisted ends are directed away from exposed concrete surfaces.

2. Do not secure reinforcing to formwork using wire, nails or other ferrous metal. Metal supports subject to corrosion shall not be in contact with formed or exposed concrete surfaces.

D. Provide sufficient quantity of supports of strength required to carry reinforcing. Do not place reinforcing more than two inches beyond the last leg of continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

E. Splices: Provide standard reinforcing splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements shown or indicated for minimum lap of spliced bars, as shown on the Drawings.

F. Install welded wire fabric in lengths as long as practical, lapping adjoining sections a minimum of one full mesh.

G. Do not place concrete until reinforcing is inspected and ENGINEER indicates that conditions are acceptable for placing concrete. Concrete placed in violation of this paragraph will be rejected. Notify ENGINEER in writing at least two working days prior to proposed concrete placement.

H. Joints:
   1. Provide construction, isolation, expansion, and control joints as indicated or required. Locate construction joints so as to not impair the strength and appearance of the structure. Place isolation and control joints in slabs-on-grade to stabilize differential settlement and random cracking.
   2. In foundation slabs and slabs-on-grade, locate joints at intervals of approximately 40 feet.
   3. In mats and structural slabs and beams, locate joints in compliance with ACI 224R.
   4. Locations of joints shall be in accordance with the Contract Documents and as approved by ENGINEER in the Shop Drawings.
   5. Where construction joints are indicated to be roughened, intentionally roughen surfaces of previously-placed concrete to amplitude of 1/4-inch.

I. Installation of Embedded Items: Set and build into the Work anchorage devices and embedded items required for other Work that is attached to, or supported by, cast-in-place concrete. Use setting diagrams, templates, and instructions provided under other Sections for locating and setting. Refer to Paragraph 1.1.B of this Section. Do not embed in concrete uncoated aluminum items. Where aluminum items are in contact with concrete surfaces, coat aluminum to prevent direct contact with concrete.

J. Adhesive Dowels:

1. Adhesive dowels shall be reinforcing bar dowels set in an adhesive in hole drilled into hardened concrete. Comply with adhesive system manufacturer's installation instructions regarding hole diameter, drilling method, embedment depth required to fully develop required tensile strength, and hole cleaning and preparation instructions. Unless more-stringent standards are required by adhesive system manufacturer, comply with the following.

    a. Drill holes to adhesive system manufacturer's recommended diameter and depth to develop required tensile strength. Holes shall not be more than 1/4-inch greater than nominal bar diameter, and hole depth shall not be less than twelve times nominal bar diameter. Hammer-drill holes. Cored holes are not allowed.

    b. Embedment depths shall be based on concrete compressive strength of 4,000 psi when embedded in existing concrete, and 4,000 psi when embedded in new concrete.

    c. Determine location of existing reinforcing steel in vicinity of proposed holes prior to drilling. Adjust location of holes to be drilled to avoid drilling through or damaging existing reinforcing bars only when approved by ENGINEER.

    d. Before setting adhesive dowel, hole shall be free of dust and debris using method recommended by adhesive system manufacturer. Hole shall be brushed, with manufacturer-approved brush and blown clean with clean, dry, oil-free compressed air to remove dust and loose particles. Hole shall be dry as defined by adhesive system manufacturer.

    e. Inject adhesive into hole through injection system mixing nozzle and necessary extension tubes, placed to bottom of hole. Withdraw discharge end as adhesive is placed, but keep end of tube immersed to prevent forming air pockets. Fill hole to depth that ensures that excess material is expelled from hole during dowel placement.

    f. Twist dowels during insertion into partially-filled hole to guarantee full wetting of bar surface with adhesive. Insert bar slowly to avoid developing air pockets.

3.4 CONCRETE PLACING

A. Site Mixing: Use drum-type batch machine mixer, mixing not less than 1.5 minutes for one cubic yard or smaller capacity. Increase required mixing time by minimum of 15 seconds for each additional cubic yard or fraction thereof.

B. Ready-Mixed Concrete: Comply with ASTM C94/C94M.

C. Concrete Placing:
   1. Place concrete in a continuous operation within planned joints or sections in accordance with ACI 304R.
   2. Do not begin placing concrete until work of other trades affecting concrete is completed.
   3. Wet concrete and subgrade surfaces to saturated surface dry condition immediately prior to placing concrete.
   4. Deposit concrete as near its final location as practical to avoid segregation due to re-handling or flowing.
   5. Avoid separation of the concrete mixture during transportation and placing. Concrete shall not free-fall for distance greater than four feet during placing.
   6. Complete concrete placing within 90 minutes of addition of water to the dry ingredients.

D. Consolidate placed concrete in accordance with ACI 309R using mechanical vibrating equipment supplemented with hand rodding and tamping, such that concrete is worked around placing and other embedded items and into all parts of formwork. Insert and withdraw vibrators vertically at uniformly-spaced locations. Do not use vibrators to transport concrete within the formwork. Vibration of formwork or placing is not allowed.

E. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placing, and curing.
   1. In hot weather comply with ACI 305R.
   2. In cold weather comply with ACI 306R.

3.5 QUALITY OF CONCRETE WORK

A. Make concrete solid, compact, smooth, and free of laitance, cracks, and cold joints.

B. Concrete for liquid-retaining structures and concrete in contact with earth, water, or exposed directly to the elements shall be watertight.

C. Cut out and properly replace to extent directed by ENGINEER, or repair to satisfaction of ENGINEER, surfaces that contain cracks or voids, are unduly rough, or are in defective in any way. Patches or plastering are unacceptable.

D. Repair, removal and replacement of defective concrete directed by ENGINEER shall be at no additional cost to OWNER.

3.6 CURING

A. Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Continue curing by using moisture-retaining cover or membrane-forming curing compound. Cure formed surfaces by moist curing until formwork is removed. Provide protection, as required, to prevent damage to exposed concrete surfaces. Total curing period shall

not be less than seven days. Curing methods and materials shall be compatible with scheduled finishes.

3.7 FINISHING

A. Slab Finish:
   1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently. Check and level surface plane to a tolerance not exceeding 1/4-inch in ten feet when tested with a ten foot straightedge placed on the surface at not less than two different angles. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, re-float the surface to a uniform, smooth, granular texture. Slab surfaces shall receive a float finish. Provide additional trowel finishing as required in this Section.
   2. After floating, begin first trowel finish operation using power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over the surface.
   3. Consolidate concrete surface by the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8-inch in ten feet when tested with a ten-foot straightedge. Grind smooth surface defects that would telegraph through applied floor covering system.
   4. Use trowel finish for the following:
      a. Interior exposed slabs, unless otherwise shown or indicated.
      b. Apply non-slip broom finish, after troweling, to exterior concrete slab and elsewhere as shown.

B. Formed Finish:
   1. Provide smooth form concrete finish at exposed surfaces. Use largest practical form panel sizes to minimize form joints. Exposed surfaces include interior water-contacting surfaces of tanks, whether or not directly visible. All surfaces shall be considered as exposed, unless buried or covered with permanent structural or architectural material. After removing forms, patch form tie holes and defects in accordance with ACI 301. Remove fins exceeding 1/8-inch in height. Where surface will be coated or will receive further treatment, remove all fins flush with concrete surface.
   2. Provide rough form finish at all unexposed surfaces. After removing forms, patch form tie holes and defects in accordance with ACI 301. Remove fins exceeding 1/2-inch in height.

3.8 GROUT PLACING

A. Place grout as shown and indicated, and in accordance with grout manufacturer's instructions and recommendations. If grout manufacturer's instructions conflict with the Contract Documents, notify ENGINEER and not proceed until obtaining ENGINEER's clarification.

B. Dry-packing is not allowed, unless otherwise indicated.

C. Manufacturers of proprietary grout materials shall make available upon 72 hours notice the services of qualified, full-time, factory-trained employee to aid in ensuring proper use of grout materials at the Site.

D. Placing grout shall comply with temperature and weather limitations described in Article 3.4 of this Section.

3.9 FIELD QUALITY CONTROL

A. Site Testing Services:
   1. OWNER will employ testing laboratory to perform field quality control testing for concrete. ENGINEER will direct the testing requirements.
   2. Testing laboratory will provide all labor, material, and equipment required for sampling and testing concrete, including: scale, glass tray, cones, rods, molds, air tester, thermometer, and other incidentals required.

B. Quality Control Testing During Construction:
   1. Perform sampling and testing for field quality control during concrete placing, as follows:
      a. Sampling Fresh Concrete: ASTM C172.
      b. Slump: ASTM C143/C143M; one test for each concrete load at point of discharge.
      c. Concrete Temperature: ASTM C1064/C1064M; one for every two concrete loads at point of discharge, and when a change in the concrete is observed. Test each load when time from batching to placement exceeds 75 minutes.
      d. Air Content: ASTM C231; one for every two concrete load at point of discharge, and when a change in the concrete is observed.
      e. Unit Weight: ASTM C138/C138M; one for every two concrete loads at point of discharge, and when a change in the concrete is observed.
      f. Compression Test Specimens:
         1) In accordance with ASTM C31/C31M, make one set of compression cylinders for each 50 cubic yards of concrete, or fraction thereof, of each mix design placed each day. Each set shall be four standard cylinders, unless otherwise directed by ENGINEER.
         2) Cast, store, and cure specimens in accordance with ASTM C31/C31M.
      g. Compressive Strength Tests:
         1) In accordance with ASTM C39/C39M; one specimen tested at seven days, and three specimens tested at 28 days.
         2) Concrete that does not comply with strength requirements will be considered as defective Work.
      h. Within 24 hours of completion of test, testing laboratory will transmit certified copy of test results to CONTRACTOR and ENGINEER.
      i. When there is evidence that strength of in-place concrete does not comply

with the Contract Documents, CONTRACTOR shall employ the services of concrete testing laboratory to obtain cores from hardened concrete for compressive strength determination. Cores and tests shall comply with ASTM C42/C42M and the following:

1) Testing of Adhesive Dowels: OWNER will employ testing agency to perform field quality control testing of drilled dowel installations. After adhesive system manufacturer's recommended curing period and prior to placing connecting reinforcing, proof-test for pullout ten percent of adhesive dowels installed. Adhesive dowels shall be tensioned to 60 percent of specified yield strength. Where dowels are located less than six bar diameters from edge of concrete, ENGINEER will determine tensile load required for test. If one or more dowels fail, retest all dowels installed for the Work. Dowels that fail shall be reinstalled and retested at CONTRACTOR's expense.

+ + END OF SECTION + +

DIVISION 05

SECTION 05 56 00

METAL CASTINGS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install metal castings.
   2. Castings include metal items that are not part of miscellaneous metal fabrications or metal systems in other Specifications Sections.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before metal castings Work.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ANSI A14.3, Safety Requirements for Fixed Ladders.
   2. ASTM A48/A48M, Specification for Gray Iron Castings.
   3. ASTM A126, Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
   4. ASTM C478, Specification for Precast Reinforced Concrete Manhole Sections.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Shall have at least five years' experience manufacturing products substantially similar to those required and shall be able to submit documentation of at least five installations in satisfactory operation for at least five years each.

B. Component Supply and Compatibility:
   1. Obtain all frame, lid or cover, grate, and manhole step products included in this Section regardless of component manufacturer, from a single castings manufacturer.
   2. Obtain all hydrostatic pressure relief valve products included in this Section regardless of component manufacturer, from a single castings manufacturer.
   3. Castings manufacturer shall review and approve or prepare all Shop Drawings and other submittals for all components furnished under this Section.
   4. Components shall be constructed for specified service conditions and shall be integrated into overall assembly by castings manufacturer.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Fabrication and installation of all casting assemblies. Include plans, elevations, and details of sections and connections. Show anchorage and accessory items. Include setting drawings for location and installation of castings and anchorage devices.
   2. Product Data:
      a. Copies of manufacturer's catalog information for the products proposed for use, specifications, load tables, dimension diagrams, anchor details, and installation instructions.

B. Informational Submittals: Submit the following:
   1. Certificates:
      a. Furnish certification, signed by authorized officer of CONTRACTOR and notarized, stating that all components are furnished by the same manufacturer.
      b. Manufacturer's certification that the casting or lot of castings was made, sampled, tested and inspected in accordance with ASTM A48.
   2. Qualifications Statements: Submit qualifications for the following:
      a. Manufacturer, when required by ENGINEER.

1.5 DELIVERY, STORAGE AND HANDLING

A. Packing, Shipping, Handling, and Unloading:
   1. Deliver products to the Site to ensure uninterrupted progress of the Work. Deliver anchorage materials to be embedded in concrete in ample time to prevent delaying the Work.
   2. Comply with Section 01 65 00, Product Delivery Requirements.

B. Storage and Protection:
   1. Protect materials from corrosion and deterioration.
   2. Comply with Section 01 66 00, Product Storage and Handling Requirements.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Round Manhole Frame with Solid Lid:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-1530, manufactured by Neenah Foundry Company.
      b. E-1920, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

B. Round Manhole Frame with Vented Lid:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-1654, manufactured by Neenah Foundry Company.
      b. E-1850, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

C. Round Manhole Frame with Open Grate:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-1792-GG, manufactured by Neenah Foundry Company.
      b. V-3610-3, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

D. Round Manhole Frame with Solid Bolted Lid:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-1916-C2, manufactured by Neenah Foundry Company.
      b. E-1561, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

E. Round Manhole Frame with Solid Lid – Flush Top:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-6060, manufactured by Neenah Foundry Company.
      b. 1625, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

F. Catch Basin Frame with Grate:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-2501, manufactured by Neenah Foundry Company.
      b. E-1045 M2, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

G. Curb Inlet Frame Grate and Curb Box:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-3067, manufactured by Neenah Foundry Company.
      b. E-7030 M52, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

H. Valve Box Frame and Lid:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-7506-F, manufactured by Neenah Foundry Company.
      b. 3671, manufactured by East Jordan Iron Works, Inc
      c. Or equal.

I. Heavy-Duty H-20 Trench Frame with Solid Cover:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-4990-FX, Type D Cover, manufactured by Neenah Foundry Company.
      b. 6956, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

J. Heavy-Duty H-20 Trench Frame with Grated Cover:
   1. Material: ASTM A48/A48M, Class 35 B.
   2. Products and Manufacturers: Provide one of the following:
      a. R-4990-FX, Type A Cover, manufactured by Neenah Foundry Company.
      b. 6956, manufactured by East Jordan Iron Works, Inc.
      c. Or equal.

K. Floor-type Hydrostatic Pressure Relief Valves:
   1. Provide floor-type hydrostatic pressure relief valves suitable for installation in cast-in-place concrete foundations as shown or indicated on the Drawings.
   2. Products and Manufacturers: Provide one of the following:
      a. R-5000, Type C, manufactured by Neenah Foundry Company.
      b. F-1493-T, manufactured by Clow Valve Company.
      c. Or equal.
   3. Cover and grate shall be removable but shall be constructed so that neither can be separated from valve body due to groundwater pressure around the structure served by the valve.
   4. Material:
      a. Cover, body, and grate shall be cast iron complying with ASTM A126, Class B.
      b. Seats shall be Nitrile (Buna-N) rubber, bonded to the cover, mating with machined bronze seat in the body.
   5. Provide length equal to thickness of concrete foundation slab shown or indicated on the Drawings.

L. Wall-type Hydrostatic Pressure Relief Valves:
   1. Wall-type hydrostatic pressure relief valves shall be suitable for installation in cast-in-place concrete walls as shown or indicated on the Drawings.
   2. Products and Manufacturers: Provide one of the following:
      a. R-5000, Type C, manufactured by Neenah Foundry Company.
      b. F-1493, manufactured by Clow Valve Company.
      c. Or equal.
   3. Material:
      a. Flap gate and body shall be of cast iron complying with ASTM A126, Class B.
      b. Body seat ring and hinge pin shall be of furnished of machined bronze.

c. Gate shall be provided with a neoprene rubber seat cemented and mechanically retained in place by retainer plate.

4. Provide length equal to thickness of concrete wall shown or indicated on the Drawings.

M. Manhole Steps:

1. Provide manhole steps as shown on the Drawings. Comply with requirements of ASTM C478 and ANSI A14.3.
2. Products and Manufacturers: Provide one of the following:
   a. R-1982-F, manufactured by Neenah Foundry Company.
   b. 8512, manufactured by East Jordan Iron Works.
   c. Or equal.
3. Material: Cast gray iron.

2.2 FABRICATION

A. Fabrication, General:

1. Castings shall be of uniform quality, free of sand holes, gas holes, shrinkage cracks, and other surface defects.
2. Castings shall be ground smooth and well-cleaned by shot blasting in the shop.
3. Design and fabricate round frames and covers to prevent rocking and rattling under traffic loads that will be imposed in actual use.
4. Fabricate castings true to pattern so that component parts fit together.
5. Each casting shall be identifiable and, depending on its size, shall indicate the following: name of producing foundry, ASTM material designation, individual part number, and cast or heat date. Castings shall include all lettering shown or indicated on the Drawings.

PART 3 – EXECUTION

3.1 INSPECCTION

A. Examine conditions under which Work is to be performed and notify ENGINEER in writing of conditions detrimental to proper and timely completion of the Work. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Comply with casting manufacturer's printed instructions and the Contract Documents. Where castings are installed on precast concrete, fabricated fiberglass, or other fabricated products, install casting in accordance with requirements of manufacturer of product on which casting will be installed.

B. Set castings accurately to required location, alignment, and elevation, plumb, level, true and free of rack, measured from established lines and levels. Where applicable, brace temporarily or anchor temporarily in formwork.

C. Manhole Steps:
   1. Install gray cast iron manhole steps as shown on the Drawings. Comply with requirements of ASTM C478 and ANSI A14.3.
   2. Vertical separation of steps shall be uniform at maximum of 12 inches on centers. Steps shall project evenly from walls.

+ + END OF SECTION + +

DIVISION 09

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and apply paint systems.
      a. CONTRACTOR is responsible for surface preparation and painting of all new and existing interior and exterior items and surfaces throughout the Project areas included under this and other Sections.
   2. Extent of painting includes the Work specified below. Painting shown in schedules may not provide CONTRACTOR with complete indication of all painting Work. Refer to Article 2.2 of this Section where all surfaces of generic types specified are specified for preparation and painting according to their status, intended function, and location, using the painting system for that surface, function, and location as specified, unless specifically identified on the Drawings as a surface not to receive specified painting system.
      a. All new and specifically identified existing surfaces and items except where natural finish of material is specified as a corrosion-resistant material not requiring paint; or is specifically shown as indicated by written note, or specified as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint them the same as adjacent similar materials or areas.
      b. Surface preparation and painting of all new and specifically identified existing items, both interior and exterior, and other surfaces, including items furnished by OWNER, are included in the Work, except as otherwise shown or specified.

B. Coordination:
   1. Review installation, removal, and demolition procedures under other Sections and coordinate them with the Work specified in this Section.
   2. Coordinate painting of areas that will become inaccessible once equipment and similar fixed items have been installed.
   3. Furnish information to ENGINEER on characteristics of finish materials proposed for use and ensure compatibility with prime coats used. Provide barrier coats over incompatible primers or remove and repaint as required. Notify ENGINEER in writing of anticipated problems using specified painting systems with surfaces primed by others. Reprime equipment primed in factory and other factory-primed items that are damaged or scratched.

C. Work Not Included: The following Work is not included as painting Work, or is included under other Sections or in other contracts:
   1. Shop Priming: Shop priming of structural metal, miscellaneous metal fabrications, other metal items and fabricated components such as shop-fabricated or factory-painted process equipment, plumbing equipment, heating and ventilating equipment, electrical equipment, and accessories shall conform to applicable requirements of this Section.
   2. Pre-finished Items:
      a. Items furnished with such finishes as baked-on enamel, porcelain, and polyvinylidene fluoride shall only be touched up at Site by CONTRACTOR using manufacturer's recommended compatible field-applied touchup paint.
      b. Items furnished with finishes such as chrome plating or anodizing.
   3. Concealed Surfaces: Non-metallic wall or ceiling surfaces in areas not exposed to view, and generally inaccessible areas, such as furred spaces, pipe chases, duct shafts, and elevator shafts.
   4. Exterior face of architectural precast concrete.
   5. Corrosion-Resistant Metal Surfaces: Where the natural oxide of item forms a barrier to corrosion, whether factory- or Site-formed, including such materials as copper, bronze, muntz metal, terne metal, and stainless steel.
   6. Operating Parts and Labels:
      a. Do not paint moving parts of operating units, mechanical and electrical parts such as valve and damper operators, linkages, sensing devices, interior of motors, and fan shafts.
      b. Do not paint over labels required by governing authorities having jurisdiction at Site, or equipment identification, performance rating, nameplates, and nomenclature plates.
      c. Cover moving parts and labels during the painting with protective masking. Remove all protective masking upon completion of Work. Remove all paint, coatings, and splatter that comes in contact with such labels.
   7. Structural and miscellaneous metals covered with concrete need not receive primers, intermediate, or finish coats of paint.
   8. Existing structures, equipment, and other existing surfaces and items unless otherwise shown or specified.

D. Description of Colors and Finishes:
   1. Color Selection:
      a. ENGINEER reserves the right to select non-standard colors for paint systems specified within ability of paint manufacturer to produce such non-standard colors. Provide such colors at no additional expense to OWNER.
   2. Color Coding of Pipelines, Valves, Equipment, and Ducts:
      a. Color-coding of pipelines, valves, equipment and ducts shall comply with applicable standards of ANSI A13.1, ANSI Z535.1, CFR 1910.144, Recommended Standards for Water Works, and

Recommended Standards for Wastewater Facilities. For piping and equipment not covered by the above standards, conform to OWNER's color standards.

