PROJECT MANUAL

FOR

SEWER COLLECTION SYSTEM REHABILITATION
(MONITOR BASINS OPL01, OPL02, OPL04,
PS08, AND PS10)
PHASE 3

MGA PROJECT SC251-3

FOR THE

CITY OF OPELOUSAS
P.O. BOX 1879
OPELOUSAS, LA 70571-1879

PREPARED BY:

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CIVIL ENGINEERING

08/31/2026

AUGUST 2026

LDH Tracking No. 60007112

(MONITOR BASINS OPL01, OPL02, OPL04, PS08, PS10)
PHASE 3
MGA PROJECT SC251-3

CITY OF OPELOUSAS
P.O. BOX 1879
OPELOUSAS, LA 70571-1879

I hereby certify that this Project Manual was prepared by me or under my direct supervision, and that I am a duly registered Engineer under the laws of the State of Louisiana.

WILLIAM H. JARRELL, III, P.E.
LICENSE NO. 22819
AUGUST 31, 2026



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CONTRACT DOCUMENTS

ADVERTISEMENT FOR BIDS

Sealed bids will be received by the City of Opelousas, up to the hour of 2:00 p.m. CDST 105 N. Main Street, Room 103, Opelousas, Louisiana, 70570 on

THURSDAY, DECEMBER 3, 2026

and then publicly opened and read aloud, for Sewer Collection System Rehabilitation consisting of mainline and service lines repair/replacement/lining, manhole repairs/waterproofing, sewer system evaluation services, and other related items of work including all necessary labor, materials, equipment, tools, etc., required as set forth in the Bid Documents of Morgan Goudeau & Associates, Inc. for Sewer Collection System Rehabilitation - Phase 3 for the City of Opelousas. Bid Documents are available and may be seen and examined at the Clerk's Office, Opelousas, Louisiana, or at the office of Morgan Goudeau & Associates, Inc., Consulting Engineers, Opelousas, Louisiana. Bid related materials can also be examined or obtained at https://lamats.easibuy.com/. Copies of Bid Documents may be obtained from the office of Morgan Goudeau & Associates, Inc., 1703 West Landry Street, Opelousas, Louisiana, upon deposit of $200.00 dollars for each set of documents. Deposits on the first set of documents furnished to bona fide PRIME BIDDERS, fully licensed by the Louisiana State Licensing Board of Contractors, will be fully refunded upon the return of the documents in good condition, no later than ten (10) days after receipt of bids. On other sets of documents furnished to said prime bidders, the payment of $200.00 dollars shall constitute the cost of reproduction and handling and WILL NOT BE REFUNDED. Bids may also be submitted electronically through LaMATS e-Auction Services (EASiBUY) https://lamats.easibuy.com/ at no cost to bona fide PRIME BIDDERS. All potential bidders may register at the website address at no charge to access the full specifications and to receive email notification of changes to the solicitation. ATTENTION ALL BIDDERS: The Louisiana Public Bid Law requires the posting and acceptance of sealed bid documents electronically on a dedicated platform for that purpose. A $300.00 Electronic Platform Fee is payable by the awarded contractor to the electronic bid platform provider herein whether having accessed bid documents and information directly from the project engineer or having submitted their bid electronically or by sealed envelope. Classification of Contractor's License – Municipal and Public Works.

Bids shall be enclosed in a sealed envelope addressed to Julius Alsandor, Mayor, Opelousas, Louisiana and plainly marked on the outside, "Bid for Sewer Collection System Rehabilitation (Monitor Basins OPL01, OPL02, OPL04, PS08, PS10) – Phase 3 MGA Project SC251-3". Bids must be accompanied by a certified check or bid bond in the amount equal to 5% of the bid, made payable to the Opelousas, Louisiana, as a guarantee that the bidder will furnish all necessary bonds and enter into a contract if his bid is accepted. Sureties used for obtaining bonds must appear as acceptable on the U.S. Department of Treasury Circular 570 and be licensed to do business in the State of Louisiana.

In particular, bidders should note the required attachments and certifications to be executed and submitted with the bid proposal.

No bidder may withdraw his/her bid within forty-five (45) days after the actual date of the opening thereof, unless withdrawal of bid is in accordance with LA. R.S. 38:2214C.