1.2 REFERENCES

A. Referenced Standards: Standards referenced in this Section are:
   1. ANSI A13.1, Scheme for Identification of Piping Systems.
   2. ANSI Z535.1, Safety Color Code.
   3. ASTM D16, Terminology for Paint, Related Coatings, Materials and Applications.
   4. ASTM D2200, Pictoral Surface Preparation Standards for Painting Steel Surfaces.
   5. ASTM D4262, Testing Method for pH of Chemically Cleaned or Etched Concrete Surfaces.
   6. ASTM D4263, Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
   7. ASTM D4541, Test Methods for Pull-Off Strength of Coatings Using Portable Adhesion-Testers.
   8. ASTM E329, Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
   9. Great Lakes Upper Mississippi River Board of Public Health and Environmental Managers (GLUMRB) Recommended Standards for Water Works.
   10. GLUMRB, Recommended Standards for Wastewater Facilities.
   11. Ozone Transport Commission, (OTC), OTC Model Rule for Architectural and Industrial Maintenance Coatings.
   12. SSPC PA 2, Measurement of Dry Coating Thickness with Magnetic Gages.
   13. SSPC VIS 1, Visual Standard for Abrasive Blast Cleaned Steel.
   14. SSPC VIS 2, Method of Evaluating Degree of Rusting/Painted Steel Surfaces.
   15. SSPC Volume 2, Systems and Specifications.

1.3 DEFINITIONS

A. Coating terms defined in ASTM D16 apply to this Section.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications:
   1. Engage a single applicator regularly performing installation of painting systems, with documented skill and successful experience in installing types of products required and agrees to employ only tradesmen trained, skilled, and with successful experience in installing types of products specified.

B. Testing Agency Qualifications: Provide independent testing agency with experience and capability to satisfactorily conduct testing specified in accordance

with ASTM E329. Testing agency shall be selected by OWNER and paid for by CONTRACTOR.

C. Source Quality Control:
   1. Obtain products from manufacturers that will provide services of a qualified manufacturer's representative at Site at commencement of painting Work to advise on products, mock-ups, installation, and finishing techniques, at completion of the Work to advise ENGINEER on acceptability of completed Work, and during course of Work as requested by ENGINEER.
   2. Submit "or equal" products, when proposed, with direct comparison to products specified, including information on durability, adhesion, color and gloss retention, percent solids, VOC's grams per liter, and recoatability after curing.
   3. "Or equal" manufacturers shall furnish same color selection as manufacturers specified, including intense chroma and custom pigmented colors in painting systems.
   4. Color Pigments: Provide pure, non-fading, applicable types to suit surfaces and services indicated. Comply with the following:
      a. Lead and Chromate: Lead and chromate content shall not exceed amount allowed by authorities having jurisdiction.
      b. Through CONTRACTOR, paint manufacturer shall notify ENGINEER of colors that are not suitable for long-term color retention in areas subject to hydrogen sulfide fume exposure.
      c. Manufacturer shall identify colors that meet requirements of authorities having jurisdiction at Site for use in locations subject to contact with potable water or water that will be treated to become potable.
      d. Comply with paint manufacturers' recommendations on preventing coating contact with levels of carbon dioxide and carbon monoxide that may cause yellowing during application and initial stages of curing of paint coatings.

D. Regulatory Requirements:
   1. Comply with VOC content limits of Ozone Transport Commission (OTC), Model Rule for Architectural and Industrial Maintenance Coatings.

E. Pre-Painting Conference:
   1. Conduct a pre-painting conference at the Site to review specified requirements. Meeting attendees shall include painting applicator and its foreman, paint manufacturer's technical representative, installers of other work in and around painting that must follow painting Work, ENGINEER, and other representatives directly concerned with performance of painting Work.

1.5 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Product Data:
      a. Copies of manufacturer's technical data sheets, including surface preparation, number of coats, dry film thickness, test performance data including paint analysis, VOC and chemical component content in comparison to maximum allowed by the Contact Documents, and application instructions for each product proposed for use.
      b. Submit proof of acceptability of proposed application techniques by paint manufacturer selected.
      c. Copies of CONTRACTOR's proposed protection procedures in each area of the Work explaining methods of protecting adjacent surfaces from splatter, for confining application procedures in a manner that allows other work adjacent to surface preparation and painting Work to proceed safely and without interruption, and for maintaining acceptable application, curing, and environmental conditions during and after painting systems application.
      d. List each material and cross-reference to the specific painting system and application, including a list of site-specific surfaces to which painting system will be applied. Identify by manufacturer's catalog number and general classification. State number of gallons of each product being purchased for delivery to Site and square foot area calculated to be covered by each painting system specified based on theoretical loss of 20 percent. Where actual area to be covered by paint system exceeds area submitted to ENGINEER for that system, proof of additional material purchase shall be provided to ENGINEER. Calculated coverage shall be as specified for each component of each painting system specified. This requirement does not take precedence over CONTRACTOR's responsibility to provide dry film thickness required for each component of each painting system.
      e. Identify maximum exposure times allowable for each paint system component before next coat of paint can be applied. Submit proposed methods for preparing surfaces for subsequent coats if maximum exposure times are exceeded.
      f. Information on curing times and environmental conditions that affect curing time of each paint system component and proposed methods for accommodating variations in curing time. Identify this information for each painting system in the Work.
      g. Specification for spray equipment with cross-reference to paint manufacturer's recommended equipment requirements.
   2. Samples:
      a. Copies of manufacturer's complete color charts for each coating system.

B. Informational Submittals: Submit the following:
   1. Certificates:

a. Certificate from paint manufacturer stating that materials meet or exceed Contract Documents requirements.
b. CONTRACTOR shall provide notarized statement verifying that all painting systems are compatible with surfaces specified. All painting systems components shall be reviewed by an authorized technical representative of paint manufacturer for use as a compatible system. Verify that all painting systems are acceptable for exposures specified and that paint manufacturer is in agreement that selected systems are proper, compatible, and are not in conflict with paint manufacturer's recommended specifications. Show by copy of transmittal form that a copy of letter has been transmitted to paint applicator.

2. Test Reports:
   a. Certified laboratory test reports for required performance and analysis testing in compliance with ASTM E329.
   b. Results of adhesion testing on existing surfaces containing paints or other coatings to be topcoated with paint systems specified. Prior to adhesion testing, submit a testing plan establishing methods, procedures and number of tests in each area where existing coatings are to remain and become substrate for painting Work. Based on results of adhesion testing, recommend methods, procedures, and painting system modifications, if necessary, for proceeding with Work.
   c. Locations of and test methods for soil sampling before beginning Work and after Substantial Completion.
   d. Proposed methods for testing, handling, and disposal of waste generated during Work.
   e. Results of alkalinity and moisture content tests performed per ASTM D4262 and ASTM D4263.
   f. Results of film thickness, holidays, and imperfections tests.
3. Manufacturer's Instructions: Provide paint manufacturer's storage, handling, and application instructions prior to commencing painting Work at Site.
4. Manufacturer's Site Reports: Provide report of paint manufacturer's representative for each visit to Site by paint manufacturer's representative.
5. Special Procedure Submittals:
   a. Proposed protection procedures for each area of Work, explaining methods of protecting adjacent surfaces from splatter, for confining application procedures in a manner that allows other work adjacent to surface preparation and painting Work to proceed safely and without interruption.
   b. Site-specific health and safety plan.
   c. Procedures for maintaining acceptable application, curing and environmental conditions during and after painting systems application.
   d. Procedures for providing adequate lighting, ventilation, and personal protection equipment relative to painting Work.
6. Qualifications:
   a. Applicator.
   b. Testing laboratory

C. Closeout Submittals: Submit the following:
   1. Maintenance Manual: Upon completion of the painting Work, furnish ENGINEER five copies of detailed maintenance manual including the following information:
      a. Complete and updated product catalog of paint manufacturer's currently available products including complete technical information on each product. Identify product names and numbers of each product used in the painting Work.
      b. Name, address, e-mail address and telephone number of manufacturer, local distributor, applicator and technical representative.
      c. Detailed procedures for routine maintenance and cleaning.
      d. Detailed procedures for light repairs such as dents, scratches and staining.
   2. Statement of Application: Upon completion of the painting Work, submit a notarized statement to ENGINEER signed by CONTRACTOR and painting applicator stating that Work complies with requirements of the Contract Documents and that application methods, equipment, and environmental conditions were proper and adequate for conditions of installation and use.

1.6 DELIVERY, STORAGE AND HANDLING

A. Product Delivery Requirements: Deliver products to Site in original, new, and unopened packages and containers, accurately and legibly and accurately labeled with the following:
   1. Container contents, including name and generic description of product.
   2. Manufacturer's stock number and date of manufacture.
   3. Manufacturer's name.
   4. Contents by volume, for major pigment and vehicle constituents.
   5. Grams per liter of volatile organic compounds.
   6. Thinning instructions, where recommended.
   7. Application instructions.
   8. Color name and number.

B. Product Storage Requirements:
   1. Store acceptable materials at Site.
   2. Store in an environmentally controlled location as recommended in paint manufacturer's written product information. Keep area clean and accessible. Prevent freezing of products.
   3. Store products that are not in actual use in tightly covered containers.
   4. Comply with health and fire regulations of authorities having jurisdiction at Site.

C. Product Handling Requirements:
   1. Handle products in a manner that minimizes the potential for contamination, or incorrect product catalyzation.

2. Do not open containers or mix components until necessary preparatory work has been completed and approved by ENGINEER and painting Work will start immediately.
3. Maintain containers used in storing, mixing, and applying paint in a clean condition, free of foreign materials and residue.

1.7 SITE CONDITIONS

A. Site Facilities:
1. Do not use heat sources that emit carbon dioxide or carbon monoxide into areas being painted. Properly locate and vent heat sources to exterior so that paint systems and personnel are unaffected by exhaust products.

B. Existing Conditions:
1. Existing surfaces to receive painting Work shall have their surfaces prepared to meet requirements of painting systems specified. Prior to initiating painting Work, perform adhesion tests on existing surfaces to be painted. Perform testing per ASTM D4541 or other method acceptable to ENGINEER. Number and location of tests shall be sufficient to determine the condition of existing coatings and suitability of existing coatings to remain to provide an acceptable substrate for new coatings. Submit testing plan prior to testing and provide ENGINEER the adhesion test results.
2. Provide abrasive blasting, scraping, or other abrading or surface film removal, or preparatory techniques accepted by ENGINEER.
3. Before commencing painting in an area, surfaces to be painted and floors shall be cleaned of dust using commercial vacuum cleaning equipment equipped with high-efficiency particulate air (HEPA) filters and dust containment systems.
4. After painting operations have started in a given area, cleaning only with commercial vacuum cleaning equipment with high-efficiency particulate air (HEPA) filters and dust containment systems.

C. Environmental Requirements:
1. Comply with manufacturer’s published requirements.

D. Protection:
1. Cover or otherwise protect finished Work of other trades and those surfaces not being painted concurrently and not to be painted.
2. When working with flammable materials, provide fire extinguishers and post temporary signs warning against smoking and open flame.

PART 2 - PRODUCTS

2.1 PAINTING SYSTEM MANUFACTURERS

A. Products and Manufacturers: Where referenced under painting systems, provide painting systems manufactured by the following:
   1. Tnemec Company, Incorporated (TCI).
   2. The Carboline Company, part of StonCor Group, an RMP Company (TCC).
   3. Sherwin-Williams Company (SWC).
   4. Or equal.

2.2 PAINTING SYSTEMS

A. New and Existing Surfaces; Non-Submerged, Interior; Buried, Submerged and Intermittently Submerged, OTC Compliant; Interior and Exterior:
   1. Surface Preparation: Comply with manufacturer's published recommendations for material and surface condition.
   2. Filler, Surfacer and Patching Compound:
      a. Products: Provide one of the following:
         1) Epoxy-based products, number of coats, and dry film thickness recommended in manufacturer's published data sheets for finish coats and surfaces specified.
   3. Primer/Intermediate:
      a. Products: Provide one of the following:
         1) Epoxy-based products, number of coats, and dry film thickness recommended in manufacturer's published data sheets for finish coats and surfaces specified.
   4. Finish for All Surfaces Except Wood; Semi-gloss:
      a. Generic Components:
         1) Minimum 62-percent volume solids, high-build, two-component, polyamide-catalyzed epoxy or polyamido-amine epoxy; 250 grams per gallon VOC, maximum.
      b. Products and Manufacturers: Provide products of one of the following:
         1) Series V69 Hi-Build Epoxoline (TCI); Carboguard 890 Series (TCC); Macropoxy HS (SWC)- two coats, 3.0 to 6.0 dry mils per coat, 107 to 201 square feet per gallon.

B. New and Existing Surfaces; Non-Submerged, OTC Compliant; Exterior:
   1. Surface Preparation: Comply with manufacturer's published recommendations for material and surface condition.
   2. Shop Primer:
      a. Products: Provide one of the following:
         1) Epoxy-based products, number of coats and dry film thickness recommended in manufacturer's published data sheets for finish coats and surfaces specified.
   3. Intermediate:
      a. Products: Provide one of the following:
         1) Epoxy-based products, number of coats and dry film thickness recommended in manufacturer's published data sheets for finish coats and surfaces specified.

2.4 INSTRUMENTS

A. Instruments:
   1. Provide one new dry-film thickness gauge for checking film thickness, one holiday detector to detect holidays or holes in the coating, and one set of visual standards to check surface preparation. Calibrate dry film thickness gauge at Site using Bureau of Standards standard shim blocks. After performing testing, furnish instruments and standards to OWNER.
   2. Products and Manufacturers: Provide the following:
      a. Film Thickness Testers: Model FM-III manufactured by Mikrotest, or equal.
      b. Holiday detector shall be Model M-1 as manufactured by Tinker & Rasor, or equal.
      c. Visual Standards: ASTM D2200, Swedish Standards, SSPC VIS 1.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine areas and conditions under which painting Work is to be performed and notify ENGINEER in writing of conditions detrimental to proper and timely completion of Work. Do not proceed with Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

B. Do not paint over existing paint where there is no assurance that existing paint will provide an acceptable surface for long-term adherence and durability of painting systems specified, or where paint manufacturer requires removal of all existing paint to recommend use of specified painting system.

3.2 SURFACE PREPARATION

A. General:
   1. Comply with paint manufacturer's published recommendations for products, surface condition, and surface preparation.

3.3 PROTECTION OF PROPERTY AND STRUCTURES

A. Protect property and structures adjacent to the Work from waste residues resulting from cleaning, surface preparation, and painting Work.

B. Use shrouding, vacuum blasting, or other acceptable methods for cleaning and surface preparation of exterior surfaces.

C. During blast cleaning and surface preparation of interior and exterior surfaces, control exhausting of dust and grit using shrouding, negative-pressure containment/dust collection systems, or other means to protect adjacent property

and structures and prevent dust and grit from escaping. Similarly, control removal and temporarily store residues to protect adjacent property and structures.

D. For painting of exterior surfaces, use rollers, shrouding, or other acceptable methods as required to protect adjacent property and structures from wind-blown paint residues.

E. Submit proposed procedures for cleaning, surface preparation, and paint application that describe in detail methods to be used to protect adjacent property and structures from residues. Do not proceed with cleaning, surface preparation, or painting until proposed procedures are accepted by ENGINEER.

3.4 MATERIALS PREPARATION

A. General: Mix and prepare painting products in strict accordance with paint manufacturer's product data sheets.

3.5 APPLICATION

A. General:
   1. Apply paint systems by brush, roller, or airless spray per paint manufacturer's recommendations and in compliance with Paint Application Specifications No. 1 in SSPC Volume 2, where applicable, and in strict accordance with paint manufacturer's product data sheets.
   2. Surfaces of items not normally exposed-to-view do not require same color as other components of system of which they are a part, but require same painting system specified for exposed surfaces of system.
   3. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint before final installation of registers or grilles.
   4. Paint backs of access panels and removable or hinged covers to match exposed surfaces.
   5. Omit field-applied primer on metal surfaces that have been primed in the shop. Touch-up paint to shop-primed coats and pre-finished items only when approved by ENGINEER using compatible primers and paint manufacturer’s recommended compatible field-applied finishes.
   6. Welds shall be stripe-coated with intermediate or finish coat of paint after application of prime coat.

B. Minimum/Maximum Paint Film Thickness: Comply with manufacturer’s published recommendations for coating type and surface.

C. Scheduling Surface Preparation and Painting: Comply with manufacturer’s published recommendations for coating type and surface.

D. Prime Coats: Recoat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to result in a finish coat with no burn-through or other defects caused by insufficient sealing.

E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage.

F. Brush Application:
   1. Brush-out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections are unacceptable. Neatly draw all glass and color break lines.
   2. Brush-apply all primer or first coats, unless otherwise allowed to use mechanical applicators.

G. Mechanical Applicators:
   1. Use mechanical methods for applying paint when allowed by applicable ordinances, paint manufacturer, and approved by ENGINEER.
   2. Limit roller applications, if approved by ENGINEER, to interior wall finishes for second and third coats. Apply each roller coat to provide equivalent hiding as brush-applied coats.
   3. Where spray application is used, apply each coat to provide equivalent hiding of brush-applied coats. Do not double back with spray equipment for purpose of building up film thickness of two coats in one pass.

H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint Work not in compliance with specified requirements as required by ENGINEER.

3.6 FIELD QUALITY CONTROL

A. Notify ENGINEER after completing each coat of paint. After inspection and checking of film thickness, holidays, and imperfections, and after acceptance by ENGINEER, proceed with succeeding coat. Perform testing using testing instruments specified in Article 2.4 of this Section.
   1. ENGINEER will witness all testing and shall be notified of scheduled testing at least twenty-four hours in advance.
   2. Apply additional coats, if required, to produce specified film thickness and to correct holidays and to completely fill all surface air holes.

B. For magnetic substrates, measure thickness of dry film nonmagnetic coatings following recommendations of SSPC PA-2. These procedures supplement manufacturers' approved instructions for manual operation of measurement gauges and do not replace such instructions.

C. Record time, location, number of coats, dry film thickness, holidays, and other imperfections and submit testing results to ENGINEER.

3.7 PROTECTION

A. Provide “Wet Paint” signs as required to protect newly painted finishes. After completing painting Work, remove temporary protective wrappings provided for protection of the Work.

3.8 ADJUSTMENT AND CLEAN-UP

A. Correct damage to work of other trades by cleaning, repairing or replacing, and repainting, as acceptable to ENGINEER.

B. During progress of the Work, remove from Site all discarded paint products, rubbish, cans, and rags at end of each workday.

C. Upon completion of painting, clean paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

D. At completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces as determined by ENGINEER.

+ + END OF SECTION + +

DIVISION 31

SECTION 31 11 00

CLEARING AND GRUBBING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals required to perform clearing and grubbing as shown and specified in the Contract Documents.
   2. The Work includes removing from the Site and disposing of trees, stumps, brush, roots, shrubs, vegetation, logs, rubbish, and other objectionable material.
   3. Pay all costs associated with transporting and disposing of debris resulting from clearing.
   4. Limits of Clearing and Grubbing Work: Clear and grub all areas within the Work areas unless otherwise shown or indicated in the Contract Documents.

B. Related Sections:
   1. Section 01 57 05, Temporary Controls.
   2. Section 02 41 00, Demolition.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not necessarily limited to, the following:
      a. El Paso County
      b. City of El Paso.

1.3 SUBMITTALS

A. Action Submittals: Submit the following
   1. Shop Drawings:
      a. Plan for removing trees and other large vegetation not explicitly shown or indicated for removal in the Contract Documents.
      b. Plan showing proposed limits of clearing and grubbing, if different from clearing and grubbing limits shown or indicated in the Contract Documents.

1.4 WARRANTY

A. CONTRACTOR shall warrant that Work performed under this Section will not permanently damage trees, shrubs, turf, and plants designated to remain, or other adjacent work, facilities, or property. If damage resulting from CONTRACTOR's

operations becomes evident during the correction period, CONTRACTOR shall replace damaged items and property at no additional cost to OWNER.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 PREPARATION

A. Protection:
   1. Throughout the Project, protect existing site improvements, including streets, drives, and Underground Facilities to remain (if any), and adjacent property and structures. Repair damage caused by CONTRACTOR to original condition or replace in kind, to satisfaction of ENGINEER, at no additional cost to OWNER.
   2. Protect trees, shrubs, vegetation, and grassed areas to remain by providing temporary fencing, barricades, wrapping, or other methods shown, specified, or accepted by ENGINEER. Correct at CONTRACTOR's expense damage caused by CONTRACTOR outside the limits of clearing Work.
   3. Do not remove trees without approval of ENGINEER, unless shown or indicated for removal.
   4. Do not locate construction equipment, stored materials, or stockpiles within drip line of trees and vegetation to remain.

B. Site Preparation:
   1. Obtain, pay costs associated with, and comply with applicable permits required for clearing and grubbing Work.
   2. Delineation of Clearing and Grubbing Limits:
      a. Locate and clearly flag trees and vegetation to remain, and other materials to remain in the clearing and grubbing limits. Locate and clearly flag salvable vegetation to be relocated.
      b. Provide flagging to delineate limits of areas to be cleared or grubbed. Review at Site with ENGINEER before commencing removal of trees, vegetation, and other materials to be removed.
      c. Replace flagging that is lost, removed, or destroyed, until clearing and grubbing Work is complete and ENGINEER allows removal of flagging.
   3. Erosion and Sediment Controls:
      a. Provide applicable erosion and sediment controls before commencing clearing and grubbing Work.
      b. Comply with erosion and sediment control requirements of Section 01 57 05, Temporary Controls.
      c. Continue providing erosion and sediment controls as clearing and grubbing Work progresses to previously uncleared, ungrubbed areas of the Site.