Attention of Bidders is called particularly to the requirements for conditions of employment to be observed and minimum wage rates to be paid under the Contract (Davis-Bacon Act), Section 503 (Non-Discrimination Against Employees with Disabilities) and Section 504 (Non-Discrimination Against Individuals with Disabilities) of the Rehabilitation Act of 1973, Executive Order 11246, the Family and Medical Leave of 1993, Title VI of the Civil Rights act of 1964, and Executive Order 12549, Debarment and Suspension.
Under Executive Orders 11625, 12138, and 12432, Women's and Minority Business Enterprise, Minority owned firms and small businesses are encouraged to participate.

All contractors and subcontractors be required to agree that all of iron and steel products used in the performance of the contract will be produced in the United States in accordance with Section 608 of the Clean Water Act.

The prime contractor and all subcontractors must have an active Unique Entity Identifier (UEI) number and an active SAM Cage Code number prior to beginning construction and throughout the term of the contract.

The City of Opelousas reserves the right to reject any and all bids for just cause, in accordance with Public Bid Law.

Thus done and signed at Opelousas, Louisiana, this 28th day of October, 2026.

JULIUS ALSANDOR
MAYOR

Attest: LEISA ANDERSON
CITY CLERK

ADVERTISE: NOVEMBER 5, 12, 19, 2026 (3T)

INSTRUCTIONS TO BIDDERS

ARTICLE 1—DEFINED TERMS

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

A. *Bidder* – The individual or entity who submits a Bid directly to Owner.

B. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

C. *Successful Bidder* – The lowest responsible bidder submitting a responsive bid to whom Owner (on the basis of Owner's Evaluation as herein provided) makes an award.

ARTICLE 2—BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Issuing Office. Owner is not

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responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

2.06 *Electronic Documents*

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Pro DC or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within Ten (10) days of Owner's request, Bidder must submit the following information:

A. Attestation Form (Past Criminal Convictions of Bidder)

B. Affidavit Form (Verification of Employees)

C. Affidavit Form (Certification Regarding Unpaid Worker's Compensation Insurance)

D. Non-Collusion Affidavit

E. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.

F. Subcontractor and Supplier qualification information.

G. Other information regarding qualifications requested by Engineer or Owner.

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

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

ARTICLE 4—PRE-BID CONFERENCE

4.01 A pre-bid conference will not be conducted for this Project.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

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

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

b. Those drawings known to Owner 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.

c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the

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presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

1. NONE

Owner will make copies of these other Site-related documents available to any Bidder on request.

B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.

C. The other Site-related documents are not part of the Contract Documents.

D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

E. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

A. Bidder is ~~required~~ **Encouraged** to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.

B. ~~A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.~~ **DELETED**

C. ~~A Site visit is scheduled for **[designate, date, time and location].** Maps to the Site will be made available upon request.~~ **DELETED**

D. ~~Bidders visiting the Site are required to arrange their own transportation to the Site.~~ **DELETED**

E. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: Logan Trahan, Morgan Goudeau & Associates, Inc., 1703 West Landry Street, Opelousas, LA 70570, Phone: 337-948-4222, Email: Logan@morgangoudeau.com. Bidder must conduct the required Site visit during normal working hours.

F. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

G. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns,

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or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

H. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

5.05 *Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Owner's Safety Program*

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

5.06 *Other Work at the Site*

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as Contractor) will make express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

A. **Submittal of questions shall be made to the Engineer in writing either by written correspondence or email. The Engineer and contact information for this project is William H. Jarrell, III, P.E., Morgan Goudeau & Associates, Inc., 1703 West Landry Street, Opelousas, LA 70570, Phone: 337-948-4222, Email: william@morgangoudeau.com**

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7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

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

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 45 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed "Or-Equal" or substitute item. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least seven (7) days prior to the date for receipt of bids. Each such request

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must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.

10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within ten (10) days after Bid opening:

A. **Sewer System Evaluation Services (Smoke Testing, CCTV Inspections, Manhole Inspections)**

B. **Manhole Rehabilitation**

C. **Main and Service Line Rehabilitation by CIPP, Piping Bursting, etc.**

11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, Individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, without an increase in Bid Price.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will NOT constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

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B. ~~If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."~~ - **DELETED**

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.

12.06 A Bid by an individual must show the Bidder's name and official address.

12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.08 All names must be printed in ink below the signatures.

12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.10 Postal addresses for communications regarding the Bid must be shown.

12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located.

12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total

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

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

ARTICLE 14—SUBMITTAL OF BID

14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and a Corporate Resolution or other signature authorization. Failure to include a copy of the Corporate Resolution or appropriate signature authorization may result in the rejection of the bid unless the bidder has complied with LA. R.S. 38:2212.B.5.

14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, Bidder's State Contractor's License Number, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

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

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

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

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

15.03 If within 48 hours after Bids are opened (excluding Saturdays, Sundays and legal holidays) 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, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

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ARTICLE 16—OPENING OF BIDS

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

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, for just cause in accordance with Public Bid Law.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

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

18.05 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

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

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

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those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

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

ARTICLE 19—BONDS AND INSURANCE

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

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

21.01 In accordance with applicable rules adopted and promulgated by the Louisiana Department of Revenue, the Owner intends to designate the contractor and all subcontractors as its agents for the purchase and lease of materials, supplies or equipment for this Project. The contractor and all subcontractors shall accept the agency designation. The designation and acceptance thereof shall be made on the form prescribed by the Louisiana State Department of Revenue which form shall be part of the contract between the Owner, and the Contractor. A copy of this form is included in the Contract Documents in section titled "Documents to be Completed by Successful Bidder Prior to Award of Contract".

21.02 The agency relationship between the Owner and the Contractor and all subcontractors shall relieve the Contractor and subcontractors (1) from paying any state or local sales or state or local use taxes on materials, supplies or equipment which is affixed to and/or made a part of the real estate of the project or work or which is permanently incorporated into the project or work and, (2) from paying any state or local use taxes on any materials, supplies or equipment which is leased and used exclusively for the project or work. Accordingly, in preparing their bids and computing costs, the Contractor and subcontractors shall not consider sales and/or use taxes which otherwise be due.

21.03 The Contractor and subcontractor shall furnish a copy of such certificate to all vendors or suppliers of any of the materials, supplies or equipment described above.

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21.04 The Contractor and subcontractors shall make all purchases and leases on behalf of and as the agent of the Owner.

21.05 Rules and regulations of the Louisiana Department of Revenue shall prevail over any conflicting provisions or specifications of the Contract.

21.06 The Contractor shall enter into a separate Contract with the Owner prior to issuance of the Notice to Proceed as it relates to the agent arrangement for sales tax exemptions. A copy of the contract is included in the Contract Documents in the section titled "Documents to be Completed by Owner".

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Guidance for preparing

Plans and Specifications

for

Clean Water State Revolving Fund Projects

The Clean Water State Revolving Fund (CWSRF) program is a state program that is receiving Federal assistance. CWSRF projects will have to meet the following Federal requirements:

1. Cost and Effectiveness analysis.
2. Presidential Executive Orders 11625, 12138, and 12432, Women's and Minority Business Enterprise.
3. Presidential Executive Order 12549, Debarment and Suspension.
4. Presidential Executive Order 11246, Equal Employment Opportunity.
5. Davis-Bacon and Related Acts.
6. Use of American iron and steel.
7. Civil Rights Obligations:
    a. Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin.
    b. Section 13 of the Federal Water Pollution Control Act Amendments of 1972, which prohibits discrimination on the basis of sex.
    c. Section 504 of the Rehabilitation Act of 1973
    d. The Age Discrimination Act of 1975

The following form shall be signed by the Loan Recipient or Consulting Engineer and submitted with the final set of Plans and Specifications and is required prior to LDEQ approval.

1. RF-602 Cost & Effectiveness Certification (signed by Loan Recipient or Consulting Engineer and submitted with final plans and specifications)

The following forms shall be included in the bid documents.

2. RF-200 Prospective Prime Contractor's (Bidder) Statement About Six Good Faith Efforts
3. EPA 5700-49 Certification Regarding Debarment, Suspension, and Other Responsibility Matters
4. EPA 6100-2 Subcontractor Participation Form
5. EPA 6100-3 Subcontractor Performance Form
6. EPA 6100-4 Subcontractor Utilization Form
7. RF-373 MBE/WBE Certification (signed by Loan Recipient)

The above forms must be completed and signed by the successful bidder except for form RF-373. The RF-373 must be signed by the authorized representative of the loan recipient. It is a good idea to include the remaining forms in the special/supplementary conditions with instructions clarifying that the successful bidder will be required to complete and sign all forms except RF-373.