3.2 CLEARING AND GRUBBING

A. Remove and dispose of all trees, shrubs, stumps, roots, brush, logs, rubbish, and debris within limits of clearing and grubbing shown or indicated in the Contract Documents, unless otherwise shown or indicated.

B. Trees and Shrubs Improperly Destroyed or Damaged:
   1. For each tree or shrub to remain that is destroyed or damaged beyond repair by CONTRACTOR, provide two replacements of the same species at locations to be designated by ENGINEER.

C. Trees and shrubs to remain that have been damaged or require trimming shall be treated and repaired under the direction of a qualified arborist, or other professional with qualifications acceptable to ENGINEER. Trees and shrubs intended to remain, that are damaged beyond repair or that are removed, shall be replaced by CONTRACTOR at no additional cost to OWNER.

D. Disposal of Cleared and Grubbed Materials:
   1. Dispose at appropriate off-Site location trees, stumps, rubbish, debris, and other cleared and grubbed material. Cleared or grubbed materials may remain at the Site only when allowed in the Contract Documents or when approved by ENGINEER in writing. Do not use cleared or grubbed material as fill, backfill, or in embankments.
   2. Dispose of cleared and grubbed material in accordance with Laws and Regulations.
   3. Do not burn clearing debris at the Site, unless approved by OWNER and authorities having jurisdiction. If burning is permitted, comply with requirements of authorities having jurisdiction and Laws and Regulations. If burning is permitted at the Site, also comply with OWNER's requirements.

E. Removal of Site Improvements: Comply with Section 02 41 00, Demolition.

+ + END OF SECTION + +

SECTION 31 23 16.13

TRENCHING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals required to perform all excavating, filling, and grading, and disposing of earth materials as shown, specified, and required for construction of Underground Facilities and related construction required to complete the Work.
   2. Preparation of subgrade is included under this Section.
   3. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof.

B. Related Sections:
   1. Section 33 05 05, Buried Piping Installation.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ANSI/AISC 360, Specification for Structural Steel for Buildings.
   2. ASTM C33/C33M, Specification for Concrete Aggregates.
   3. ASTM C94/C94M, Specification for Ready-Mixed Concrete.
   4. ASTM C150/C150M, Specification for Portland Cement.
   5. ASTM C618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
   6. ASTM D422, Test Method for Particle-Size Analysis of Soils.
   7. ASTM D698, Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3 (600 kN-m/m^3)).
   8. ASTM D1556, Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   9. ASTM D1557, Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).
   10. ASTM D2216, Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
   11. ASTM D4253, Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
   12. ASTM D4254, Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

13. ASTM D4318, Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
14. ASTM D4832, Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
15. ASTM D6023, Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM).
16. ASTM D6103, Test Method for Flow Consistency of Controlled Low Strength Material (CLSM).
17. ASTM D6938, Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
18. ASTM E329, Specification for Agencies Engaged in Construction Inspection and/or Testing.

1.3 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:
   1. "Subgrade" is the uppermost surface of native soil material unmoved from cuts; the bottom of excavation.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Professional Engineer:
      a. Engage a registered professional engineer legally qualified to practice in the same jurisdiction as the Site and experienced in providing engineering services of the kind indicated.
      b. Responsibilities include but are not necessarily limited to:
         1) Reviewing system performance and design criteria stated in the Contract Documents.
         2) Preparing written requests for clarifications or interpretations of performance or design criteria for submittal to ENGINEER by CONTRACTOR.
         3) Preparing or supervising the preparation of design calculations and related submittals verifying compliance of the system with the requirements of the Contract Documents.
         4) Signing and sealing all calculations, drawings, and submittals prepared by professional engineer.
         5) Certifying that:
            a) It has performed the design of the system in accordance with the performance requirements stated in the Contract Documents, and
            b) The said design conforms to Laws and Regulations, and to the prevailing standards of practice.

2. CONTRACTOR’s Testing Laboratory:
    a. Retain the services of independent testing laboratory to perform testing and determine compliance with the Contract Documents of the materials specified in this Section.
    b. Testing laboratory shall comply with ASTM E329 and requirements of Section 01 45 29.23, Testing Laboratory Services Furnished by Contractor.
    c. Testing laboratory shall be experienced in the types of testing required.
    d. Selection of testing laboratory is subject to ENGINEER's acceptance.

B. Quality Assurance Testing:
    1. Quality assurance testing is in addition to field quality control testing required under Part 3 of this Section.
    2. Materials used in the Work may require testing and retesting, as directed by ENGINEER, during the Project. Allow free access to material stockpiles and facilities at all times. Tests not specifically indicated to be performed at OWNER's expense, including retesting of rejected materials and installed Work, shall be performed at CONTRACTOR’s expense.
    3. CONTRACTOR’s Testing Laboratory Scope:
        a. Collect samples and perform testing of proposed fill materials in the laboratory and in the field to demonstrate compliance of the Work with the Contract Documents.
        b. Testing laboratory shall perform testing required to obtain data for selecting moisture content for placing and compacting fill materials.
        c. Design controlled low-strength material (CLSM) mixes in accordance with requirements of CLSM Article in Part 2 of this Section. Perform concrete materials evaluation tests and testing of CLSM mixes.
        d. Submit to ENGINEER and CONTRACTOR written report results of each test.
    4. Required Quality Assurance Material Testing by CONTRACTOR’s Testing Laboratory:
        a. Gradation in accordance with ASTM D422. Perform one test for every 1,000 cubic yards of each of the following types of material incorporated into the Work: select fill, general fill, sub-base material, drainage fill, and pipe bedding material.
        b. Atterberg limits in accordance with ASTM D4318. Perform one test for every 1,000 cubic yards of the following types of materials incorporated into the Work: general fill, and pipe bedding material.
        c. Moisture/density relations in accordance with ASTM D698, ASTM D1557, ASTM D4253, or ASTM D4254, as applicable. Perform one test for every 5,000 cubic yards of the following types of materials incorporated into the Work: select fill, general fill, sub-base material, drainage fill, and pipe bedding material.
        d. Moisture content of stockpiled or borrow material in accordance with ASTM D2216. Perform one test for every 1,000 cubic yards of the following types of material incorporated into the Work: select fill, general fill, sub-base material, drainage fill, and pipe bedding material.

e. CLSM Mix: Verify CLSM mix design by laboratory trial batch, unless indicated otherwise. Perform the following testing on each concrete mix trial batch:
   1) Aggregate gradation.
   2) Flowability, in accordance with ASTM D6103.
   3) Air content, in accordance with ASTM D6023.
   4) Unconfined compressive strength of CLSM mixes at 90 days, in accordance with ASTM D4832.
   5) Submit for each concrete mix trial batch the following information:
      a) Project identification name and number (if applicable).
      b) Date of test report.
      c) Complete identification of aggregate source of supply.
      d) Tests of aggregates for compliance with the Contract Documents.
      e) Brand, type, and composition of cementitious materials.
      f) Brand, type, and quantity of each admixture.
      g) Quantity of water used in trial mixes.
      h) Proportions of each material per cubic yard.
      i) Gross weight and yield per cubic yard of trial mixtures.
      j) Measured flowability.
      k) Measured air content.
      l) Unconfined compressive strength.

C. Regulatory Requirements:
   1. Perform excavation work in compliance with requirements of authorities having jurisdiction and Laws and Regulations, including:
      a. OSHA, 29 CFR Part 1926, Section .650 (Subpart P – Excavations).
   2. Obtain required permits and approvals for excavation and fill Work, including work permits from right-of-way owners and permits from environmental authorities having jurisdiction over discharge of water from excavations.

1.5 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. List of CLSM materials and mix designs proposed for use. Include results of quality assurance testing performed to qualify the materials and to establish the mix designs.
      b. Laboratory Trial Batch Reports: Submit laboratory quality assurance test reports for materials and mix design tests.
      c. Modifications to the Work proposed due to design of sheeting, shoring, bracing, cofferdams, and similar excavation supports.
   2. Product Data:
      a. Manufacturer’s specifications with application and installation instructions for proprietary materials and items, including admixtures to be used in CLSM mixes.

   3. Samples:

a. Submit Sample of each aggregate and soil material required under this Section. Deliver Samples to Resident Project Representative. Samples shall be of sufficient size to demonstrate the array of gradation and material types expected in the Work.

B. Informational Submittals: Submit the following:
   1. Procedure Submittals:
      a. Excavation Plan: Prior to starting excavation operations, submit written plan to demonstrate compliance with OSHA 29 CFR Part 1926.650. As a minimum, excavation plan shall include:
         1) Name of CONTRACTOR's "competent person" in responsible charge of excavation and fill Work.
         2) Excavation method(s) and additional items to be included in the Work, as listed in Paragraph 1.5.B.2.a of this Section.
         3) Copies of "manufacturer's data" or other tabulated data if protective system(s) are designed on the basis of such data.
         4) Copies of required permits and approvals, from authorities having jurisdiction and affected utility owners, for excavation methods proposed.
      b. Proposed compaction procedure and compaction equipment proposed for use. Where different procedures or equipment will be used for compacting different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used.

   2. Excavation Support Plan and Related Information Prepared by CONTRACTOR's Professional Engineer:
      a. CONTRACTOR and CONTRACTOR's professional engineer shall prepare the following for submittal:
         1) Sheeting and bracing, or other protective system(s) required.
      b. Drawings and calculations shall be prepared by professional engineer qualified in the specialty involved. ENGINEER's review and acceptance of submittal does not imply approval by ENGINEER of the associated Work. CONTRACTOR shall be solely responsible for designing, installing, operating and maintaining the system(s) required to satisfactorily perform all necessary sheeting, bracing, protection, underpinning, and dewatering.
      c. Benching is not permitted.

   3. Delivery Tickets:
      a. Copies of delivery tickets for each load of CLSM material delivered to or mixed at the Site. Each delivery ticket shall contain information in accordance with ASTM C94/C94M along with project and contract name and number, date, mix type, mix time, quantity and amount of water introduced.
   4. Quality Assurance Test Results Submittals:
      a. Submit results of quality assurance testing performed by in accordance with Paragraph 1.4.B of this Section, unless included as part of another submittal under this Section. Submit results for the following quality assurance testing:

1) Tests on borrow fill material.
2) Optimum moisture – maximum dry density curve for each type of fill material.

5. Field Quality Control Submittals:
   a. Submit results of testing and inspection performed in accordance with the field quality control Article in Part 3 of this Section, including:
      1) Field density testing.
      2) Tests of actual unconfined compressive strength or bearing tests of each stratum.
6. Qualifications Statements:
   a. Professional engineer.
   b. Quality Assurance Testing laboratory. Submit name and qualifications of testing laboratory to be employed, and qualifications of testing laboratory's personnel that will perform quality assurance testing required in this Section.
   c. Field Quality Control Testing Laboratory: Names and qualifications of testing laboratory employed, and qualifications of testing laboratory's personnel that will perform field quality control testing as required under this Section.

1.6 SITE CONDITIONS

A. Subsurface Information: The Supplementary Conditions indicate information available relative to subsurface conditions at the Site. Such information and data is not intended as a representation or warranty of continuity of conditions between soil borings or test pits, nor of groundwater levels at dates and times other than date and time when measured, nor that purpose of obtaining the information and data were appropriate for use by CONTRACTOR. OWNER will not be responsible for interpretations or conclusions drawn therefrom by CONTRACTOR.

B. Soil borings and other exploratory operations may be made by CONTRACTOR, at no additional cost to OWNER. Coordinate CONTRACTOR-performed test borings and other exploratory operations with OWNER and utility owners as appropriate. Perform such explorations without disrupting or otherwise adversely affecting operations of OWNER or utility owners. Comply with Laws and Regulations relative to required notifications.

C. Existing Structures:
   1. The Contract Documents show or indicate certain structures and Underground Facilities adjacent to the Work. Such information was obtained from existing records and is not guaranteed to be correct or complete. CONTRACTOR shall explore ahead of the excavation to determine the exact location of all existing structures and Underground Facilities. Existing structures and Underground Facilities shall be supported and protected from damage by CONTRACTOR. Immediately repair and restore existing structures and Underground Facilities damaged by CONTRACTOR without additional cost to OWNER.

2. Movement or operation of construction equipment over Underground Facilities shall be at CONTRACTOR's sole risk and only after CONTRACTOR has prepared and submitted to ENGINEER and utility owners (as applicable), and received acceptance therefrom, a plan describing CONTRACTOR's analysis of the loads to be imparted and CONTRACTOR's proposed measures to protect structures and Underground Facilities during the Project.
3. Coordinate with utility owners for shut-off of services in active piping and conduits. Completely remove buried piping and conduits indicated for removal and not otherwise indicated as being abandoned or to remain in place.
4. In general, service lines and laterals to individual houses and businesses are not shown; however, CONTRACTOR shall assume that a service exists for each utility owner to each house, business, and property.
5. Do not interrupt existing utilities serving facilities occupied and used by OWNER or others, except when such interruption is indicated in the Contract Documents or when allowed in writing by ENGINEER after acceptable temporary utility services are provided by CONTRACTOR for the affected structure or property.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Select Fill:
   1. Material shall be well-graded, crushed aggregate, free of organic material, complying with the following:

Sieve Sizes (Square Openings)	Percentage by Weight Passing Sieve
1.25-inch	100
No. 4	38 to 65
No. 8	25 to 60
No. 30	10 to 40
No. 200	3 to 12

B. General Fill:
   1. Material shall be free of: rock and gravel larger than three inches in any dimension, debris, waste, frozen materials, organic material, and other deleterious matter.
   2. Fill shall have a liquid limit not greater than 45, and plasticity index not greater than 25.
   3. Previously-excavated materials complying with the Contract Documents requirements for general fill may be used for general fill.

4. When on-Site materials are found unsuitable for use as general fill, provide select fill or approved off-Site general fill materials. Prior to using off-Site material as general fill, furnish submittal for and obtain ENGINEER's approval of the material proposed for use.

C. Sub-base Material:
   1. Material shall be naturally- or artificially-graded mixture of natural or crushed gravel, crushed stone, or natural or crushed sand, complying with the gradation requirements below. Crushed slag is unacceptable.

Sieve Sizes (Square Openings)	Percentage by Weight Passing Sieve
2-inch	100
1-inch	70 to 100
3/4-inch	50 to 90
No. 4	30 to 60
No. 30	9 to 33
No. 200	0 to 15

D. Drainage Fill:
   1. Material shall be washed, uniformly-graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing 1.5-inch sieve and not more than five percent passing a No. 4 sieve.

E. Pipe Bedding Material:
   1. Aggregate material shall be crushed stone and gravel, free of: rock or gravel larger than one-inch in any dimension, debris, waste, frozen materials, organic material and other deleterious matter. Material shall comply with gradation requirements below:

Sieve Sizes (Square Openings)	Percentage by Weight Passing Sieve
1-inch	100
3/8-inch	30 to 65
No. 4	25 to 55
No. 10	15 to 40
No. 40	8 to 20
No. 200	2 to 8

   2. Sand material, where required, shall consist of natural or manufactured granular material and shall contain no organic material. Sand shall be non-plastic, when tested in accordance with ASTM D4318, 100 percent shall pass a 1/2-inch screen and not more than five percent shall pass a No. 200 screen.

F. Controlled Low Strength Material (CLSM):
   1. CLSM shall be self-leveling and self-compacting cementitious material.
      a. Cement: Type I or Type II portland cement complying with ASTM C150/C150M.
      b. Fly Ash Mineral Admixture: Comply with ASTM C618, Class F.
      c. Water: Clean, potable.
      d. Admixtures: Provide admixtures in accordance with product manufacturer's published instructions. Admixtures shall be compatible with each other. Do not use calcium chloride or admixtures containing chloride ions. Use only admixtures that have been tested and approved in the mix designs.
      e. Fine Aggregates: ASTM C33/C33M.
   2. CLSM Mix:
      a. Cement Content: 50 pounds per cubic yard.
      b. Fly Ash Mineral Admixture: 250 pounds per cubic yard.
      c. Fine Aggregate Content: 2910 pounds per cubic yard.
      d. Water Content: 500 pounds per cubic yard.
      e. Admixtures shall comply with manufacturer's recommendations for use with CLSM.
      f. Unconfined compressive strength shall be not more than 100 psi.
      g. Adjustment of Mixes.
         1) Mix design adjustments may be requested by CONTRACTOR when warranted by characteristics of materials, Site conditions, weather, test results, or other, similar circumstances.
         2) Submit for ENGINEER's approval laboratory test data for adjusted mix designs, including compressive strength test results.
         3) Implement adjusted mix designs only after ENGINEER's approval.
         4) Adjustments to mix designs shall not result in additional costs to OWNER.

2.2 SOURCE QUALITY CONTROL

A. Perform quality assurance testing, and submit results to ENGINEER, in accordance with the 'Quality Assurance" Article in Part 1 of this Section.

PART 3 – EXECUTION

3.1 INSPECTION

A. Provide ENGINEER with sufficient notice and with means to examine areas and conditions under which excavating, filling, and grading will be performed. ENGINEER will advise CONTRACTOR in writing when ENGINEER is aware of conditions that may be detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.

3.2 TEST PITS

A. General:
   1. In advance of the construction, excavate, make observations and measurements, and fill test pits to determine conditions or location of the existing Underground Facilities and structures. Perform all work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, filling, and replacing pavement for test pits. CONTRACTOR shall be responsible for the definite location of each existing Underground Facility involved within the area of excavation for the Work. Exercise care during such location work to avoid damaging and disrupting the affected Underground Facility or structure. CONTRACTOR shall be responsible for repairing, at his expense, damage to Underground Facility or structure caused during the Work.
   2. Where shown or directed by ENGINEER, in advance of construction, make observations and measurements, and fill test pits to determine conditions or location of existing Underground Facilities and structures. Perform all work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, backfilling and replacing pavement for test pits.

3.3 PREPARATION

A. Use of Explosives:
   1. Use of explosives is not allowed.

3.4 DEWATERING

A. Dewatering – General:
   1. Provide and maintain adequate drainage and dewatering equipment to remove and dispose of all surface water and ground water entering excavations, or other parts of the Work and work areas. Keep each excavation dry during excavation, subgrade preparation, and continually thereafter until the Underground Facilities to be built therein area acceptable to ENGINEER and backfilling operations are completed and acceptable to ENGINEER.
   2. Keep all working areas at the Site free of surface water at all times. Provide temporary drainage ditches and temporary dikes, and provide required temporary pumping and other work necessary for diverting or removing rainfall and all other accumulations of surface water from excavations and fill areas. Perform diversion and removal of surface water in manner that prevents accumulation of water behind permanent or temporary structures and at any other locations in the construction area where such accumulations may be detrimental.
   3. Water used for working or processing, resulting from dewatering operations, or containing oils or sediments that will reduce the quality of the surface water or groundwater downstream of the point of discharge, shall not be directly discharged. Divert such waters through temporary settling basin or filter before discharging to surface water, groundwater, or drainage routes.

4. CONTRACTOR shall be responsible for condition of piping, conduits, and channels used for drainage and such piping, conduits, and channels shall be clean and free of sediment.
5. Remove water from excavations as fast as water collects.

B. Temporary Dewatering System:
1. CONTRACTOR shall design, provide, and operate dewatering system to include sufficient trenches, sumps, pumps, hose, piping, well points, deep wells, and similar facilities, necessary to depress and maintain groundwater level six feet below the base of each excavation during all stages of construction operations.
2. Design and operate dewatering system to avoid settlement and damage to existing structures and Underground Facilities.
3. Groundwater table shall be lowered in advance of excavation for a sufficient period of time to allow dewatering of fine grain soils.
4. Maintain groundwater level at excavations two feet below lowest subgrade excavation until the structure or Underground Facility, as applicable, has sufficient strength and weight to withstand horizontal and vertical soil and water pressures from natural groundwater.
5. Operate dewatering system continuously, 24 hours per day, seven days per week. Provide standby pumping facilities and personnel to maintain the continued effectiveness of the system. Do not discontinue dewatering operations without first obtaining ENGINEER's acceptance for such discontinuation.
6. If, in ENGINEER's opinion, the water levels are not being lowered or maintained as required, provide additional or alternate temporary dewatering devices as necessary, at no additional cost to OWNER.
7. Locate elements of temporary dewatering system to allow continuous dewatering operation without interfering with the Work to the extent practicable.
8. Where portions of dewatering system are located in the area of permanent construction, submit to and obtain ENGINEER's acceptance of details of proposed methods of constructing the Work at such location. Control of ground water shall continue until the permanent construction provides sufficient dead load to withstand hydrostatic uplift of the normal groundwater, until concrete has attained sufficient strength to withstand earth and hydrostatic loads.
9. Perform pumping of water from excavations in a manner that prevents carrying away of unsolidified concrete materials, and that avoids damaging the subgrade.
10. Before discontinuing dewatering operations or permanently allowing rise of groundwater level, prepare computations to demonstrate that structures affected by the water level rise are protected by fill or other means to sustain uplift. Use a safety factor of 1.25 when preparing such calculations.

C. Disposal of Water Removed by Dewatering System:
1. CONTRACTOR's dewatering system shall discharge to suitable location acceptable to OWNER and owners of other properties potentially affected by water discharge, including owners adjacent to and downstream of

dewatering system discharge. Operation dewatering system and disposal of water shall be in accordance with Laws and Regulations.

2. Convey water from excavations in closed conduits. Do not use trench excavations as temporary drainage ditches.
3. Dispose of water removed from excavations in a manner that does not endanger health and safety, property, the Work, and other portions of the Project.
4. Dispose of water in manner that causes no inconvenience to OWNER, others involved in the Project, and adjacent and downstream properties.

3.5 EXCAVATION

A. Perform all excavation required to complete the Work as shown, specified, and required. Excavations shall include removing and handling of earth, sand, clay, gravel, hardpan, soft, weathered or decomposed rock, pavements, rubbish, and other materials within the excavation limits.

B. Excavation Protection:
   1. Provide excavation protection system(s) in accordance with Laws and Regulations to prevent injury to persons and property, including Underground Facilities.
   2. Excavation Less Than Five Feet Deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides.
   3. Excavations Greater Than Five Feet Deep: Excavations in stable rock may be made with vertical sides. Under all other conditions, excavations shall be shielded, or shored and braced.
   4. Provide and maintain excavation protection system(s) in accordance with submittals accepted by ENGINEER and required under Paragraph 1.5.B of this Section.

C. Maintain excavations in dry condition in accordance with “Dewatering” Article in Part 3 of this Section.

D. Elevation of bottom of footings shown is approximate. ENGINEER may direct such minor changes in dimensions and elevations as may be required to secure a satisfactory footing. Elevations of piping, conduit, and similar other Underground Facilities shall be as shown or indicated on the Contract Documents.

E. When excavations are made below required grades without written order of ENGINEER, fill such excavations with compacted select fill material, as directed by ENGINEER, at CONTRACTOR’s expense.

F. Extend excavations sufficiently on each side of structures, footings, and similar construction to allow setting of forms, installation of shoring and bracing, and the safe sloping of banks, as necessary.

G. Subgrades – General:
   1. Subgrades shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades that are otherwise solid but become soft or mucky on top due to construction operations shall be reinforced as per Paragraph 2.01 of this Section. Finished elevation of stabilized subgrades shall not be above subgrade elevations shown.
   2. If, in ENGINEER's opinion, subgrade becomes softened or mucky because of construction delays, failure to dewater properly, or other cause within CONTRACTOR's control, subgrade shall be excavated to firm material, trimmed, and backfilled with select fill material at CONTRACTOR's expense.

H. Pipe Trench Preparation:
   1. Not more than 150 feet of trench may be opened in advance of installing pipe in trench.
   2. Trench width shall be minimized to greatest extent practical, and shall comply with the following:
      a. Trench width shall be sufficient to provide space for installing, jointing and inspecting piping. Refer to Drawings for trench requirements. In no case should trench be wider at top of pipe than pipe barrel OD plus two feet, unless otherwise shown or indicated.
      b. Enlargement of trench width at pipe joints may be made when required and approved by ENGINEER.
      c. Trench width shall be sufficient for shoring and bracing, or shielding and dewatering.
      d. Trench width shall be sufficient to allow thorough compaction of fill adjacent to bottom half of pipe.
      e. Do not use excavating equipment that requires the trench to be excavated to excessive width.
   3. Depth of trench shall be as shown or indicated. If required and approved by ENGINEER in writing, depths may be revised.
   4. Where ENGINEER considers existing material beneath bedding material unsuitable, remove and replace such unsuitable material with select fill material.

I. Excavated Materials to be Used as Fill:
   1. Stockpile excavated materials that are acceptable for use as fill.
   2. As excavation proceeds, keep stockpiles of excavated materials suitable for use as fill separate from unsuitable materials and waste materials.
   3. Place, grade, and shape stockpiles for proper drainage.
   4. Locate and retain soil materials away from edge of excavations.
   5. Dispose of excess soil material and waste materials as specified in this Section.
   6. Stockpiled excavated soils for use as select fill or general fill shall be tested and classified by laboratory as on-Site select fill or on-Site general fill. Perform required quality assurance testing for material verification on

stockpiled materials as soon as possible to demonstrate compliance of excavated materials with the Contract Documents.

7. When all excavated material cannot be stored in the right-of-way or other lands provided by OWNER in such manner as to maintain traffic conditions as specified, remove surplus material from the Site and store such material appropriately. After laying pipe or completing the Underground Facility or structure being built in the trench, bring back to trench sufficient quantity of suitable excavated material required for backfilling the trench.
8. In built-up work areas and in streets where traffic conditions require, remove material excavated from initial opening of excavation as soon as the material is excavated; use suitable material subsequently excavated to backfill trenches in which Underground Facilities have been installed or structures built. Do not store excavated material or construction materials on streets or sidewalks.

3.6 UNAUTHORIZED EXCAVATION

A. All excavations outside lines and grades shown or indicated and that are not approved by ENGINEER, together with removing and disposing of the associated material, shall be at CONTRACTOR's expense. Fill unauthorized excavations with properly-compacted select fill material at CONTRACTOR’s expense.

3.7 EROSION AND SEDIMENT CONTROLS

A. Provide temporary erosion and sediment controls in accordance with Section 01 57 05, Temporary Controls, and Laws and Regulations. When applicable, also comply with requirements of the erosion and sediment control plan approved by authorities having jurisdiction.

3.8 SHEETING, SHORING, AND BRACING

A. General:
   1. Design and provide sheeting, shoring, bracing, cofferdams, and similar excavation supports as shown, specified, and required for the Work.
   2. Clearances and types of temporary sheeting, shoring, bracing, and similar excavation supports, insofar as they may affect the finished character of the Work and the design of sheeting to be left in place, will be subject to the ENGINEER’s approval; but CONTRACTOR is responsible for adequacy of all sheeting, shoring, bracing, cofferdams, and similar excavation supports.
   3. Materials:
      a. Previously-used materials shall be in good condition, and shall not be damaged or excessively pitted. All steel or wood sheeting designated to remain in place shall be new. New or used sheeting may be used for temporary sheeting, shoring, and bracing.
      b. All steel work for sheeting, shoring, bracing, cofferdams and other excavation supports, shall be in accordance with ANSI/AISC 360, except that field welding will be allowed.
   4. As excavation progresses, carry down shoring, bracing, cofferdams, and similar excavation supports to required elevation at bottom of excavation.

5. Comply with Laws and Regulations regarding sheeting, shoring, bracing, cofferdams, and similar excavation supports.
6. Maintain sheeting, shoring, bracing, bracing, and other excavation supports in excavations regardless of time period excavations will be open.
7. Unless otherwise shown, specified, or directed, remove materials used for temporary construction when the Work is completed. Perform such removal in manner not injurious to the structures and Underground Facilities, their appearance, and adjacent construction.

B. Removal of Sheeting and Bracing:
   1. Remove sheeting and bracing from excavations, unless otherwise directed by ENGINEER in writing. Perform removal to avoid damaging the Work and adjacent construction. Removal shall be equal on both sides of excavation to ensure no unequal loads on structures and Underground Facilities.
   2. Defer removal of sheeting and bracing, where removal may cause soil to come into contact with concrete, until concrete has cured for not less than seven days.

3.9 TRENCH SHIELDS

A. Excavation of earth material below bottom of trench shield shall not exceed the limits established in Laws and Regulations.

B. When using a shield for installing piping:
   1. Portions of trench shield extending below the mid-diameter of an installed, rigid pipe, such as prestressed concrete pipe and other types of rigid pipe, shall be raised above the pipe's mid-diameter elevation prior to moving the shield along the trench for further construction.
   2. Bottom of shield shall not at any time extend below mid-diameter of installed pipe that is flexible or has flexing capability, such as steel, ductile iron, PVC, CPVC, polyethylene, and other pipe that has flexing capability.

C. When using a shield for installing structures, including structures that are Underground Facilities, bottom of the shield shall not extend below the top of the bedding for the structures.

D. When removing the shield or moving the shield ahead, exercise extreme care to prevent moving piping, structures, and other Underground Facilities, and prevent disturbance of bedding material for piping, structures, and other Underground Facilities. When piping, structures, or other Underground Facilities are disturbed, remove and reinstall the disturbed items in accordance with the Contract Documents.

3.10 FILL AND COMPACTION – GENERAL PROVISIONS

A. Provide and compact all fill required for the finished grades as shown and as specified in this Section.

B. Place fill in excavations as promptly as progress of the Work allows, but not until completing the following:
   1. ENGINEER's authorization after observation of construction below finish grade.
   2. Inspection, testing, approval, and recording of locations of Underground Facilities.
   3. Removal of formwork.
   4. Removal of shoring and bracing, and filling of voids with satisfactory materials.
   5. Removal of trash and debris.

C. Soils that include organic materials or other unacceptable material shall be removed and replaced with approved fill material in accordance with the Contract Documents.

D. Placement – General:
   1. Place fill to the grades shown or indicated. Bring up evenly on all sides fill around structures and Underground Facilities.
   2. Place fill materials at moisture content and density as specified in this Article's requirements on compaction density. Furnish and use equipment capable of adding measured amounts of water to the fill materials to bring fill materials to a condition within required moisture content range. Furnish and use equipment capable of discing, aerating, and mixing the fill materials to ensure reasonable uniformity of moisture content throughout the fill materials, and to reduce moisture content of borrow materials by air drying, when necessary. When subgrade or lift of fill materials requires moisture-conditioning before compaction, fill material shall be sufficiently mixed or worked on the subgrade to ensure uniform moisture content throughout the lift of material to be compacted. Materials at moisture content in excess of specified limit shall be dried by aeration or stockpiled for drying.
   3. Perform compaction with equipment suitable for the type of fill material placed. Select and use equipment capable of providing the minimum density required in the Contract Documents. Use light compaction equipment, with equipment gross weight not exceeding 7,000 pounds within horizontal distance of ten feet from the wall of completed, below-grade structures. Furnish and use equipment capable of compacting in restricted areas next to structures and around piping and other Underground Facilities. Effectiveness of the equipment selected by CONTRACTOR shall be tested at start of compacted fill Work by constructing a small section of fill within the area where fill will be placed. If tests on the test section of fill indicate that required compaction is not obtained, do one or more of the following: increase the amount of coverages, decrease the lift thicknesses, or use different compactor equipment.
   4. Place fill materials in horizontal, loose lifts, not exceeding specified uncompacted thickness. Place fill in a manner ensuring uniform lift thickness after placing. Mechanically compact each lift, by not less than two complete coverages of the compactor. One coverage is defined as the conditions reached when all portions of the fill lift have been subjected to

the direct contact of compactor's compacting surface. Compaction of fill materials by inundation with water is unacceptable.

5. Do not place fill materials when standing water is present on surface of the area where fill will be placed. Do not compact fill when standing water is present on the fill to be compacted. Do not place or compact fill in a frozen condition or on top of frozen material. Fill containing organic materials or other unacceptable material previously described shall be removed and replaced prior to compaction.
6. If required densities are not obtained because of improper control of placement or compaction procedures, or because of inadequate or improperly-functioning compaction equipment, CONTRACTOR shall perform all work required to provide the required densities. Such work shall include, at no additional cost to OWNER, complete removal of unacceptable fill areas and replacement and re-compaction until acceptable fill is provided.
7. Repair, at CONTRACTOR's expense, observed or measured settlement. Make repairs and replacements as required within 30 days after being so advised by ENGINEER.

E. Fill Against Concrete:
   1. Placing fill against concrete below finished grade is not allowed until the concrete has attained its specified strength, as determined by duration of concrete curing and testing of field-cured concrete cylinders. Requirements for strength and curing time are in Section 03 30 05, Concrete.
   2. Elevation of fill placed against concrete walls shall not differ by more than two feet on each side of walls.
   3. Backfill structural foundation units as soon as practicable, in accordance with this Section, after concrete has gained sufficient strength to avoid damage, to avoid ponding of surface water and accumulation of debris.
   4. Where fill is placed against waterproofed surface, exercise care that waterproofing material is not damaged.

F. Fill in Pipe Trenches:
   1. Piping Installed in Fills Above Pre-Construction Grade:
      a. Prior to installing piping, place the fill in accordance with the Contract Documents until the fill reaches a minimum elevation two feet higher than the top of piping to be installed. Excavate the trench; install the piping, and backfill. Subsequently provide the remainder of the fill required for the Work.
   2. Piping trenches may be backfilled prior to testing of piping, unless nature of the test requires observation of pipe during testing.
   3. Pipe Bedding: Pipe bettering material shall be as follows:
      a. Install PVC, CPVC, HDPE, and FRP piping of 10 ft. or less of depth shall be installed on a layer of gravel pipe bedding material. Gravel pipe bedding material shall extend 12 inches above top of the pipe.
   4. Placing and Compacting Pipe Trench Fill: Unless otherwise shown, placement and compaction of pipe trench fill materials shall comply with the following:

a. Pipe bedding material shall be spread and the surface graded to provide a uniform and continuous support beneath piping at all points between bell holes or pipe joints. Slight disturbance of installed pipe bedding material surface during withdrawal of pipe slings or other lifting tackle is acceptable.
b. After each pipe's bedding material has been graded, and the piping has been aligned, joined in accordance with the Contract Documents, and placed in final position on bedding material, provide and compact sufficient pipe trench fill material under and around each side of the pipe and back of the bell or end thereof to hold piping in proper position and maintain alignment during subsequent pipe jointing and embedment operations. Deposit and compact pipe trench fill material uniformly and simultaneously on each side of piping to prevent lateral displacement of piping. Place and compact pipe trench fill material to an elevation 12 inches above top of pipe, unless otherwise shown or specified.
c. Each layer of pipe trench fill material shall be compacted by at least two complete coverages of all portions of surface of each lift using appropriate compaction equipment.
d. Method of compaction and compaction equipment used shall be appropriate for material to be compacted and shall not transmit damaging shocks to the piping.

G. Temporary Pavement:
1. Place 1.5 inches of temporary asphalt concrete pavement immediately after filling excavations in paved roadways and other paved areas that will remain for permanent use.
2. Maintain surface of paved area over the fill in good and safe condition during progress of the Work, and promptly fill depressions over and adjacent to the fill area caused by settlement of fill.
3. Permanent replacement pavement shall be equal to that of the existing roadways, unless otherwise shown or specified.

H. Sub-base Placement:
1. Provide sub-base material where shown to the limits shown or indicated.
2. Place sub-base material in compacted lifts not exceeding depth of six inches each.

I. Drainage Fill Placement:
1. Provide drainage fill material where shown to the limits shown or indicated.
2. Place drainage fill material in compacted layers of uniform thickness not exceeding depth of six inches each. Compact lifts of drainage fill using suitable compaction equipment.

J. Compaction Density Requirements:
1. Minimum density for fill materials shall be 95 percent of maximum density obtained in the laboratory in accordance with ASTM D1557. Compaction of fill materials less than five feet below final grade, behind concrete walls,

and pipe bedding materials when not located below structures or pavement shall be 95 percent of maximum density.

2. Place fill in trenches below piping, foundations, or paved areas in horizontal uncompacted layers not greater than eight inches deep, and thoroughly compact each layer before next layer is placed. In other pipe trenches, horizontal uncompacted layers shall be not greater than six inches deep.
3. Fill shall be wetted and thoroughly mixed to achieve optimum moisture content plus-or-minus three percent, with the following exceptions:
   a. On-site clayey soils: Optimum to plus three percent.
4. Replace natural, undisturbed soils or compacted soil subsequently disturbed or removed by construction operations with materials compacted as indicated.
5. Field quality control testing for density; to verify that specified density was obtained, will be performed during each day of compaction Work. Responsibility for field quality control testing is specified in the "Field Quality Control" Article in Part 3 of this Section.
6. When field quality control testing indicates unsatisfactory compaction, provide additional compaction necessary to obtain the specified compaction. Perform additional compaction Work at no additional cost to OWNER until specified compaction is obtained. Such work includes complete removal of unacceptable (as determined by ENGINEER) fill areas and replacement and re-compaction until acceptable fill is provided in accordance with the Contract Documents.

K. Replacement of Unacceptable Excavated Materials: In cases where over-excavation to replace unacceptable soil materials is required, backfill the excavation to required subgrade with select fill material and thoroughly compact in accordance with "Compaction Density Requirements" of this Article and the associated "Compaction Density Requirements" in this Article.

3.11 GRADING

A. General:
   1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
   2. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
   3. Blend grading over trench to elevations shown or indicated; where elevations are not shown or indicated, blend finished grade with existing grade on each side of trench.

B. Finish surfaces free of irregular surface changes, and shall comply with the following:
   1. Grassed Areas or Areas Covered with Gravel, Stone, Wood Chips, or Other Special Cover: Finish areas to receive topsoil or special cover to within not more than one inch above or below the required subgrade elevations.

2. Sidewalks: Shape surface of areas under sidewalks to line, grade, and cross section, with finish surface not more than one inch above or below the required subgrade elevation.
3. Pavements: Shape surface of areas under pavement to line, grade, and cross section, with finish surface not more than 1/4-inch above or below the required subgrade elevation.

C. Compaction:
1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

3.12 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

A. Controlled Low Strength Materials Placement:
1. Discharge CLSM from the mixer by reasonable means into the space to be filled.
2. Bring the fill material uniformly up to the fill line shown or indicated in the Contract Documents; if not shown or indicated, bring the fill material uniformly to the desired level.
3. Placement of fill over the CLSM may proceed after a curing period of not less than three days.

3.13 PAVEMENT SUB-BASE COURSE

A. General:
1. Place sub-base material, in layers of specified thickness, over ground surface to support pavement base course.
2. After completing filling and grading, shape and compact pavement subgrade to an even, firm foundation in accordance with this Section.
3. Fill trenches over which pavement will be placed with select fill.
4. Fill trenches adjacent to paved areas with select fill to an elevation equal to the elevation where a line projecting from outer edge of paved surface (including shoulders) at an angle of 45 degrees from horizontal intersects the centerline of trench. Above this elevation, fill trench with suitable general fill material.

B. Grade Control:
1. During construction, maintain lines and grades including crown and cross-slope of sub-base course.

C. Placing of Pavement Sub-base Course:
1. Place sub-base course material on prepared subgrade in layers of uniform thickness, in accordance with indicated cross-section and thickness. Maintain optimum moisture content for compacting sub-base material during placing operations.
2. After completing compaction, other than that necessary for bringing material for the next course, do not haul or drive over the compacted sub-base.

3.14 DISPOSAL OF EXCAVATED MATERIALS

A. General:
   1. CONTRACTOR shall haul away material removed from excavations that does not comply with requirements for fill, or is in excess of the quantity required for fill.
   2. Disposal of materials shall be in compliance with Laws and Regulations, at no additional cost to OWNER.

3.15 TEMPORARY BARRIERS

A. General:
   1. Provide temporary barrier surrounding excavations and excavation work areas for protection of persons and property. Temporary barriers supplement the requirements of Section 01 55 26, Maintenance and Protection of Traffic.
   2. Provide temporary barriers where shown or indicated, and where necessary to protect persons and property. At minimum, provide temporary barriers for all excavations that remain open overnight or longer.

B. Temporary Snow Fence-type Barriers:
   1. Unless shown or indicated otherwise, temporary barrier shall be not less snow fence-type fencing, four feet high.
   2. During non-working hours, completely enclose all sides of excavation with temporary barrier.
   3. Fencing shall be constructed of vertical hardwood slats measuring not less than 1.5 inches by 1/4-inch interwoven with strands of horizontal wire, or shall be of equivalent plastic construction.
   4. Supports: Adequately support barrier to protect persons and property. Supports shall engage a substantial number of fence line wire in the proper position.
   5. Maintenance: Maintain temporary snow fence-type barriers as required. Repair or replace when damaged. Reinstall barriers where barrier installation has degraded over original temporary barrier installation.
   6. Removal: Remove the barriers from the Site when excavation is properly filled, or when directed.

C. Temporary Concrete Barriers:
   1. Where shown or indicated, provide temporary concrete barriers for trenches and excavations.
   2. Installation: Provide clean, precast concrete barriers on a stable base. Properly join and align the barriers at required locations. Provide a bond breaker when placing barrier on bituminous pavement to prevent damaging the pavement when removing the barrier. Provide delineators and warning lights in accordance with the Contract Documents and in accordance with manufacturer's recommendations.

3. Maintenance:
    a. Maintain alignment, delineation, warning lights, and condition of the barriers as necessary.
    b. Immediately replace or repair barriers that are damaged. Such damage includes, but is not limited to, cracks or fractures that may hinder barrier performance.
4. Removal: Remove the barriers from the Site when excavation is filled and appropriately restored, or when directed.

3.16 FIELD QUALITY CONTROL

A. Site Tests: OWNER will employ a testing laboratory to perform field quality control testing.
    1. Testing Laboratory Scope:
        a. Perform field moisture content and density tests to ensure that the specified compaction of fill materials has been obtained.
        b. Tests of actual unconfined compressive strength or bearing tests on each stratum.
        c. Report results of each test to ENGINEER and CONTRACTOR.
    2. Required Material Tests:
        a. Compaction: Comply with ASTM D1556 and ASTM D6938, as applicable.
    3. Authority and Duties of Testing Laboratory:
        a. Technicians representing the testing laboratory shall inspect the materials in the field, perform testing, and report findings to ENGINEER and CONTRACTOR. When materials furnished or the Work performed does not comply with the Contract Documents, technician will direct attention of ENGINEER and CONTRACTOR to such failure.
        b. Technician will not act as foreman or perform other duties for CONTRACTOR. Work will be checked as it progresses, but failure to detect defective Work or non-complying materials shall not in any way prevent later rejection when defect is discovered, nor shall it obligate ENGINEER for Substantial Completion or final acceptance. Technicians are not authorized to revoke, alter, relax, enlarge, or release requirements of the Contract Documents, or to approve or accept any portion of the Work.
    4. Responsibilities and Duties of CONTRACTOR:
        a. Use of testing laboratory shall in no way relieve CONTRACTOR of the responsibility to provide materials and Work in full compliance with the Contract Documents.
        b. To facilitate testing laboratory, CONTRACTOR shall advise testing laboratory at least two days in advance of filling operations to allow for completion of field quality control testing and for assignment of personnel.
        c. It shall be CONTRACTOR’s responsibility to accomplish the specified compaction for fill and other earthwork. CONTRACTOR shall control construction operations by confirmation tests to verify

and confirm that CONTRACTOR has complied, and is complying at all times, with the Contract Documents relative to compaction, control.

d. CONTRACTOR shall demonstrate adequacy of compaction equipment and procedures before exceeding one or more of the following quantities of earthwork. Each test location shall include tests for each layer, type, or class of fill to finish grade.
   1) 200 linear feet of fill in trenches, except sub-base material.
   2) 10 cubic yards of select fill other than that placed in trenches.
   3) 100 cubic yards of general fill other than that placed in trenches.
   4) 50 cubic yards of sub-base material.