It is a Federal requirement that all procurement made with Federal funds utilize six Good Faith Efforts to utilize disadvantaged business enterprises (DBE's) in the areas of construction, services, equipment, and supplies. In order to advise prospective bidders of these requirements, the attached EXPLANATION OF GOOD FAITH EFFORTS must be included verbatim in the information/instruction for bidders section of

DOCUMENTS TO BE COMPLETED
BY ALL BIDDERS

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879

(*Owner to provide name and address of owner)*

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA PROJECT SC251-3

(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by **Morgan Goudeau & Associates, Inc. and dated: August 2026.**

(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____.

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____Dollars($_____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 (*Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____Dollars($_____)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____Dollars($_____)

Alternate No. 3 (*Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____Dollars($_____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

****A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a art of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Smoke Test Line Segment	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
1	243.00	Segment		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Dye-Water Flood	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
2	43.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Clean sewer line (10" and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
3	11,376.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Heavy clean sewer line (10" and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
4	4,907.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Closed Circuit TV Inspection (Mainlines 10" and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
5	16,002.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Closed Circuit TV Inspection (Mainlines 12" - 15")	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
6	1,013.00	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Reverse setup of TV equipment	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
7	5.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Root Removal and Chemical Treatment (10" lines and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
8	3,427.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Root Removal and Chemical Treatment (Lines larger than 10")	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
9	393.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Replace manhole cover with new manhole cover (Retrofit - Ref. Detail on Plan Sht 14)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UINIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
10	34.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # __	Replace existing manhole frame and cover with new manhole frame and cover (Composite - Ref Detail on Plan Sht 14)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
11	31.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Realign and seal manhole frame and cover	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
12	2.00	Each		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Rebuild manhole bench/invert	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
13	2.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove manhole steps	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
14	16.00	Per MH		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Locate Manhole and raise to grade (0' - 2')	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
15	34.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Repair manhole/pipe connection (External)(10" and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
16	2.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Install new manhole with composite frame and cover (0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
17	3.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Plug and waterproof coat entire manhole (Resurfacer and Epoxy)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
18	83.00	V.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(*Owner to provide name and address of owner)*

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Seal all Manhole joints in pre-cast concrete manhole (Ref. Sealing manhole walls detail - Plan Sht 13)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
19	11.00	V.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Point repair, 4" - 6" gravity sewer service line	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
20	25.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Point repair, 6" gravity main	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
21	10.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Point repair, 8" gravity main	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
22	453.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Point repair, 10" gravity main	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
23	26.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Point repair, 12" gravity main	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
24	10.00	Each		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
25	187.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
26	134.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (8' - 10' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
27	68.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (10' - 12' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
28	14.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (12' - 14' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
29	13.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair (14' - 16' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
30	20.00	Each		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(*Owner to provide name and address of owner)*