5. Testing laboratory will inspect and indicate acceptable subgrades and fill layers before construction work is performed thereon. Testing of subgrades and fill layers shall be taken as follows:
   a. Trenches for Underground Facilities:
      1) In Open Fields: Two locations every 1,000 linear feet.
      2 Along Dirt or Gravel Roads or Off Traveled Right-of-Way: Two locations every 500 linear feet.
      3) Crossing Paved Roads: Two locations along each crossing.
      4) Under Pavement Cuts or Within Two Feet of Pavement Edges: One location every 400 linear feet.
   b. Sub-base Material: One per 1,000 square feet on every compacted lift.
6. Periodic compliance tests will be made by ENGINEER to verify that compaction is complying with the requirements specified, at no cost to CONTRACTOR. CONTRACTOR shall remove the overburden above the level at which ENGINEER wishes to test and shall fill and re-compact the excavation after testing is complete.
7. If testing laboratory reports or inspections indicate subgrade, fills, or bedding compaction below specified density, CONTRACTOR shall remove unacceptable materials as necessary and replace with specified materials and provide additional compaction at CONTRACTOR’s expense until subgrades, bedding, and fill are acceptable. Costs for retesting of subgrade, fills, or bedding materials that did not originally comply with specified density shall be paid by CONTRACTOR.

+ + END OF SECTION + +

DIVISION 33

SECTION 33 01 30

CURED IN PLACE STRUCTURAL LINER

PART 1 - GENERAL

This section covers the lining and rehabilitation of lift station structures and/or manholes within sanitary and storm water collection systems with the use of a cured-in-place laminated composite bonded to the host structure. It shall be comprised of a three-layered, laminated structural system containing a non-porous membrane layered between two structural layers of fiberglass.

Any alternative product being submitted for pre-approval must provide third party test certification that the product will meet or exceed the physical properties named herein in Section 2.1.G, Table 1. Proposed product and Contractor must also meet or exceed the installation standards, experience and performance qualifications as herein described in this specification. If approved, notice from the Owner/Engineer shall be delivered to all plan holders and potential bidders a minimum of fourteen calendar days prior to date of bid opening, in the form of a written addendum. Spray and hand applied coatings shall not be considered for use on this project.

Any product used must provide warranty that infiltration, further deterioration, and root intrusion shall be prevented for the warranty period. Said warranty shall be unconditional and non-prorated for 10-year for liner materials and 1-year for labor.

1.1 DESCRIPTION

A. Liner material and components shall have been custom fabricated to fit the specific configuration of each structure prior to beginning the liner installation.

B. Cured-in-place liner shall completely seal the lift station or manhole, pipe inlet and outlets, and the top deck slab in a monolithic method, as required, or as shown on the plans, and that no holes, cracks, or seams in the liner are left unsealed, which would allow gases or fluids to flow behind the cured-in-place liner.

C. Contractor shall furnish all labor, materials, equipment, and incidentals required to supply and install a chemical resistant cured-in-place liner as required or as shown on the plans.

D. The cured-in-place liner shall be designed and installed to protect concrete, brick, and other lift station or manhole surfaces from corrosion. The cured-in-place liner product shall be designed to stop infiltration, root intrusion, and further deterioration in the structure. The interior surfaces to be protected shall include the walls, floor, pipe junctions and the underside of the top deck slab.

1.2 REFERENCES

The cured-in-place corrosion resistant liner system shall be manufactured and installed to comply with the listed minimum values of the applicable ASTM testing requirements.

ASTM D-638 Tensile Strength
ASTM D-790 Flexural Strength and Flexural Modulus

1.3 SUBMITTALS

A. The Contractor shall submit for review, complete detailed shop drawings and schedule for all materials furnished under this section.

B. The Contractor shall submit for approval all manufacturer warranties for all materials furnished under this section and Manufacturer's certification that the materials supplied comply with this specification.

C. The Contractor shall submit for approval, the Manufacturer's Licensee Certification that the Contractor is trained in the installation process and procedures for the proposed liner system under this section.

D. The Contractor shall provide a reference list of lift station or manhole rehabilitation projects that are of the same typical scope of work as this project. Reference shall include: Name and address of Client, project name, contact person, phone, scope including number of structures lined, and gross dollar amount of the project.

E. Contractor shall submit the Manufacturer's affidavit showing that the product meets or exceeds the physical properties named herein on Table 1, Test Property Values.

1.4 WARRANTY AND REPAIRS

A. Manufacturer shall provide unconditional and non-prorated warranty on the performance of the cured-in-place liner materials for 10 years and Certified Installer shall provide 1-year labor warranty to repair or replace any failing conditions of the liner in the structure. Certification of the conforming warranty shall be provided prior to approval of the submittals and award of contract.

B. The cured-in-place liner system shall be repairable at any time during the life of the structure, with the same type of liner system materials used in the original installation. Repair/lining materials shall be of the type that will bond to the original liner materials.

1.5 CONTRACTOR AND INSTALLER WORK HISTORY

A. The licensed installer shall have installed the specified cured-in-place liner system in lift station structures and/or manholes in the state of the contract installation and

shall provide a detailed list with proof, (including contract name, utility owner and city and state), and verification thereof (see section 1.3 D).

B. Contractor will provide a list of said installations with at least three (3) references in the state of the installation of the specified liner installation.

PART 2 - PRODUCTS

2.1 MATERIALS AND LINER INSTALLATION SYSTEM

A. FOR STRUCTURAL, INFILTRATION & CORROSION CONDITIONS: The cured-in-place liner shall be a three-layered composite system with a total pre-saturated fabric weight of 68 ounces per square yard.

B. In typical lift station structures and/or manholes, the liner shall be no less than a three-layered composite system. Layer #1 is 24-oz. structural fiberglass impregnated with a modified epoxy resin and bonded to the existing substructure. Layer #2 is to be a gas and liquid impermeable membrane of special non-porous materials, bonded to layer #1 and layer #3. Layer #3 will consist of 24-oz. structural fiberglass saturated with epoxy and bonded to the non-porous membrane, forming a smooth interior wall to the host structure. The non-porous membrane shall be imbedded between the structural layers of epoxy-fiberglass to guard against nicks, tears and damage to the gas and liquid impermeable membrane.

C. For deeper structures or for extreme deterioration and/or heavy infiltration, additional layers of fiberglass may be added as needed. Any variation of the liner thickness requirements shall be approved by the manufacturer in writing, and mutually agreed upon between the Owner and Contractor, prior to commencement of the work. Variation in liner thickness by the manufacturer or authorized installer will not affect the warranty requirement.

D. The cured-in-place liner shall be constructed such that the non-porous PVC inner membrane is protected from damage by the structural fiberglass and epoxy layer on both sides. This inside surface protective layer is to protect the cured-in-place liner from impact damage e.g., nicks from rudders, root cutters, hydro-vacuum nozzles, inspection cameras, survey equipment, and construction techniques used in pipeline rehabilitation. The non-porous PVC membrane shall not be exposed on the inside of the manhole. The importance of this protective layer cannot be overemphasized to protect the manhole from sulfides and other gases penetrating through nicks and cuts in an unprotected membrane. This cured-in- place liner must be impervious and without pinholes that will allow hidden corrosion on the concrete behind the liner, which can cause the eventual failure of the liner.

E. The cured-in-place lining system shall be applied by a manufacturer certified Licensed Installer and shall be installed in strict accordance with Manufacturer's specifications. Liner Installer shall be trained in handling, application of materials,

and will custom fit the liner to the lift station or manhole to protect the concrete and brick surfaces from sewer gases.

TABLE 1- Test Property Values

The Manufacturer must provide an affidavit certifying that the liners to be installed will meet or exceed the following test values. Furthermore, Manufacturer must provide a warranty certificate that clearly states that the 10-year materials warranty shall be unlimited and non-prorated for the entire period of the warranty.

Materials Section: 68 oz per sq yd cured-in-place fiberglass/membrane/epoxy liner

ASTM-D-790	
Flexural Strength	**23,775 psi**
Flexural Modulus	**1,030,138 psi**
ASTM-D-638	
Tensile Strength	**11,489 psi**
Engineered Life Expectancy	**50-100 Years**
Installation Warranty	**1 Year**
Materials Warranty	**10 Years**

PART 3 - EXECUTION

3.1 STRUCTURE PREPARATION & LINING OF CURED-IN-PLACE LINER

A. The Owner shall have removed all mechanical and electrical equipment from the structure providing the liner installer an empty structure. Owner shall also have removed the top deck slab if possible.

B. Contractor will perform preliminary cleaning of the structure with a high- pressure hydro jet sprayer with an operating pressure of at least 4,000 psi. After pressure cleaning, surface may be cleaned with degreaser or other solvents as needed to remove any film or residue on the surface.

C. The Contractor shall remove any existing steps. The metal portion of all steps will be removed flush with the interior wall surface, and any remaining holes are to be patched flush prior to applying the cured-in-place liner. The final coated surface shall have a smooth uniform appearance.

D. All cracked or disintegrated material shall be removed from the structure surface

area exposing a sound substrate. Patches or filling of voids using fast setting hydraulic cement or epoxy mastic shall be allowed to cure according to the manufacturer's specifications before continuing with the cured-in-place liner rehabilitation process.

E. All inlet pipes shall be trimmed and grouted as needed with hydraulic or Portland Type II cement, forming a filet between the structure wall and pipe. Inlet pipes should be trimmed so they do not extend into the structure more than two inches. Such application of grout shall extend at least six inches from the inlet pipe onto the wall area.

F. Owner shall have removed all mechanical and electrical equipment from the structure, providing the liner installer an empty structure. Additionally, Owner shall have removed the lift station deck slab and laid it bottom side up so that the liner installer can line the deck slab underside. If removing the lift station deck is not possible, lining shall be accomplished through the hatch. Unless otherwise specified by the owner, the liner will include walls, the floor, and the underside of top deck slab and may be accomplished one of two ways:

1. The underside of the top slab may be lined in conjunction with the walls and floor if being lined through the hatch opening.
   -OR-
2. The utility owner may remove the top slab and lay the underside facing up. Lining of the lift station will occur in the main structure and then separately for the removed deck slab underside.

G. Once the liner is fully saturated with resin, it shall be lowered into the structure to the appropriate pre-marked position at structure entrance. In the case of large or non-cylindrical structures, the liner may be installed in sections with multiple cure times. The liner shall form a monolithic structure permanently connecting the walls and floor of the structure and top deck slab. Pump stations and larger structures are typically pressurized at a minimum 300 lbs. per square foot, with major infiltration being stopped prior to installation. This is due to the limited weight of the deck slab restricting the amount of internal pressure that can be applied during the installation process. The liner may also be pressurized and cured-in-place at ambient temperature by filling the structure with water to approximately one foot above the surface area to be lined. Depending upon specific site conditions, the water method is preferred for structures such as square or rectangular manholes, or vaults and large pump stations.

3.2 CURING PROCESS

A. Once positioned inside the structure, the liner shall be pressurized with air or water then cured with steam, ambient or heated air, or ambient or heated water. (Most typical installations are heated by a temperature inversion system of pressurization with steam injection and a high velocity hot air column.) The liner shall be heated until fully cured. The actual curing time will generally be based on the size of the structure. Regardless of curing process, the liner shall be fully

covered under warranty.

B. Upon completion of the liner curing process, the inflation bladder shall be removed, all lines reopened, and the excess liner cut off at the structure opening. Additionally, a sealant or 0-ring is applied to the top perimeter of the lift station and the deck slab is placed back into its original position so that gases will not escape the structure.

3.3 CURED-IN-PLACE LINER INSTALLATION

Manufacturer's authorized licensed installer shall typically install the cured-in-place liner with simultaneously combined air pressure and steam heat injection, except where jobsite conditions restrict use. The liner may also be installed with or without other heat methods including ambient curing under longer periods of time in accordance with the manufacturer's written instructions. Epoxy resin as specified herein does not have a flash cure, but rather is typically a condition of liner thickness, time, and temperature. Hand applied fiberglass and epoxy application shall not be accepted. Installer shall line wall, floors, and the underside of the top deck slab with cured-in-place liner system materials that have been saturated with the epoxy resin and placed in the bottom to extend approximately three inches up the wall section, to overlap with the liner wall section. The cured-in-place liner shall be made longer than the structure to overlap and reinforce the wall/floor transition area, providing overlap and double liner thickness in the critical corner section where the wall/chamfer meets the floor.

3.4 FINAL INSPECTION AND ACCEPTANCE

A. The installation of the approved liner system shall be in strict accordance with the manufacturer's written instructions. Contractor may submit alternate thicknesses as per the manufacturer's recommendations. The work shall include re-grouting all inlet and outlet lines as needed including all preparation, installation, curing and finish operations for the complete rehabilitation process. The liner shall be installed and cured-in-place via a simultaneous pressurization blower system with steam heat injection, or other manufacturer approved process. The entire installation process will typically be completed in lift stations over a two-day period. Day one for prep and day two for installation.

B. The cured-in-place lining of the structure shall result in a monolithic structure, bonded to the contours of the existing host structure. The liner shall be completely bonded to the interior structure surface and be completely watertight, including completely sealing the wall, floors, and the underside of the top deck slab.

C. Qualification testing of the cured-in-place liner materials shall have been completed prior to installation. The initial structural properties shall meet or exceed the properties shown in Table 1.

D. Cleaned Structure--All surfaces of the host structure shall be clean to the concrete substrate, acceptable to the owner/inspector and ready to receive the liner.

E. Resin Quantity--The liner manufacturer shall provide a tag on each cured-in-place liner indicating the amount of catalyzed resin necessary for impregnation purposes to meet structural properties. This will be acceptable with a tolerance variation of plus or minus 5%.

F. The completed installation should be visually inspected to assure that dry spots are not present in the finished liner. This can also be accomplished by closed circuit television if usual inspection cannot be accomplished. No infiltration of groundwater should be observed coming through the cured-in-place liner or coming out at any place where the liner ends.

G. Curing logs shall be filled out and kept on every structure that is lined. Such curing forms shall be provided by the manufacturer and shall be maintained for the duration of the 10-year warranty period.

+ + END OF SECTION + +

SECTION 33 05 05

BURIED PIPING INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to install and test all buried piping, fittings, and specials. The Work includes the following:
      a. All types and sizes of buried piping, except where buried piping installations are specified under other Sections.
      b. Unless otherwise shown or specified, this Section includes all buried piping Work required, beginning at the outside face of structures or structure foundations, including piping beneath structures, and extending away from structures.
      c. Work on or affecting existing buried piping.
      d. Installation of all jointing and gasket materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, cathodic protection, and other Work required for a complete, buried piping installation.
      e. Supports, restraints, and thrust blocks.
      f. Pipe encasements.
      g. Field quality control, including testing.
      h. Cleaning and disinfecting.
      i. Incorporation of valves, meters, and special items shown or specified into piping systems in accordance with the Contract Documents and as required.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before buried piping Work.
   2. Coordinate with appropriate piping Sections of Division 40, Process Integration.

C. Related Sections:
   1. Section 31 23 16.13, Trenching.
   2. Section 03 00 05, Concrete.
   3. Section 09 91 00, Painting.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASME Boiler and Pressure Vessel Code.
   2. ASME B31.3, Process Piping.
   3. American Society for Non-Destructive Testing (ASNT), ASNT-TC-1A, Recommended Practice, Personnel Qualification, and Certification in Non-destructive Testing.
   4. ASTM B32, Specification for Solder Metal.
   5. ASTM C12, Practice for Installing Vitrified Clay Pipe Lines.
   6. ASTM C425, Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
   7. ASTM C828, Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines.
   8. ASTM C924, Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Test Method.
   9. ASTM D2321, Practice for Underground Installation of Thermoplastic Pipe for Sewers and other Gravity-Flow Applications.
   10. ASTM D2774, Practice for Underground Installation of Thermoplastic Pressure Piping.
   11. ASTM D4174, Practice for Cleaning, Flushing and Purification of Petroleum Fluid Hydraulic Systems.
   12. ASTM F1417, Test Method for Installation Acceptance of Plastic Gravity Sewer Lines using Low-Pressure Air.
   13. ASTM F2164, Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure.
   14. ANSI/AWWA C105, Polyethylene Encasement for Ductile-Iron Pipe Systems.
   15. ANSI/AWWA C111, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   16. ANSI/AWWA C206, Field Welding of Steel Water Pipe.
   17. ANSI/AWWA C600, Installation of Ductile-Iron Water Mains and Their Appurtenances.
   18. ANSI/AWWA C603, Installation of Asbestos-Cement Pressure Pipe.
   19. ANSI/AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
   20. ANSI/AWWA C606, Grooved and Shouldered Joints.
   21. ANSI/AWWA C651, Disinfecting Water Mains.
   22. AWWA M9, Concrete Pressure Pipe.
   23. AWWA M11, Steel Water Pipe - A Guide for Design and Installation.
   24. AWWA M23, PVC Pipe - Design and Installation.
   25. AWWA M41, Ductile-Iron Pipe and Fittings.
   26. AWWA M45, Fiberglass Pipe Design.
   27. AWWA M55, PE Pipe - Design and Installation.
   28. ASCE 37, Design and Construction of Sanitary and Storm Sewers.
   29. American Concrete Pipe Association, Concrete Pipe Handbook.
   30. Chlorine Institute, Inc., Piping Systems for Dry Chlorine, Pamphlet No. 6.
   31. NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Comply with requirements and recommendations of authorities having jurisdiction over the Work, including.
      a. El Paso Water (EPW)
      b. Texas Commission on Environmental Quality
   2. Obtain required permits for Work in roads, rights-of-way, railroads, and other areas of the Work.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Details of piping, specials, joints, harnessing and thrust blocks, and connections to piping, structures, equipment, and appurtenances.
   2. Product Data:
      a. Manufacturer's literature and specifications, as applicable, for products specified in this Section.
   3. Testing Procedures:
      a. Submit proposed testing procedures, methods, apparatus, and sequencing. Obtain ENGINEER's approval prior to commencing testing.

B. Informational Submittals: Submit the following:
   1. Certificates:
      a. Certificate signed by manufacturer of each product certifying that product conforms to applicable referenced standards.
   2. Field Quality Control Submittals:
      a. Results of each specified field quality control test.

C. Closeout Submittals: Submit the following:
   1. Record Documentation:
      a. Maintain accurate and up-to-date record documents showing modifications made in the field, in accordance with approved submittals, and other Contract modifications relative to buried piping Work. Submittal shall show actual location of all piping Work and appurtenances at same scale as the Drawings.
      b. Show piping with elevations referenced to Project datum and dimensions from permanent structures. For each horizontal bend in piping, include dimensions to at least three permanent structures, when possible. For straight runs of piping provide offset dimensions as required to document piping location.
      c. Include profile drawings with buried piping record documents when the Contract Documents include piping profile drawings.
      d. Conform to Section 01 78 39, Project Record Documents.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery:
   1. Deliver materials to the Site to ensure uninterrupted progress of the Work.
   2. Upon delivery inspect pipe and appurtenances for cracking, gouging, chipping, denting, and other damage and immediately remove from Site and replace with acceptable material.

B. Storage:
   1. Store materials to allow convenient access for inspection and identification. Store material off ground using pallets, platforms, or other supports. Protect packaged materials from corrosion and deterioration.
   2. Pipe and fittings other than PVC and CPVC may be stored outdoors without cover. Cover PVC and CPVC pipe and fittings stored outdoors.

C. Handling:
   1. Handle pipe, fittings, specials, and accessories carefully in accordance with pipe manufacturer's recommendations. Do not drop or roll material off trucks. Do not drop, roll or skid piping.
   2. Avoid unnecessary handling of pipe.
   3. Keep pipe interiors free from dirt and foreign matter.
   4. Protect interior linings and exterior coatings of pipe and fittings from damage. Replace pipe and fittings with damaged lining regardless of cause of damage.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Piping materials are specified in the Buried Piping Schedule at end of this Section. Piping materials shall conform to Specifications for each type of pipe and piping appurtenances in applicable Sections.

B. General:
   1. Pipe Markings:
      a. Manufacturer shall cast or paint on each length of pipe and each fitting pipe material, diameter, and pressure or thickness class.

2.2 BURIED PIPING IDENTIFICATION

A. Detectable Underground Warning Tape for Non-Metallic Pipelines:
   1. Tape shall be of inert, acid- and alkali-resistant, polyethylene, five mils thick, six inches wide, with aluminum backing, and have 15,000 psi tensile strength and 80 percent elongation capability. Tape shall be suitable for direct burial.
   2. Message shall read, "CAUTION [insert customized name of pipe service, i.e., "POTABLE WATER", "SANITARY SEWER", "CHLORINE GAS", or other appropriate service, as indicated in the Buried Pipe Schedule at the end of this

Section] PIPE BURIED BELOW" with bold letters approximately two inches high. Messages shall be printed at maximum intervals of two feet. Tape shall be custom colored the same as the pipeline colors as specified for the associated pipe service in Section 09 91 00, Painting.

3. Manufacturer: Provide products of one of the following:
   a. Brady Corporation
   b. Seton Identification Products
   c. Marking Services, Inc.
   d. Or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:
   1. Install piping as shown, specified, and as recommended by pipe and fittings manufacturer.
   2. In event of conflict between manufacturer's recommendations and the Contract Documents, request interpretation from ENGINEER before proceeding.
   3. ENGINEER will observe excavations and bedding prior to laying pipe by CONTRACTOR. Notify ENGINEER in advance of excavating, bedding, pipe laying, and backfilling operations.
   4. Minimum cover over buried piping shall be five (5) feet, unless otherwise shown on drawings or approved by ENGINEER.
   5. Earthwork is specified in 31 23 16.13, Trenching.
   6. Excavation in excess of that required or shown, and that is not authorized by ENGINEER shall be filled at CONTRACTOR's expense with granular material furnished, placed, and compacted in accordance with Section 31 23 16.13, Trenching.
   7. Comply with NFPA 24 for "Outside Protection", where applicable to water piping systems used for fire protection.

B. Separation of Sewers and Potable Water Piping:
   1. Horizontal Separation:
      a. Where possible, existing and proposed potable water mains and service lines, and sanitary, combined, and storm sewers shall be separated horizontally by clear distance of at least ten feet.
      b. If local conditions preclude the specified clear horizontal separation, installation will be allowed if potable water main is in separate trench or on undistributed earth shelf on one side of sewer and with bottom of potable water main at least 18 inches above top of sewer.
      c. Exception:
         1) Where it is not possible to provide minimum horizontal separation described above, construct potable water main of cement-lined ductile iron pipe with restrained push-on joint or restrained mechanical joint pipe complying with public water supply design standards of authority

having jurisdiction. Hydrostatically test water main and sewer as specified in this Section prior to backfilling. Hydrostatic test pressure at crossing shall be at least 150 psi.

2. Vertical Separation:
    a. Provide minimum vertical distance of 24 inches between outside of potable water main and outside of sewer when sewer crosses over potable water main.
    b. Center a section of potable water main pipe at least 17.5 feet long over sewer so that sewer joints are equidistant from potable water main joints.
    c. Provide adequate structural support where potable water main crosses under sewer. At minimum, provide compacted select backfill for ten feet on each side of crossing.
    d. Exceptions:
        1) Where it is not possible to provide minimum vertical separation described above, construct potable water main of cement-lined ductile iron pipe with restrained push-on joint or restrained mechanical joint pipe. Hydrostatically test water main and sewer as specified in this Section, prior to backfilling. Hydrostatic test pressure at crossing shall be at least 150 psi.
        2) Encase either potable water main or sewer in watertight carrier pipe extending ten feet on each side of crossing, measured perpendicular to potable water main.

C. Plugs:
    1. Temporarily plug installed pipe at end of each day of work or other interruption of pipe installation to prevent entry of animals, liquids, and persons into pipe, and entrance or insertion of deleterious materials into pipe.
    2. Install standard plugs in bells at dead ends, tees, and crosses. Cap spigot and plain ends.
    3. Fully secure and block plugs, caps, and bulkheads installed for testing to withstand specified test pressure.
    4. Where plugging is required for phasing of the Work or subsequent connection of piping, install watertight, permanent type plugs, caps, or bulkhead acceptable to ENGINEER.

D. Bedding Pipe: Bed pipe as specified and in accordance with details on the Drawings.
    1. Trench excavation and backfill, and bedding materials shall conform to Section 31 23 16.13, Trenching, as applicable.
    2. Where ENGINEER deems existing bedding material unsuitable, remove and replace existing bedding with approved granular material furnished, placed, and compacted in accordance with Section 31 23 16.13, Trenching.
    3. Where pipe is installed in rock excavation, provide minimum of three inches of granular bedding material underneath pipe smaller than four-inch nominal diameter, and minimum of six inches of granular bedding material underneath pipes four-inch nominal diameter and larger.

4. Excavate trenches below bottom of pipe by amount shown and indicated in the Contract Documents. Remove loose and unsuitable material from bottom of trench.
5. Carefully and thoroughly compact pipe bedding with hand held pneumatic compactors.
6. Do not lay pipe until ENGINEER approves bedding condition.
7. Do not bring pipe into position until preceding length of pipe has been bedded and secured in its final position.

E. Laying Pipe:
1. Conform to manufacturer's instructions and requirements of standards and manuals listed below, as applicable:
   a. Thermoplastic Pipe: ASTM D2321, ASTM D2774, ANSI/AWWA C605, AWWA M23, AWWA M45, AWWA, M55.
   b. Sanitary and Storm Sewers: ASCE 37.
2. Install pipe accurately to line and grade shown and indicated in the Contract Documents, unless otherwise approved by ENGINEER. Remove and reinstall pipes that are not installed correctly.
3. Slope piping uniformly between elevations shown.
4. Keep groundwater level in trench at least twenty-four (24) inches below bottom of pipe before laying pipe. Do not lay pipe in water. Maintain dry trench conditions until jointing and backfilling are complete. Keep clean and protect interiors of pipe, fittings, valves, and appurtenances.
5. Start laying pipe at lowest point and proceed towards higher elevations, unless otherwise approved by ENGINEER.
6. Place bell and spigot-type pipe so that bells face the direction of laying, unless otherwise approved by ENGINEER.
7. Place concrete pipe containing elliptical reinforcement with minor axis of reinforcement in vertical position.
8. Excavate around joints in bedding and lay pipe so that pipe barrel bears uniformly on trench bottom.
9. Deflections at joints shall not exceed 75 percent of amount allowed by pipe manufacturer, unless otherwise approved by ENGINEER.
10. For PVC and CPVC piping with solvent welded joints, 2.5-nch diameter and smaller, and copper tubing, snake piping in trench to compensate for thermal expansion and contraction.
11. Carefully examine pipe, fittings, valves, and specials for cracks, damage, and other defects while suspended above trench before installation. Immediately remove defective materials from the Site and replace with acceptable products.
12. Inspect interior of all pipe, fittings, valves, and specials and completely remove all dirt, gravel, sand, debris, and other foreign material from pipe interior and joint recesses before pipe and appurtenances are moved into excavation. Bell and spigot-type mating surfaces shall be thoroughly wire brushed, and wiped clean and dry immediately before pipe is laid.
13. Field cut pipe, where required, with machine specially designed for cutting the type of pipe being installed. Make cuts carefully, without damage to pipe, coating or lining, and with smooth end at right angles to axis of pipe. Cut ends

on push-on joint type pipe shall be tapered and sharp edges filed off smooth. Do not flame-cut pipe.

14. Do not place blocking under pipe, unless specifically approved by ENGINEER for special conditions.
15. Touch up protective coatings in manner satisfactory to ENGINEER prior to backfilling.
16. Notify ENGINEER in advance of backfilling operations.
17. On steep slopes, take measures acceptable to ENGINEER to prevent movement of pipe during installation.
18. Thrust Restraint: Where required, provide thrust restraint conforming to Article 3.3 of this Section.
19. Exercise care to avoid flotation when installing pipe in cast-in-place concrete, and in locations with high groundwater.

F. Jointing Pipe:
   1. Thermoplastic Pipe Joints:
      a. Solvent Cement Welded Joints:
         1) Bevel pipe ends and remove all burrs before making joints. Clean pipe and fittings thoroughly. Do not attempt to make solvent cement joints if temperature is below 40 degrees F. Do not make solvent cement welded joints in wet conditions.
         2) Use solvent cement supplied or recommended by pipe manufacturer.
         3) Apply joint primer and solvent cement and assemble joints in accordance with recommendations and instructions of manufacturer of joint materials and pipe manufacturer.
         4) Take appropriate safety precautions when using joint primers and solvent cements. Allow air to circulate freely through pipelines to allow solvent vapors to escape. Slowly admit water when flushing or filling pipelines to prevent compression of gases within pipes.
      b. Bell and Spigot Joints:
         1) Bevel pipe ends, remove all burrs, and provide a reference mark at correct distance from pipe end before making joints.
         2) Clean spigot end and bell thoroughly before making the joint. Insert O-ring gasket while ensuring that gasket is properly oriented. Lubricate spigot with manufacturer's recommended lubricant. Do not lubricate bell and O-ring. Insert spigot end of pipe carefully into bell until reference mark on spigot is flush with bell.
   2. Mechanical Coupling Joints:
      a. Mechanical couplings include: sleeve-type flexible couplings, split flexible couplings, ANSI/AWWA C606 grooved or shouldered end couplings, plasticized PVC couplings, and other mechanical couplings.
      b. Prior to installing and assembling mechanical couplings, thoroughly clean joint ends with wire brush to remove foreign matter.
      c. For mechanical couplings that incorporate gaskets, after cleaning apply lubricant to rubber gasket or inside of coupling housing and to joint ends. After lubrication, install gasket around joint end of previously installed piece and mate joint end of subsequent piece to installed piece. Position

gasket and place coupling housing around gasket and over grooved or shouldered joint ends. Insert bolts and install nuts tightly by hand. Tighten bolts uniformly to produce an equal pressure on all parts of housing. When housing clamps meet metal to metal, joint is complete and further tightening is not required.

d. For plasticized PVC couplings, loosen the stainless steel clamping bands and remove clamps from coupling. Slide coupling over plain ends of pipes to be joined without using lubricants. Place clamps over each end of coupling at grooved section and tighten with torque wrench to torque recommended by manufacturer.

3. HDPE Pipe Joints:

a. Bell and Spigot Joints:

1) Remove all burrs and provide reference mark at correct distance from pipe end. Place mark such that no more than 1/2-inch of machined spigot surface will be visible outside of bell after pipe has been joined.
2) Clean spigot end and bell thoroughly with soap and water before positioning gasket.
3) Lubricate spigot groove with manufacturer's recommended lubricant. Thoroughly clean gasket and place in spigot groove starting at bottom, ensuring that gasket fins face backwards toward pipe.
4) Thoroughly lubricate gasket with pipe manufacturer's recommended lubricant and equalize stretch in gasket by running screwdriver under gasket around its entire circumference three times. Reposition gasket in groove after stretching.
5) Thoroughly clean and lubricate receiving bell. Align pipe as straight as possible and insert spigot end of pipe carefully into bell until reference mark on spigot is flush with bell.
6) If mechanical means are used to insert spigot end, protect with wood the end of pipe being pushed, to ensure even distribution of pressure.

b. Butt Fusion Welded Joints:

1) Install joints in accordance with manufacturer's instructions using hydraulic butt fusion machine or manual machine equipped with torque wrench. Equipment shall be able to achieve and maintain heating tool temperature range of 400 to 450 degrees F and an interface pressure of 60 to 90 psi.
2) Clean interior and exterior of pipe and fitting ends with clean, dry, lint-free cloth.
3) Align ends to be joined in the fusion machine without forcing ends into alignment. Adjust alignment as necessary and tighten clamps to prevent slippage.
4) Place facing tool between ends to be joined and face them to provide clean, smooth, parallel mating surface. If stops are present, face ends down to the stops. Remove all shavings after facing without touching ends.
5) Re-check alignment of ends and check for slippage against fusion pressure. There shall be no detectable gaps between ends. Align outside diameters.

6) Heating tool shall maintain pipe manufacture's recommended temperature range. Place the tool between ends to be joined. Move ends against heating tool to achieve full contact. Hold ends against heating tool without force until the following melt bead size is formed:

Pipe Diameter (inches)	Required Melt Bead Size (inches)
2 to 4	1/8 to 3/16
4 to 12	3/16 to 1/4
12 to 24	1/4 to 7/16
24 to 54	7/16 to 9/16

7) Upon forming proper melt bead size, quickly separate ends and remove heating tool. Quickly inspect melted ends and bring ends together applying joining force recommended by manufacturer, using 60 to 90 psi interfacial pressure to form double bead rolled over surface of pipe on both ends.
8) Hold joining force against ends until joint is cool to the touch. Cooling period shall be 30 to 90 seconds per inch of pipe diameter. Heavier wall thicknesses may require longer cooling times as recommended by pipe manufacturer.
9) Upon completing joint, inspect to verify double bead has been formed on both sides, uniformly rounded and consistent in size all around joint. Remove faulty joints and re-joint.

4. HDPE Double Containment Pipe (Containment and Carrier Pipe):
   a. Install joints of double containment piping system in accordance with pipe manufacturer's instructions. Joints shall be butt fusion welded.

G. Backfilling:
   1. Conform to applicable requirements of Section 31 23 16.13, Trenching.
   2. Place backfill as Work progresses. Backfill by hand and use power tampers until pipe is covered by at least one foot of backfill.

H. Closures:
   1. Provide closure pieces shown or required to complete the Work.

3.2 TRACER TAPE INSTALLATION

A. Detectable Underground Warning Tape for Non-Metallic Pipelines:
   1. Provide polyethylene tracer tape with aluminum backing for buried, non-metallic piping, which includes pipe that is PVC, CPVC, polyethylene, HDPE, FRP, ABS, and vitrified clay.
   2. Provide magnetic tracer tape 18 inches below finished grade, above and parallel to buried pipe.
   3. For pipelines buried eight feet or greater below finished grade, provide second line of magnetic tracer tape 2.5 feet above crown of buried pipe, aligned along the pipe centerline.

4. Tape shall be spread flat with message side up before backfilling.

3.3 WORK AFFECTING EXISTING PIPING

A. Location of Existing Underground Facilities:
   1. Locations of existing Underground Facilities shown on the Drawings should be considered approximate.
   2. Determine the true location of existing Underground Facilities to which connections are to be made, crossed, and that could be disturbed, and determine location of Underground Facilities that could be disturbed during excavation and backfilling operations, or that may be affected by the Work.

B. Taking Existing Pipelines and Underground Facilities Out of Service:
   1. Conform to Section 01 14 16, Coordination with Owner's Operations.
   2. Do not take pipelines or Underground Facilities out of service unless specifically listed in Section 01 14 16, Coordination with Owner's Operations, or approved by ENGINEER.
   3. Notify ENGINEER in writing prior to taking pipeline or Underground Facilities out of service. Shutdown notification shall be provided in advance of the shutdown in accordance with the General Conditions and Section 01 14 16, Coordination with Owner's Operations.

C. Work on Existing Pipelines or Underground Facilities:
   1. Cut or tap piping or Underground Facilities as shown or required with machines specifically designed for cutting or tapping pipelines or Underground Facilities, as applicable.
   2. Install temporary plugs to prevent entry of mud, dirt, water, and debris into pipe.
   3. Provide necessary adapters, sleeves, fittings, pipe, and appurtenances required to complete the Work.
   4. Conform to applicable requirements of Section 01 14 16, Coordination with Owner's Operations, Section 01 73 29, Cutting and Patching, and Section 01 73 24, Connections to Existing Facilities.

3.4 FIELD QUALITY CONTROL

A. General:
   1. Test all piping, except as exempted in the Buried Piping Schedule in this Section.
   2. When authorities having jurisdiction are to witness tests, notify ENGINEER and authorities having jurisdiction in writing at least 48 hours in advance of testing.
   3. Conduct all tests in presence of ENGINEER.
   4. Remove or protect pipeline-mounted devices that could be damaged by testing.
   5. Provide all apparatus and services required for testing, including:

a. Test pumps, compressors, hoses, calibrated gages, meters, test containers, valves, fittings, and temporary pumping systems required to maintain OWNER's operations.
b. Temporary bulkheads, bracing, blocking, and thrust restraints.

6. Provide air if an air test is required, power if pumping is required, and gases if gases are required.
7. Unless otherwise specified, OWNER will provide fluid required for hydrostatic testing. CONTRACTOR shall provide means to convey fluid for hydrostatic testing into piping being tested. CONTRACTOR shall provide fluid for other types of testing required.
8. Repair observed leaks and repair pipe that fails to meet acceptance criteria. Retest after repair.
9. Unless otherwise specified, testing shall include existing piping systems that connect with new piping system. Test existing pipe to nearest valve. Piping not installed by CONTRACTOR and that fails the test shall be repaired upon authorization of OWNER. Unless otherwise included in the Work, repair of existing piping or Underground Facilities will be paid as extra Work.

B. Test Schedule:
1. Refer to the Buried Piping Schedule in this Section for type of test required and required test pressure.
2. Unless otherwise specified, required test pressures are at lowest elevation of pipeline segment being tested.
3. For piping not listed in Buried Piping Schedule in this Section:
a. Hydrostatically test pipe that will convey liquid at a pressure greater than five psig. Provide process air pipe test for pipe that will convey air or gas under pressure or vacuum, except chlorine gas, which requires separate test.
b. Use exfiltration testing, low-pressure air testing, or vacuum testing for other piping.
c. Disinfect for bacteriological testing piping that conveys potable water.
4. Test Pressure:
a. Use test pressures listed in Buried Piping Schedule in this Section.
b. If test pressure is not listed in Buried Piping Schedule, or if test is required for piping not listed in the Buried Piping Schedule, test pressure will be determined by ENGINEER based on maximum anticipated sustained operating pressure and methods described in applicable ANSI/AWWA manual or standard that applies to the piping system.

C. Exfiltration Testing:
1. Plug and bulkhead ends and lateral connections of pipe segment to be tested and admit fluid until the pipe is full. Admit fluid slowly to minimize air entrapment. Groundwater level shall be below the pipe during exfiltration test.
2. Before measuring leakage, allow fluid to wet pipe interior for the following period:
a. Concrete Pipe: 48 hours.
b. Cement Mortar-lined Pipe: 24 hours.

c. Asbestos-cement Pipe: 24 hours.
d. Other Pipe: Wetting period not required.

3. Maintain hydrostatic head during test to equal an elevation two feet above present and future maximum groundwater elevation at pipe segment tested. ENGINEER will determine test water surface elevation for each pipe segment.
4. Provide minimum hydrostatic head during test of two feet above crown of upstream end of pipe segment tested.
5. Add fluid from test container or from metered supply as required to maintain test water level within three inches of test head throughout the test.
6. Test duration shall be at least two hours.
7. Allowable Leakage Rates:
   a. Leakage is defined as the quantity of fluid that must be supplied to pipe segment tested to maintain hydrostatic head within three inches of test head during the test after pipe has been filled and exposed to required wetting period, plus quantity required to refill to original head at end of test.
   b. Leakage shall not exceed that allowed by authority having jurisdiction.

D. Sewer Testing with Low Pressure Air:
1. Plug and bulkhead ends and lateral connections of pipe segment to be tested.
2. Required test pressure shall be increased by an amount equal to the elevation of groundwater above invert of lowest point of pipe segment being tested.
3. Test in accordance with requirements of authority having jurisdiction.
4. If there are no Laws and Regulations covering the test, use test procedures described in the following standards:
   a. Thermoplastic and HDPE Pipe: ASTM F1417.
   b. Concrete Pipe: ASTM C924.
   c. Clay Pipe: ASTM C828.

E. Vacuum Testing:
1. Plug and bulkhead ends and lateral connections of pipe segment or manhole to be tested.
2. Following set-up of test apparatus, draw vacuum of ten inches of mercury on pipe segment or manhole being tested.
3. Start test upon reaching specified test vacuum. Test duration shall be 15 minutes.
4. Record vacuum drop at end of test. If vacuum drop is greater than one inch of mercury, pipe segment or manhole fails the test and shall be repaired and retested. If vacuum drop is less than one inch of mercury, pipe segment or manhole passes the test.

F. Vertical Deflection Test for Thermoplastic, FRP, and HDPE Pipe:
1. Conduct vertical deflection test at least thirty days after backfill has been placed.
2. Manually pull pin-type vertical gauge mounted on sled through pipe. Gauge shall be manufactured by Quality Test Products, or equal. Set gauge so that

sled will stop if vertical deflection of pipe exceeds five percent. Excavate and re-install piping that fails deflection test, and retest.

3. Use rigid ball or mandrel for deflection test, which shall have diameter of at least 95 percent of base inside diameter or average inside diameter of piping, depending on which is specified in applicable ASTM standard, including appendix, to which pipe is manufactured. Perform test without mechanical pulling devices. Re-install and retest pipe segments that exceed deflection of five percent.

G. Televised Inspection:

1. Televise completed sewer and appurtenant structures, including manholes and chambers, and provide to ENGINEER copy of video on digital video disc (DVD). Repair apparent leaks and re-televise the pipe until acceptance by ENGINEER.
2. Inspection shall be performed by Subcontractor certified in Pipeline Assessment Certification Program (PACP) by National Association of Sewer Service Companies (NASSCO). Provide copy of PACP certification prior to starting inspection. Televising shall conform to coding and reporting standards and guidelines specified in PACP. Use same standards for lateral inspections, regardless of whether conducted using cleanout-launched or mainline-launched lateral camera. Identify report annotations, pipe conditions, and pipe defects in accordance with PACP. Severity ratings shall be calculated in accordance with PACP.
3. Camera for main line shall be pan-and-tilt, radial viewing, pipe inspection camera that pans plus-or-minus 275 degrees and rotates 360 degrees. Use camera with an accurate footage counter that displays on television monitor exact distance of camera from centerline of starting manhole. Use camera with height adjustment so that lens is always centered at one-half inside diameter or higher, in pipe being televised. Provide lighting system that allows features and condition of pipe to be clearly seen. Camera shall operate in 100 percent humidity. Camera, television monitor, and other components of video system produce a minimum 450-line resolution colored video picture. Picture quality and definition shall be satisfactory to ENGINEER. Camera for lateral televising shall be fixed and capable of moving from main line 80 feet up lateral, and conform in other respects to requirements for main line camera.
4. Repair apparent leaks in pipe Work in manner satisfactory to ENGINEER without additional cost to OWNER and re-televise the pipe.