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair by hand (0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
31	14.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill of mainline point repair by hand (6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
32	14.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill for sewer service line point repair (0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
33	24.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill for sewer service line point repair (6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
34	8.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill for sewer service line point repair by hand (0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
35	2.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Excavation and backfill for sewer service line point repair by hand (6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
36	1.00	Each		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Additional excavation and backfill for mainline and service line repair	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
37	8.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Abandon point repair (all sizes)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
38	7.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Repair or restore faulty mainline tap on 8" - 10" mainline (Additional cost to point repair for Wye and 10' of service line)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
39	442.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Repair or restore faulty mainline tap on 12" - 15" mainline (Additional cost to point repair for Wye and 10' of service line)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
40	10.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace section of 4" - 6" service line (> 10' per repair, 0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
41	5,630.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace section of 4" - 6" service line (> 10' per repair, 6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
42	2,800.00	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace section of 4" - 6" service line (> 10' per repair, 8' - 10' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
43	1,845.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace section of 4" - 6" service line (> 10' per repair, 10' - 12' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
44	450.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace 8" gravity main (> 10' per repair, 0' - 6' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
45	575.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace 8" gravity main (> 10' per repair, 6' - 8' depth)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
46	100.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Gravity sewer rehabilitation by cured-in-place lining (8" mainline)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
47	4,136.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Gravity sewer rehabilitation by cured-in-place lining (10" mainline)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
48	10,920.00	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Gravity sewer rehabilitation by cured-in-place lining (12" mainline)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
49	173.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Gravity sewer rehabilitation by cured-in-place lining (15" mainline)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
50	393.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Restoration of service connection for cured-in-place lining (remote)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
51	302.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Pipe bursting (8" gravity main)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
52	4,015.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Pipe bursting (10" gravity main)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
53	265.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Pipe bursting (15" gravity main)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
54	672.00	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Plug and abandon service line	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
55	10.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Replace or install cleanout (including concrete pad) (Ref. cleanout detail)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
56	181.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Repair/cap faulty cleanout	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
57	296.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Setup bypass pump	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
58	15.00	Each		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Operation of bypass pump	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
59	142.00	Hour		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Bedding material (additional to plan detail)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
60	3,850.00	Ton		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Select backfill material (borrow)(as directed by Engineer)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
61	142.00	C.Y.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Flowable fill for backfill in roadways (fillcrete)(as directed by Engineer)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
62	10,925.00	C.Y.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Remove and replace existing fence	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
63	235.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Removal and replacement of drainage pipe (24" and smaller)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
64	105.00	L.F.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Limestone for maintenance	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
65	68.20	Ton		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Removal and replacement of concrete curb and gutter	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
66	497.00	L.F.		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Saw cut asphalt or P.C. Concrete pavement (full depth of pavement)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
67	66,120.00	In-Ft		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Removal and restoration of concrete driveway or sidewalk (5" thickness)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
68	306.00	S.Y.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Removal and restoration of asphalt roadway and base (per detail)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
69	7,775.00	S.Y.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Removal and restoration of P.C. concrete roadway and base (per detail)	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
70	726.00	S.Y.		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Project sign	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
71	1.00	Lump Sum		

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Traffic Control	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
72	1.00	Lump Sum		

Wording for "DESCRIPTION" is to be provided by the Owner.
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LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: City of Opelousas
P.O. Box 1879
Opelousas, LA 70571-1879
(Owner to provide name and address of owner)

BID FOR: Sewer Collection System Rehabilitation - Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
MGA Project SC 251-3
(Owner to provide name of project and other identifying information)

Unit Prices: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be state in figures and only in figures.

DESCRIPTION :		☑Base Bid or ☐ Alt. # ___	Mobilization	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
73	1.00	Lump Sum		

DESCRIPTION :		☐Base Bid or ☐ Alt. # ___	N/A	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
N/A	N/A	N/A	N/A	N/A

DESCRIPTION :		☐Base Bid or ☐ Alt. # ___	N/A	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
N/A	N/A	N/A	N/A	N/A

DESCRIPTION :		☐Base Bid or ☐ Alt. # ___	N/A	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
N/A	N/A	N/A	N/A	N/A

DESCRIPTION :		☐Base Bid or ☐ Alt. # ___	N/A	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
N/A	N/A	N/A	N/A	N/A

DESCRIPTION :		☐Base Bid or ☐ Alt. # ___	N/A	
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
N/A	N/A	N/A	N/A	N/A

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

CORPORATE RESOLUTION

BE IT RESOLVED by the Board of Directors of _____

in a meeting duly assembled that _____

(Name and title) of the Corporation is hereby authorized, empowered and directed for and on behalf of the Corporation to negotiate for and sign any and all bid proposals, contracts and other documents which this Corporation might enter into for the project entitled

"_____

."

* * * * * * * * * *

I, _____,

Secretary of _____,

do hereby certify that the above and foregoing is a true and correct copy of a Resolution unanimously adopted at a meeting of the Board of Directors of said Corporation held on this _____ day of , 20____, at which meeting all members of the Board of Directors were present and voted thereon and that said Resolution has been spread upon the minute books of the Corporation and same is now in full force and effect.

WITNESS MY SIGNATURE this _____ day of _____, 20_____ at _____.

SECRETARY

SEAL

BID BOND (PENAL SUM FORM)

Bidder	**Surety**
Name: **[Full formal name of Bidder]** Address *(principal place of business)*: **[Address of Bidder's principal place of business]**	Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner Name: **CITY OF OPELOUSAS** Address *(principal place of business)*: **P.O. BOX 1879** **OPELOUSAS, LA 70571-1879**	**Bid** Project *(name and location)*: **SEWER COLLECTION SYSTEM REHABILITATION PHASE 3 OPELOUSAS, LOUISIANA** **MGA PROJECT SC 251-3** Bid Due Date: **[Enter date bid is due]**
Bond Penal Sum: **[Amount]** Date of Bond: **[Date]**	

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

Bidder	Surety
_____ *(Full formal name of Bidder)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

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

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CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____ certify that I am the Secretary of the Corporation named as Principal in the within Bond; that _____ who signed the said Bond on behalf of the Principal was then _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said Bond was duly signed, sealed, and attested to on behalf of said corporation by authority of this governing body.