H. Hydrostatic Testing:

1. Preparation for Testing
    a. For thermoplastic pipe and fiberglass pipe, follow procedures described in Section 7 of ANSI/AWWA Standard C605.
    b. Prior to testing, ensure that adequate thrust protection is in place and joints are properly installed.
2. Test Procedure
    a. Fill pipeline slowly to minimize air entrapment and surge pressures. Fill rate shall not exceed one foot of pipe length per second in pipe being tested.

b. Expel air from pipe as required. Obtain approval of ENGINEER prior to tapping pipe for expelling air.
c. Examine exposed joints and valves, and make repairs to eliminate visible leakage.
d. After specified wetting period, add fluid as required to pressurize line to required test pressure. Maintain test pressure for stabilization period of ten minutes before beginning test.
e. Timed test period shall no begin until after pipe has been filled exposed to required wetting period, air has been expelled, and pressure stabilized.
f. Timed Test Period: After stabilization period, maintain test pressure for at least two hours. During timed testing period, add fluid as required to maintain pressure within five psig of required test pressure. Test pressure shall remain steady for one hour, indicating no leakage.
g. Pump from test container to maintain test pressure. Measure volume of fluid pumped from test container and record on test report. Record pressure at test pump at 15 minutes intervals for duration of test.

3. Allowable Leakage Rates: Leakage is defined as the quantity of fluid supplied to pipe segment being tested to maintain pressure within five psi of pressure during timed test period. Allowable leakage rates for piping are:
   a. No leakage: pipe with flanged, welded, fused, threaded, soldered, or brazed joints.
   b. Rates based on formula or table in ANSI/AWWA Manual M41:
   c. Metal and fiberglass pipe joined with rubber gaskets as sealing members, including the following joint types:
      i. Bell and spigot and push-on joints
      ii. Mechanical Joints
      iii. Bolted sleeve type couplings
      iv. Grooved and shouldered couplings.
   d. Rates based on formula or table in ANSI/AWWA C605:
      i. Plastic pipe jointed with O-ring gasket sealing members.

3.5 CLEANING AND DISINFECTION

A. Cleaning, General: Clean Pipe systems as follows:

1. Thoroughly clean all piping, including flushing with water, dry air, or inert gas as required, in a manner approved by ENGINEER, prior to placing in service.
2. Piping shall be fee of debris, dirt, and foreign matter.
3. Swab each pipe section individually before installation with five percent sodium hypochlorite solution.

B. Disinfection:

4. Disinfect all potable and finished water piping.
5. Suggested procedure for accomplishing complete and satisfactory disinfection is specified below. Other procedures may be considered for acceptance by ENGINEER.
   a. Prior to disinfection, clean piping as specified and flush thoroughly.

b. Conform to procedures described in ANSI/AWWA C651. Use continuous feed method of disinfecting, unless alternative method is acceptable to ENGINEER.

6. Water for initial flushing, testing, and disinfection will be furnished by CONTRACTOR. CONTRACTOR shall provide all temporary piping, hose, valves, appurtenances, and services required. Cost of water required for disinfection will be paid by the CONTRACTOR to OWNER at water utilities standard rates.
7. Chlorine shall be provided by CONTRACTOR.
8. Bacteriological tests will be performed by the OWNER. Certified test laboratory report will be provided to CONTRACTOR, if requested.
9. Chlorine concentration in water entering the piping shall be between 50 and 100 ppm, such that minimum residual concentration of 25 mg/L remains after 24-hour retention period. Disinfect piping and all related components. Repeat as necessary to provide complete disinfection.
10. After required retention period, flush chlorinated water to closed drain line, unless otherwise acceptable to ENGINEER. Properly dispose of chlorinated water in accordance with applicable laws and regulations. Do not discharge chlorinated water to storm sewers, ditches, or overland.

+ + END OF SECTION + +

SECTION 33 05 10 – CASING

PART 1 – GENERAL

1.1 **Description:** This Item shall govern for the construction of casing and installation of approved carrier pipes within the casing. The Contractor shall install casings at the locations and to the lines and grades indicated on the drawings, of the sizes indicated, using either jacking, boring, tunneling, approved open-cut methods, or as shown on the drawings. The Contractor shall install carrier pipes of the sizes indicated on the drawings within the casings, and he shall install the required vent piping, casing insulators (casing insulated spacers), end seals, pipe supports and skids, and other incidental features required to complete work described in this section and as shown on the drawings.

1.2 **General Requirements:** The Contractor shall furnish all materials, equipment, tools, labor, superintendence and incidentals, including all necessary field welding, to install casings, carrier pipes, and accessories as indicated on the drawings and as specified herein. The Contractor shall provide adequate lighting, ventilation, signal systems, fire extinguisher, safety and other equipment required, and shall maintain such equipment in good repair.

The Contractor shall be solely responsible for determining soil conditions at the various locations where casings are to be installed, and he shall make such other investigations to obtain that information, as he may deem necessary. The costs of such investigations shall be included in the Contractor's cost for performing the work.

Methods of construction, whether by tunnel boring machine or by hand digging, shall be at the Contractor's option subject to the approval of the governing agencies and approval of the Engineer. The work of excavating, lining, grouting, and construction of the casing or tunnel shall be so executed that ground settlement is minimized.

If any movement or settlement occurs which might cause damage to existing facilities or structures over or adjacent to the work, the Contractor shall immediately stop all work except that required to make the work secure and to prevent further damage. The Contractor shall resume boring or tunneling only after necessary precautions have been taken to prevent further movement, settlement or damage, and shall repair any damage, at his own cost.

Construction shall not interfere with the operation of the street or highway nor weaken or damage any embankment or structure. Barricades and lights shall be furnished and maintained to safeguard traffic and pedestrians until such time as the backfill has been completed.

Where casings are installed by open-cut method, all requirements for trenching and backfilling as described in these specifications shall apply, except as otherwise required by the plans or supplemental specifications.

Access shafts or pits shall be located at the beginning and end of each casing or tunnel segment to be constructed.

Unless superseded by the requirements of other governing authorities under whose facilities or right-of-way the casing is to be installed, the face of any shaft shall be at least 20-feet from existing adjacent roadways or structures. Sizing of shafts or pits shall provide adequate room to meet the Contractor's operational requirements for tunnel construction.

1.3 **Submittals:** Contractor shall submit for review complete working drawings that show details of the proposed method of construction and the sequence of operations to be performed during construction. The plan shall show the method of jacking, boring or tunneling, muck removal and disposal, type and method of installation of the primary casing or tunnel liner, access pit size and construction shoring and bracing, and dewatering methods proposed. Drawings shall be sufficiently detailed to allow the Engineer to judge whether or not proposed materials and procedures will meet the contract requirements.

The Contractor's submittal shall include the design criteria used and a certification that the structural design of the casing or tunnel liner meets these design criteria and that the material meets the required ASTM Standards. The tunnel liner shall be capable of carrying HS-20 vehicle load distributions in accordance with AASHTO as well as the anticipated dead loads and include an appropriate design factor of safety.

The submittal shall also include the layout and design of the access shafts. A certification shall be submitted that the structural design of the shoring and bracing meets the design criteria as submitted by the Contractor.

A Professional Engineer registered in the State of Texas and qualified to perform such work shall seal all structural designs.

1.4 **Standards:** All OSHA regulations and all requirements of the specific private and governmental agencies under whose facilities the casings and pipe are to be installed shall apply to these operations.

The Contractor shall be responsible for protecting the facilities, under which the casings and pipe are installed, for providing protection at the excavations, and for carrying out the trench safety procedures per all OSHA regulations that may be required because of these operations. (Refer to Section 01016 – Trench Excavation Safety System).

Referenced within this section is the "Standard Specification for Construction of Highways, Streets and Bridges," most current Edition of the Texas Department of Transportation, and hence referred to herein as TxDOT-Specification.

PART 2 – PRODUCTS

2.1 **Materials:**

A. Steel Casing Pipe shall be new, unused, and suitable for the purpose intended and shall have minimum yield strength of 36,000 psi. Casing shall meet ASTM A-36, ASTM A-570, or approved equal. Pipe shall be coated and lined with coal tar epoxy (15 mils min.) in accordance with AWWA C-210. Pipe joints shall be welded in accordance with AWWA C-206. After pipe is welded, coating and lining shall be repaired. Unless specified otherwise, the minimum wall thickness of steel casing pipe shall be 1/2-inch. (.5000).

Grout Holes shall be welded half-coupling. Tapped holes shall be provided with a pipe plug screwed in place.

Bolts and Nuts with liner plates shall be not less than 1/2-inch diameter and conform to ASTM A-307 Grade A.

PART 3 – EXECUTION

3.1 **Installation of Casings:** Casings shall be installed using either open-cut, jacking, boring or tunneling methods or as otherwise indicated on the Contract Drawings. Equipment used in this work shall be of such size and capacity as to allow the placement of the casings to proceed in a safe and expeditious manner.

Casing pipe shall be installed from the end that will create a minimum of access and utility relocation problems.

Lateral or vertical variation in the final position of the pipe casing from the line and grade established by the Engineer shall be permitted only to the extent of 1-inch in 10-feet, provided that such variation shall be regular and only in the direction that will not detrimentally affect the function of the carrier pipe. Casing pipe found to be considerably off-grade or alignment shall be removed and reinstalled, or abandoned and another casing placed as required at no additional cost to the Owner.

Any detectable settlement of the roadway overlying the casing or tunnel shall be immediately repaired at the Contractor's expense. Slight settlement of the roadway, should it occur, shall result in cessation of

casing/tunneling operations, posting of appropriate highway safety signs, and placement of an asphaltic hot-mix overlay to return the roadway to original grade. Over-cutting in excess of 1-inch shall be pressure grouted along the entire length of the bore with 7-sack cement per cubic yard of soil mixture, at the Contractor's expense. Where applicable, hot-mix shall meet the requirements of TxDOT-Specifications. The surface to receive hot-mix shall be primed as directed by the Engineer. The Contractor shall submit an emergency road repair procedure plan to the Texas Department of Transportation or applicable governing agency, prior to beginning any casing/tunneling operations.

3.2 Boring Pits: When installing casing by boring, installation of the casing and the excavation and removal of the material within the casing shall proceed simultaneously. The completed casing shall be free of dents, bends, weld protrusions, or other obstructions to allow the smooth sliding of the carrier pipe through the casing.

A. Boring shall be to the limits, lines and grades shown on the Drawings and the Contractor's approved submittal, and shall utilize methods which include due regard for the safety or workmen, adjacent structures, utilities and the public. The location of boring pits shall be approved by the Engineer.

B. The Contractor is advised of the proximity of buildings, structures, roads, drains, canals and utilities to the work as shown on the Drawings. The work of excavating, lining, grouting and construction of the casing shall be so executed that ground settlement is minimized. Precautions shall include the use of construction methods and equipment to minimize the loss of earth materials at the casing face and settlement of earth around the casing. The completed casing will have full bearing against earth and no voids or pockets will be left in any portion of work.

C. The Contractor shall be required to furnish, install and remove shoring, sheeting, thrust blocks or other provisions required in driving the casings and pipe forward.

D. All boring pits shall be fenced or barricaded to prohibit public access to the work site.

E. Prior to any construction of this work item, and prior to any submittals for this work item, the Contractor shall verify the horizontal and vertical locations of all utility lines that may exist within the path of boring or within the shafts. Any conflict found to exist shall be brought to the Engineer's attention immediately, so that a course of further action can be devised.

F. Upon completion of casing and pipe installation, Contractor shall backfill pits per Section 02420 of the specifications.

G. For additional boring requirements within TXDOT Right-of-Way, the Contractor shall refer to the latest Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, when conflicts arise.

3.2 Boring Operations.

A. The holes are to be bored mechanically, using a pilot hole as a guide. A two inch pilot hole shall be bored the entire length of the crossing and shall be checked for line and grade on the opposite end of the bore from the work pit. This pilot hole shall serve as the centerline of the large diameter hole to be bored. The use of water or other fluids in connection with the boring operation will be permitted only to the extent necessary to lubricate cuttings. Water jetting will not be permitted.

B. In unconsolidated soil formations, a gel-forming colloidal drilling fluid consisting of at least 10 percent bentonite may be used to consolidate cuttings of the bit, seal the walls of the hole, and furnish lubrication for subsequent removal of cuttings and installation of the casing.

C. Overcutting in excess of one inch shall be remedied by pressure grouting the entire length of the bore, with 7-sack mix, immediately after bore is completed.

3.4 Installation of Carrier Pipe in Casing Pipe: After the casing or tunnel liner has been installed and accepted by the ENGINEER, the carrier pipe shall be pushed or pulled through the casing by exerting pressure on the barrel of the pipe in such a manner that the pipe joints are always in compression.

Insulated spacers shall be used when specified for providing cathodic protection. Pipeline spacers shall consist of pre-manufactured steel bands with plastic lining and plastic runners. Casing spacers shall fit snug over the carrier pipe and position the carrier pipe approximately in the center of the casing pipe, to provide adequate clearance between the carrier pipe bell and the casing pipe. Casing spacers shall be Model C12G-2 coated for ultimate in strength, toughness and corrosion resistance or Model A12G-2, painted for unusually heavy pipe, for long casings or whenever maximum strength and toughness are required, as directed by the Engineer, for carrier pipes 4-inch – 56 inches in diameter. Casing spacers shall be as manufactured by Pipeline Seal and Insulator, Inc. (PSI) or approved equal.

The carrier pipe shall be installed in the casing in accordance with the recommendations of the pipe manufacturer.

If tunnel liner is used, the bottom 120 degrees of the liner shall be grouted to the top of the tunnel liner ribs to aid in the installation of the carrier pipe.

After installation of the carrier pipe inside the casing pipe or tunnel liner, the ends shall be sealed to prevent water or other material from entering the casing or liner and causing corrosion. The method of sealing the ends shall be one of the following methods as directed or specified:

End shall be sealed by method of Brick and Mortar.

End shall be sealed with Bulkhead and Grout.

End shall be sealed with a synthetic rubber end seal. End Seals shall be PSI, Inc. Standard Pull-On (Model C), or approved equal. The end seals shall be appropriate for the size and type of carrier pipe and casing.

Steel casings installed underneath existing or proposed concrete pavement shall include a precautionary outlet and bonnet box at each end of the casing, as shown on the drawings.

3.5 Grouting: Unless otherwise specified or directed by the ENGINEER, grout material shall be ordinary cement-sand grout.

Fill all excavation outside the casing or tunnel liner with pressure applied grout or other approved fill unless otherwise directed by the ENGINEER. Use care in grouting operations to prevent damage to adjacent utilities or other properties. Pressure used in grouting shall not be great enough to distort or imperil any portion of the work.

All voids outside the limits of the casing or tunnel excavation created by caving or collapse of earth cover over the excavation, or by other cause shall also be completely filled with grout. All grouting to eliminate voids outside the casing or tunnel limits shall be at the Contractor's expense.

When hand tunneling methods are used, place grout behind the tunnel liner at the end of each day or at every 10-feet of tunnel installed, whichever spacing is acceptable to the ENGINEER.

The annular space between the casing and carrier pipe shall be treated by one of the following methods as directed or specified. Where applicable, the annular space shall be filled according to the regulations specified by the governing agency for the area where the casing is to be installed.

A. Annular space shall be left open for cathodically protected systems where both casing and carrier pipes are metallic material.

B. Annular space shall be filled with pneumatically placed sand. This shall be the standard method for pipes in all installations other than groundwater.

C. Annular space shall be filled with grout. Pressure used to grout shall be such that the carrier pipe is not damaged or distorted. Submit method for approval prior to starting work. This method is mandatory for installations in groundwater, optional on all other dry installations.

END OF SECTION

SECTION 33 05 13

MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install all precast and cast-in-place manholes and structures.

B. General:
   1. Manholes and structures shall conform in shape, size, dimensions, material, and other respects to the details shown or as directed by ENGINEER.
   2. Cast-iron frames, grates and covers shall be the standard frame and grate or cover unless otherwise shown and shall be as specified in Section 05 56 00, Metal Castings.
   3. Concrete for cast-in-place manholes and structures shall be Class "A" and shall conform to the requirements specified under Section 03 00 05, Concrete.
   4. All manholes and structures shall be precast construction, unless otherwise shown. All sanitary or process manholes and structures carrying untreated wastewater shall be lined with cured-in-place liner system by Triplex or approved equal.

C. Related Sections:
   1. Section 03 00 05, Concrete.
   2. Section 05 56 00, Metal Castings.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM C 32, Specification for Sewer and Manhole Brick (made from Clay or Shale).
      b. ASTM C 139, Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes.
      c. ASTM C 140, Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
      d. ASTM C 207, Specification for Hydrated Lime for Masonry Purposes.
      e. ASTM C 478, Specification for Precast Reinforced Concrete Manhole Sections.
   2. American Water Works Association, (AWWA).
      a. AWWA C302, Reinforced Concrete Pressure Pipe, Non-cylinder Type, for Water and Other Liquids.

1.3 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Submit drawings showing design and construction details of all precast concrete and cast-in-place manholes and structures, including details of joints between the manhole bases and riser sections and stubs or openings for the connections.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE MANHOLES AND STRUCTURES

A. Precast manholes and structures shall conform to the details shown. Provide cast-in-place concrete bases where shown.

B. Except where otherwise specified precast manhole components shall consist of reinforced concrete pipe sections especially designed for manhole construction and manufactured in accordance with ASTM C 478, except as modified herein.

C. Precast, reinforced concrete manhole bases, riser sections, flat slabs and other components shall be manufactured by wet cast methods only, using forms which will provide smooth surfaces free from irregularities, honeycombing or other imperfections.

D. Joints between manhole components shall be the tongue and groove type employing a single, continuous rubber O-ring gasket and shall conform to AWWA C302. The circumferential and longitudinal steel reinforcement shall extend into the bell and spigot ends of the joint without breaking the continuity of the steel. Joints between the base sections, riser sections and top slabs of manholes 72-inches in diameter and less shall be rubber and concrete joints. Joints for manhole components greater than 72-inches in diameter shall be provided with steel bell and spigot rings.

E. All precast manhole components shall be of approved design and of sufficient strength to withstand the loads imposed upon them. They shall be designed for a minimum earth cover loading of 130 pounds per cubic foot, an H-20 wheel loading, and an allowance of 30 percent in roadways and 15 percent in rights-of-way for impact. Manhole bases shall have two cages of reinforcing steel in their walls, each of the area equal to that required in the riser sections. Wall thickness shall not be less than 5-inches. Concrete top slabs shall not be less than 8-inches thick.

F. Lifting holes, if used in manhole components, shall be tapered, and no more than two shall be cast in each section. Tapered, solid rubber plugs shall be furnished to seal the lifting holes. The lifting holes shall be made to be sealed by plugs driven from the outside face of the section only.

G. The point of intersection (P.I.) of the sewer pipe centerlines shall be marked with 1/4-inch diameter steel pin firmly enclosed in the floor of each manhole base and protruding approximately 1-inch above the finished floor of the base.

H. Mark date of manufacture and name or trademark of manufacturer on inside of barrel.

I. The barrel of the manhole shall be constructed of various lengths of riser pipe manufactured in increments of one foot to provide the correct height with the fewest joints. Openings in the barrel of the manholes for sewers or drop connections will not be permitted closer than one foot from the nearest joint. Special manhole base or riser sections shall be furnished as necessary to meet this requirement.

J. A precast or cast-in-place slab or precast eccentric cone, as shown or approved, shall be provided at the top of the manhole barrel to receive the cast iron frame and cover.

2.2 MISCELLANEOUS METALS

A. Metal frames and covers and similar required items shall be provided as shown and in accordance with Division 05, Metals.

2.3 DROP CONNECTIONS

A. Drop connections for manholes and structures shall be constructed where shown or directed by the ENGINEER and shall conform to the design and details shown. Pipe and fittings shall be PVC as shown or otherwise approved. Concrete for pipe encasement shall be Class "B" as specified under Section 03 00 05, Concrete. Concrete shall be bonded to manhole in the manner shown or otherwise approved by ENGINEER.

PART 3 - EXECUTION

3.3 MANHOLE BASES

A. Cast-in-place bases shall be placed on suitable foundations after the pipes are laid. They shall be cast monolithically to an elevation at least 12-inches above the top of the highest pipe entering the manhole, except where a drop connection is to be installed. Base, walls and bottom shall be at least of the thickness shown and reinforced to withstand the loads to be expected. Connections for sewer pipes shall conform to the details shown.

B. Precast bases shall be set on a crushed stone or crushed gravel or concrete foundation as shown. Precast bases shall be set at the proper grade and carefully leveled and aligned.

3.4 PRECAST MANHOLE SECTIONS

A. Set sections vertical with steps and sections in true alignment. The base of the bell or groove end at joints between components shall be buttered with 1:2 cement-sand mortar to provide a uniform bearing between components. All joints shall be sealed

with cement mortar inside and out and troweled smooth to the contour of the wall surface. Raised or rough joint finishes will not be accepted.

B. Install sections, joints and gaskets in accordance with manufacturers recommendations.

C. Lifting holes shall be sealed tight with a solid rubber plug driven into the hole from the outside of the barrel and the remaining void filled with 1 to 2 cement-sand mortar.

3.5 MANHOLE CHANNELS

A. All invert channels through manholes and structures shall be constructed of Class "A" concrete. Channels shall be properly formed to the sizes, cross sections, grades and shapes shown or as ordered. Benches shall be built up to the heights shown or as directed by the ENGINEER and given a uniform wood float finish. Care shall be taken to slope all benches for proper drainage to the invert channel.

3.6 GRADING RINGS

A. Grading rings shall be used for all precast manholes and structures, where required. Grade rings shall be a maximum of 12-inches in height, constructed on the roof slab or cone section on which the manhole frame and cover shall be placed. The height of the stack or grade rings shall be such as required to bring the manhole frame to the proper grade.