Signature: _____

Title: _____

(CORPORATE SEAL)

CERTIFICATE AS TO SURETY

I, _____, certify that I am _____ of the Surety who signed the Bond. I certify that we are licensed to do business in the State of Louisiana and are currently recognized by the U.S. Department of the Treasury as acceptable sureties:

Signature: _____

Title: _____

Power of Attorney for person signing for surety company must be attached to Bond.

DOCUMENTS TO BE COMPLETED BY LOW BIDDER TO QUALIFY AS RESPONSIVE AND PRIOR TO AWARD OF CONTRACT

NON-COLLUSION AFFIDAVIT

_____, being first duly sworn, deposes and

says that he is _____
(sole owner, a partner, president, secretary, etc.)

of _____
the party making the foregoing Bid; that such Bid is not made in the interest of or on behalf of any undisclosed person, partnership, company association, organization, or corporation; that such Bid is genuine and not collusive or sham; that said Bidder has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any Bidder or anyone else to put in a sham bid, nor that anyone shall refrain from bidding; that said Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Bid Price of said Bidder or of any other Bidder, not to fix any overhead, profit, or cost element of such Bid Price, nor of that of any other Bidder, nor to secure any advantage against the public body awarding the Contract or anyone interested in the Proposed Contract; that all statement contained in such Bid are true; and, further, that said Bidder has not directly or indirectly, submitted his Bid Price or any breakdown thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid and will not pay fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, nor to any member or agent thereof, nor to any other individual except to such person or persons as have a partnership or other financial interest with said Bidder in his general business.

Signed:

By: _____

Title: _____

Subscribed and sworn to before me this

_____day of _____, 20_____.

SEAL OF NOTARY

_____
NOTARY PUBLIC

(NOT REQUIRED TO BE SUBMITTED WITH BID)
SUBMIT BY THE APPARENT LOW BIDDER WITHIN 10 DAYS AFTER BID OPENING

Sewer Collection System Rehabilitation Phase3 — **NAME OF PROJECT**

MGA Project SC 251-3 — **PROJECT NUMBER**

STATE OF LOUISIANA

PARISH OF ST. LANDRY

ATTESTATIONS

LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS

A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

(a) Public bribery (R.S. 14:118)
(b) Corrupt influencing (R.S. 14:120)
(c) Extortion (R.S. 14:66)
(d) Money laundering (R.S. 14:23)

B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statues:

(a) Theft (R.S. 14:67)
(b) Identity Theft (R.S. 14:67.16)
(c) Theft of a business record (R.S. 14:67.20)
(d) False accounting (R.S. 14:70)
(e) Issuing worthless checks (R.S. 14:71)
(f) Bank fraud (R.S. 14:71.1)
(g) Forgery (R.S. 14:72)
(h) Contractors; misapplication of payments (R.S. 14:202)
(i) Malfeasance in office (R.S. 14:134)

LA. R.S. 38:2212.10 Verification of Employees

A. At the time of bidding, Bidder is registered and participates in a status verification system to verify that all new hires in the state of Louisiana are legal citizens of the United States or legal aliens.

B. If awarded the contract, Bidder shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

C. If awarded the contract, Bidder shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

LA. R.S. 23:1726(B) CERTIFICATION REGARDING UNPAID WORKERS COMPENSATION INSURANCE

A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.

B. By signing this bid/proposal, Bidder certifies that no such assessment is in effect against the bidding/proposing entity.

NAME OF BIDDER	**NAME OF AUTHORIZED SIGNATORY OF BIDDER**
DATE	**TITLE OF AUTHORIZED SIGNATORY OF BIDDER**

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER

RF-200
2/26/09

CONTRACTOR'S GUIDE & RECORD
FOR IMPLEMENTATION OF SIX AFFIRMATIVE ACTIONS

It is a Federal requirement that all procurement made with Federal funds utilize six (6) affirmative action steps to utilize small business enterprises (SBE's), minority business enterprises (MBE's), women's business enterprises (WBE's), and small businesses in rural areas (SBRA's) in the areas of construction, services, equipment, and supplies. For each of the following six steps, please state what actions were taken to comply with that step or reasons that no action was taken.