B. Each grade ring shall be laid in a full bed of mortar and shall be thoroughly bonded.

3.7 STUBS FOR FUTURE CONNECTIONS

A. As shown or required for connections, cast iron sleeves, bell end tile, ductile iron or reinforced concrete pipe stubs with approved watertight plugs shall be installed in manholes and structures. Where pipe stubs, sleeves or couplings for future connections are shown or directed by the ENGINEER, CONTRACTOR shall provide all materials and labor in order to complete the Work.

3.8 GRADING AT MANHOLES AND STRUCTURES

A. All manholes and structures in unpaved areas shall be built, as shown or directed by the ENGINEER, to an elevation higher than the original ground. The ground surface shall be graded to drain away from the manhole. Fill shall be placed around manholes to the level of the upper rim of the manhole frame, and the surface evenly graded on a 1 to 5 slope to the existing surrounding ground, unless otherwise shown or directed by the ENGINEER. The slope shall be covered with 4-inches of topsoil, seeded and maintained until a satisfactory growth of grass is obtained.

B. Manholes and structures in paved areas shall be constructed to meet the final surface grade. In paved areas on State Highways, all manholes and structures shall be 1/2-

inch below final wearing surfaces. Manholes and structures shall not project above finished roadway pavements to prevent damage from snowplows.

C. CONTRACTOR shall be solely responsible for the proper height of all manholes and structures necessary to reach the final grade at all locations. CONTRACTOR is cautioned that ENGINEER'S review of Shop Drawings for manhole components will be general in nature and CONTRACTOR shall provide an adequate supply of random length precast manhole riser sections to adjust any manhole to meet field conditions for final grading.

3.9 MANHOLE WATERTIGHTNESS

A. All manholes and structures shall be free of visible leakage. Each manhole shall be tested for leaks and inspected, and all leaks shall be repaired in a manner subject to ENGINEER'S approval. Manhole testing shall conform to the requirements of Section 33 05 05, Buried Piping Installation.

3.10 FLEXIBLE PIPE JOINT AT MANHOLE BASE

A. An approved flexible joint shall be provided between each pipe entering and exiting the manhole. This may be accomplished by the installation in the manhole base of the bell end of a pipe or by other means subject to approval of ENGINEER. Joints shall be similar to the approved pipe joints. The joint into the manhole base shall be completely watertight.

+ + END OF SECTION + +

DIVISION 40

SECTION 40 05 06.03

PIPE COUPLINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
   1. Pipe couplings for ductile iron piping.
   2. Pipe couplings for carbon steel piping.
   3. Pipe couplings for stainless steel piping.

B. Related sections:
   1. Section 01 33 00 - Submittal Procedures.
   2. Section 01 78 36 - Warranties and Bonds.
   3. Section 40 05 31.4 - Polyvinyl chloride (pvc) pipe: awwa c900 and AWWA C905.

1.2 REFERENCES

A. American National Standards Institute (ANSI).

B. American Society of Mechanical Engineers (ASME):
   1. B31.1 - Power Piping.
   2. B31.9 - Building Services Piping.

C. American Water Works Association (AWWA):
   1. C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   2. C207 - Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In.
   3. C606 – Standard for Grooved and Shouldered Joints.

D. ASTM International (ASTM):
   1. A36 - Standard Specification for Carbon Structural Steel.
   2. A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   3. A193 - Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications.
   4. A351 - Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.
   5. A449 - Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/9 ksi Minimum Tensile Strength, General Use.

6. A536 - Standard Specification for Ductile Iron Castings.

7. A576 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
8. D2000 - Standard Classification System for Rubber Products in Automotive Applications.
9. F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

E. NSF International (NSF).
   1. 61 - Drinking Water System Components - Health Effects.
   2. 372 - Drinking Water System Components - Lead Content.

1.3 SUBMITTALS

A. Submit as specified in Section 01 33 00.

B. Product data:
   1. For each product in this Section as applicable:
      a. Design features.
      b. Load capacities.
      c. Material designations by UNS alloy number or ASTM Specification and Grade.
      d. Data needed to verify compliance with the Specifications.
      e. Catalog data.
      f. Clearly mark submittal information to show specific items, materials, and accessories or options being furnished.

C. Calculations.
   1. Provide calculations in accordance with NSF 372 for materials in contact with drinking water.

1.4 WARRANTY

A. Provide warranty as specified in Section 01 78 36.

PART 2 PRODUCTS

2.1 GENERAL

A. Materials in contact with drinking waters: In accordance with NSF 61 and NSF 372.

B. Known acceptable manufacturers are listed by specific products.

C. Provide references as specified in this Section by specific product.

D. Manufacturer's representatives requirements as specified

E. Gaskets for flexible couplings and flanged coupling adapters:
   1. Provide gasket materials for piping applications as follows:
      a. Low-pressure and high-pressure air, steam, hot water: EPDM.
      b. All other piping applications: Neoprene rubber or Buna-N

F. Exterior coatings for underground and submerged applications:
   1. Manufacturers: One of the following or equal:
      a. Tapecoat Company, Inc., T.C. Mastic.
      b. Kop-Coat Company, Inc., Bitumastic Number 50.
   2. Thickness: Minimum 0.040 inch.

2.2 PIPE COUPLINGS FOR DUCTILE IRON PIPING

A. Dismantling joints:
   1. Manufacturers: One of the following or equal:
      a. Romac Industries, Inc., Style DJ400.
      b. Smith-Blair, Inc., Series 975.
   2. Materials:
      a. Flanged spool: AWWA C207 steel pipe:
         1) ASTM A53 for sizes 3 inches to 12 inches.
      b. End ring and body:
         1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A536.
      c. Follower ring: Ductile iron in accordance with ASTM A536.
      d. Bolts and hex nuts:
         1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
         2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.
      e. Tie rods: High tensile steel in accordance with ASTM A193 Grade B7.
   3. Flange design: Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
   4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.

B. Flanged coupling adapters: 12-inch size and smaller:
   1. Manufacturers: One of the following or equal:
      a. Dresser, Inc., Style 227.
      b. Romac Industries, Inc., Style FCA501.
      c. Smith-Blair, Inc., Series 912.
   2. Materials:
      a. Flanged body: Ductile iron in accordance with ASTM A536.
      b. Follower ring: Ductile iron in accordance with ASTM A536.
      c. Bolts and hex nuts:

1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.

3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.

C. Flexible couplings:
1. Manufacturers: One of the following or equal:
   a. Dresser, Inc., Style 253.
   b. Romac Industries, Inc., Style 501.
   c. Smith-Blair, Inc., Series 441.
2. Materials:
   a. Center rings: Ductile iron in accordance with ASTM A536.
   b. Follower rings: Ductile iron in accordance with ASTM A536.
   c. Bolts and hex nuts:
      1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
      2) Buried and underwater: Type 316 stainless steel in accordance with ASTM F593.
3. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
4. Center sleeve dimensions: Provide center sleeves with lengths in accordance with following table:

Nominal Pipe Size	Sleeve Length
3 inch and smaller	Manufacturer's standard
4 inch through 8 inch	7 inches
10 inch through 14 inch	12 inches

D. Restrained flange coupling adapter:
1. Manufacturers: One of the following or equal:
   a. Romac Industries, Inc., Style RFCA.
   b. Star Pipe Products, 3200 StarFlange.
   c. Or equal
2. Materials:
   a. Flange and flanged body: Ductile iron in accordance with ASTM A536.
   b. Follower ring: Lug type restraint system.
      1) Follower ring: Ductile iron in accordance with ASTM A536.
      2) Restraining lugs: Ductile iron in accordance with ASTM A536.
         a) Designed to contact the pipe and apply forces evenly.

3) Restraining bolts:
a) Ductile iron in accordance with ASTM A536.
b) Bolt heads shall be designed to twist off when the proper torque has been applied.

c. Bolts and hex nuts:
1) Aboveground: High strength, low alloy steel in accordance with AWWA C111.
2) Buried and underwater: Type 316 stainless steel bolts in accordance with ASTM F593.

3. Flange design: Class D steel ring flange in accordance with AWWA C207 compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and lining: Manufacturer's standard fusion bonded epoxy, NSF 61 certified.
5. Angular deflection: Restrained flange coupling adapter must allow angular
6. deflection after assembly.

PART 3 EXECUTION

3.1 INSTALLATION

A. In underground and underwater installations, coat the exterior of coupling with a protective coating in accordance with manufacturer's instructions.

B. Joints and flexible connections shall be installed centered with no angular deflection unless otherwise indicated on the Drawings.

C. Flexible couplings and flange coupling adapters: Install with gap between pipe ends in accordance with the following table unless a greater gap is indicated on the Drawings. Maximum gap tolerance shall be within 1/8 inch.
1. Install flexible coupling with pipe gap located in middle of center sleeve.
2. Install flanged coupling adapter with end of plain end pipe in middle of flanged coupling body.

Center Ring Length	Gap Dimension and Tolerance
4 inch through 6 inch	3/8 inch
7 inch	5/8 inch
10 inch and greater	7/8 inch

+ + END OF SECTION + +

SECTION 40 05 31

THERMOPLASTIC PROCESS PIPE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope:
   1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install thermoplastic piping and fittings.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate installation of items to be installed with or before thermoplastic piping Work.

C. Related Sections:
   1. Section 33 05 05, Buried Piping Installation.

1.2 REFERENCES

A. Standards referenced in this Section are:
   1. ASTM D1784, Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
   2. ASTM D1785, Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120.
   3. ASTM D2466, Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
   4. ASTM D2467, Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
   5. ASTM D2564, Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
   6. ASTM D2665, Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
   7. ASTM D683, Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
   8. ASTM D3034, Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
   9. ASTM D3035, Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
   10. ASTM D3212, Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
   11. ASTM D3311, Specification for Drain, Waste and Vent (DWV) Plastic Fittings Patterns.

12. ASTM F438, Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40.
13. ASTM F439, Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
14. ASTM F441/F441M, Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
15. ASTM F442/F442M, Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR).
16. ASTM F477, Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
17. ASTM F656, Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
18. ASTM F679, Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
19. ASTM F1336, Specification for Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings.
20. ASTM F1674, Standard Test Method for Joint Restraint Products for Use with PVC Pipe.
21. NSF 14, Plastic Piping Systems Components and Related Material.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Shall have a minimum of five years experience producing thermoplastic pipe and fittings substantively similar to the materials specified, and shall be able to submit documentation of satisfactory service in at least five completed installations in operation for at least five years each.
   2. Installer:
      a. Engage a single pipe installer who shall be responsible for all thermoplastic pipe Work, and who shall employ only tradesmen with specific skills and experience in the type of Work required.
      b. Installer shall have a minimum of five years experience installing thermoplastic pipe and fittings substantively similar to the materials specified and substantively similar to or larger than the scope of thermoplastic piping Work on the Project, and shall be able to submit documentation of satisfactory experience in at least five completed installations in operation for at least five years each.

B. Component Supply and Compatibility:
   1. Obtain all materials included in this Section, regardless of component Supplier, from a single thermoplastic pipe Supplier. All pipe of each material type shall be furnished by the same manufacturer.
   2. Thermoplastic pipe Supplier shall review and approve to prepare all Shop Drawings and other submittals for all materials furnished under this Section.
   3. Materials shall be suitable for specified service conditions and shall be integrated into overall assembly by thermoplastic pipe Supplier.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
   1. Shop Drawings:
      a. Submit piping layout Shop Drawings in accordance with Section 33 05 05, Buried Piping Installation.
   2. Product Data:
      a. Submit product data on pipe, fittings, gaskets, hardware, and appurtenances sufficient to demonstrate compliance with the Contract Documents.

B. Informational Submittals: Submit the following:
   1. Certificates:
      a. Submit manufacturer's certificate of compliance standards referenced in this Section.
   2. Source Quality Control Submittals:
      a. When requested by ENGINEER, submit results of source quality control tests.
   3. Qualifications Statements:
      a. Submit qualifications of manufacturer when requested by ENGINEER.
      b. Submit qualifications of installer when requested by ENGINEER.

1.5 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 33 05 05, Buried Piping Installation.

PART 2 – PRODUCTS

2.1 SERVICE CONDITIONS

A. General:
   1. Pipe materials shall be suitable for services intended. Refer to piping schedules in Section 33 05 05, Buried Piping Installation.
   2. Pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, and other defects. Unless otherwise shown or indicated, pipe shall be uniform in color, opacity, density, and other physical properties.
   3. Comply with NSF 14.
   4. Buried pipe shall be capable of withstanding external live load, including impact, equal to AASHTO H-20 loading, with cover shown or indicated on the Drawings.

2.2 POLYVINYL CHLORIDE (PVC) PIPING

A. Buried PVC Gravity Sewer Pipe.
   1. Manufacturers: Provide products of one of the following:
      a. Ipex, Inc.
      b. Diamond Plastics Corp.

2. Material:
    a. Pipe shall comply with ASTM D3034 or ASTM F679 (as applicable).
    b. Wall Thickness and Pipe Stiffness: Pipe stiffness shall be determined in accordance with test methods in ASTM D3034 or ASTM F679 (as applicable).
        1) Main Line: SDR 35, with minimum ring stiffness of 46 psi.
        2) 18-inch Lines: SDR 26, with minimum ring stiffness of 115 psi
        2) Service Laterals: SDR 28, with minimum ring stiffness of 90 psi.
3. Fittings:
    a. Injection-molded, gasketed fittings shall comply with ASTM F1336, and ASTM D3034 or ASTM F679 (as applicable).
    b. Fabricated fittings shall comply with ASTM F1336.
    c. Unless otherwise shown or indicated, saddle wyes are unacceptable.
4. Joints:
    a. Provide bell and spigot joints. Bell shall consist of an integral wall section to hold securely in place (and prevent displacement during assembly of joint) elastomeric O-ring gasket.
    b. Jointing lubricant shall be as recommended by pipe manufacturer.
    c. Provide elastomeric gaskets complying with ASTM F477, and ASTM D3139 or ASTM D3212.

2.3 IDENTIFICATION

A. Pipe material identification requirements are in Section 33 05 05, Buried Piping Installation.

2.4 SOURCE QUALITY CONTROL

A. Shop Tests:
    1. Pipe manufacturer shall maintain continuous quality control program.
    2. Where applicable and when requested by ENGINEER, submit results of source quality control tests specified in reference standards.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect pipe materials for defects in material and workmanship. Verify compatibility of pipe and fittings.

3.2 INSTALLATION

A. For buried piping installation, refer to Section 33 05 05, Buried Piping Installation.

+ + END OF SECTION + +

SECTION 40 05 31.14

POLYVINYL CHLORIDE (PVC) PIPE: AWWA C900 AND AWWA C905

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
   1. AWWA C900 and AWWA C905 PVC pipe and fittings.

B. Related sections:
   1. Section 01 33 00 - Submittal Procedures.
   2. Section 40 05 06.03 - Pipe Couplings

1.2 REFERENCES

A. American Water Works Association (AWWA):
   1. C111 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   2. C605 - Standard for Underground Installation of PVC and PVCO Pressure Pipe and Fittings for Water.
   3. C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 Inches to 12 Inches, for Water Transmission Distribution.
   4. M23 – PVC Pipe – Design and Installation Manual.

B. ASTM International (ASTM):
   1. D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
   2. D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
   3. F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
   4. F645 - Standard Guide for Selection, Design and Installation of Thermoplastic Water-Pressure Piping Systems.

C. NSF International (NSF):
   1. 61 - Drinking Water System Components - Health Effects.

1.3 ABBREVIATIONS

A. DR: Dimension ratio.

B. NPS: Nominal pipe size followed by the size designation.

1.4 SUBMITTALS

A. Submit as specified in Section 01 33 00.

B. Product data: As specified

C. Shop drawings: As specified
   1. Describe materials, pipe, fittings, and gaskets.
   2. Manufacturer's product handling and installation instructions.

1.5 QUALITY ASSURANCE

A. Pipe in potable water applications: Provide pipe bearing NSF 61 seal.

B. Mark plastic pipe with date of extrusion, nominal size, class, manufacturer and all markings required in accordance with ASTM and AWWA standards.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect from sunlight, scoring, and distortion.

B. Do not allow surface temperatures to exceed 120 degrees Fahrenheit.

C. Deliver, offload, handle, and store pipe in accordance with manufacturer's or pipe supplier's recommendations and best practices provided by AWWA M23 and AWWA C605, including compliance with minimum recommended bending radius and maximum safe pulling forces for each specific pipe.

PART 2 - PRODUCTS

2.1 PIPE

A. General:
   1. Extruding and molding material: Virgin material containing no scrap, regrind, or rework material except where permitted in the referenced standards.
   2. In accordance with AWWA C900 and AWWA C905.
   3. Made from a PVC compound conforming to cell classification 12454 in accordance with ASTM D1784.
   4. Marked verifying suitability for potable water service in accordance with NSF 61.

B. Pipe:
   1. Bell and spigot:
      a. Pipe with integral bell.
      b. Pressure Class with a minimum DR of *25.*
      c. Manufacturers:

1) Diamond Plastics Corporation.
2) CertainTeed.
3) North American Pipe Corporation.
4) Or equal

2.2 FITTINGS

A. Material:
1. Cast or ductile iron fittings as specified in Section 40 05 06.03, sized for the dimensions of the pipe being used.

B. Equal to or greater pressure rating than the pipe.

2.3 JOINTS

A. Bell and spigot joints:
1. Push-on or mechanical joint type as specified in 40 05 06.03
2. Gasketed joint assembly: Meet or exceed the requirements in accordance with ASTM D3139.
3. Factory installed gaskets: Neoprene in accordance with ASTM F477.
4. Joint restraint at fittings:
a. Concrete thrust blocks:
1) Install thrust blocks at all changes in pipe diameter and at all fittings.
2) Design thrust blocks for both test and peak operating pressures.
b. Mechanical wedge action joint restraints:
1) Manufacturers: One of the following or approved equal:
a) EBAA Iron, Inc.:
(1) For pipes 3 to 36-inch: Series 2000PV.
b) Star Pipe Products, Series 4000.
c) Sigma Corporation:
(1) For pipes 3 to 36-inch: One-Lok Model SLCE.
2) Materials:
a) Gland body: Ductile iron in accordance with ASTM A536.
b) Wedge and wedge actuating components: Ductile iron in accordance with ASTM A536.
(1) Wedges: Heat-treated to a minimum of 370 BHN.
c) Actuating bolts and nuts: Ductile iron in accordance with ASTM A536.
(1) Provide torque-limiting twist off components to ensure proper installation.
3) Coatings:
a) Provide a manufacturer applied coating system.
b) Manufacturers: One of the following or equal:
(1) EBAA Iron Inc., Mega-Bond.
(2) Star Pipe Products, Star-Bond.
(3) Sigma Corporation, Corrsafe^{TM} Electro-Deposition Coating.

4) Consist of multiple gripping wedges incorporated into a follower gland meeting the requirements in accordance with AWWA C111.
5) Allow post assembly angular deflection that is a minimum of 50 percent of the angular deflection allowed by the mechanical joint.
6) Pressure rating equal to or greater than that of the pipe on which it is being used and a minimum safety factor of 2:1 for all sizes.

c. Push-on joint restraint harnesses:
1) Manufacturers: One of the following or approved equal:
a) EBAA Iron, Inc.:
(1) For pipes 4 to 12-inch: Series 1500.
b) Star Pipe Products, Series 4100P.
c) Sigma Corporation, PV-Lok Model PWP.
2) Materials:
a) Restraint and backup rings: Ductile iron in accordance with ASTM A536.
b) Wedge and wedge actuating components: Ductile iron in accordance with ASTM A536.
c) Tie rods: Low alloy steel in accordance with AWWA C111.
3) Coatings:
a) Provide manufacturer applied coating system.
b) Manufacturers: One of the following or equal:
(1) EBAA Iron Inc., Mega-Bond.
(2) Star Pipe Products, Star-Bond.
(3) Sigma Corporation, Corrsafe ^{TM} Electro-deposition coating..
4) Consist of a backup ring behind the PVC bell and a restraint ring consisting of multiple gripping wedges connected with number and type of tie rods as recommended by the manufacturer.
5) Allow post assembly angular deflection that is a minimum of 50 percent of the angular deflection allowed by the push-on joint.
6) Pressure rating equal to or greater than that of the pipe on which it is being used and a minimum safety factor of 2:1 for all sizes.

2.4 SOURCE QUALITY CONTROL

A. Bell and spigot piping:
1. Hydrostatic proof testing in accordance with AWWA C900: Test pipe and integral bell to withstand, without failure, 2 times the pressure class of the pipe for a minimum of 5 seconds.
2. Hydrostatic proof testing in accordance with AWWA C905: Test pipe and integral bell to withstand, without failure, 2 times the pressure class of the pipe for a minimum of 5 seconds.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:
   1. Install piping in accordance with ASTM F645, AWWA C605, the Appendix of AWWA C900 and AWWA C905 and manufacturer's or pipe supplier's published installation instructions.
   2. For open cut installations, install underground warning tape

3.2 FIELD QUALITY CONTROL

A. Leakage test for piping:

   1. Subject to visible leak test and pressure test with maximum leakage allowance, as specified in Section 33 05 05.
   2. Pressure test with maximum leakage allowance.
      a. Perform test after placing sufficient backfill.
      b. In areas requiring immediate backfill, test prior to placement of permanent surfacing.
      c. Test pressure: As specified in the Piping Schedule in Section 33 05 05.
      d. Maximum leakage allowance for bell and spigot pipe is as follows, where the value for leakage is in gallons per 50 joints per hour.

Test Pressure (psi)	**Nominal Pipe Size (inches)**									
	4	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**24**
50	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.96	1.15
75	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17	1.40
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62
125	0.3	0.45	0.6	0.76	0.91	1.06	1.21	1.36	1.51	1.81
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56
275	0.45	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.24	2.69
300	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.34	2.81

+ + END OF SECTION + +