1. **Placing qualified MBEs, SBEs, WBEs, and SBRAs on solicitation lists.**

2. **Assuring that MBEs, SBEs, WBEs, and SBRAs, once identified, are solicited whenever they are potential sources.**

3. **Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by MBEs, SBEs, WBEs, and SBRAs.**

4. **Establishing delivery schedules, where the requirement permits, which encourage participation by MBEs, SBEs, WBEs, and SBRAs.**

5. **Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce to identify qualified MBEs, SBEs, WBEs, and SBRAs.**

6. **Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed here. If no subcontracts are to be awarded, these steps must still be taken in procuring equipment and supplies.**

EPA Project Control Number

United States Environmental Protection Agency
Washington, DC 20460

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

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

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

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

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

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

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative Date

☐ I am unable to certify to the above statements. My explanation is attached.

Instructions

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for $25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification or provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Where To Submit
The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters or Regional office, as required in the application instructions.

A prospective prime contractor must submit a completed certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

How To Obtain Forms:
EPA includes the certification form, instructions, and a copy of its implementing regulation (40 CFR Part 32) in each application kit. Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies/assistance may be requested from:

Compliance Branch
Grants Administration Division (PM-216F)
U.S. Environmental Protection Agency
401 M Street SW
Washington, DC 20460
(Telephone: 202/475-8025)

DOCUMENTS TO BE COMPLETED BY OWNER

NOTICE OF AWARD

Date of Issuance:			
Owner:	CITY OF OPELOUSAS	Owner's Project No.:	CS221198-01
Engineer:	MORGAN GOUDEAU & ASSOCIATES,	Engineer's Project No.:	SC 251-3
Project:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Contract Name:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Bidder:			
Bidder's Address:			

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

Gravity Sewer Collection System Rehabilitation Consisting of Mainline and Manhole Repairs/Replacements, Service Lines Repairs/Replacement

The Contract Price of the awarded Contract is $**[Contract Price]**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

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

☒ Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner THREE (3) counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): NONE

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

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

CITY OF OPELOUSAS
OWNER

BY: _____
TITLE: MAYOR

ACCEPTANCE OF NOTICE
Receipt of the above NOTICE OF AWARD is hereby acknowledged by:

_____

this the _____ day of _____2026.

By: _____

Title: _____

EJCDC® C-510, Notice of Award.
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AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between the **City of Opelousas** ("Owner") and **[name of contracting entity]** ("Contractor").

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **Gravity Sewer Collection System Rehabilitation Consisting of Mainline and Manhole Repairs/Replacement, Service Lines Repairs/Replacement.**

ARTICLE 2—THE PROJECT

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

SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3
MGA PROJECT SC251-3

ARTICLE 3—ENGINEER

3.01 The Owner has retained **Morgan Goudeau & Associates, Inc.** ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by **Morgan Goudeau & Associates, Inc.**

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

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

4.02 *Contract Times: Days*

A. The Work will be substantially complete within 365 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 410 days after the date when the Contract Times commence to run.

4.05 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and

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Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion:* Contractor shall pay Owner $500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.

B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.06 *Special Damages*

A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

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

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

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ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 5th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

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

a. **95%** percent of the value of the Work completed (with the balance being retainage).

b. **95%** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **95%** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **100%** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

A. All amounts not paid when due will bear interest at the rate of 12% percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

A. The Contract Documents consist of all of the following:

1. This Agreement.

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2. Bonds:
    a. Performance bond (together with power of attorney).
    b. Payment bond (together with power of attorney).
3. General Conditions.
4. Supplementary Conditions.
5. Specifications as listed in the table of contents of the project manual
6. Drawings (not attached but incorporated by reference) consisting of 17 sheets with each sheet bearing the following general title: SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3.
7. Addenda (numbers **[number]** to **[number]**, inclusive).
8. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid
    b. Documentation submitted by Contractor prior to Notice of Award
9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.
    e. Warranty Bond, if any.

B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 7.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

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

1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

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4. ~~Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.~~ **DELETED**

5. ~~Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.~~ **DELETED**

6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner,

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(b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

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

This Agreement will be effective on _____,2026 (which is the Effective Date of the Contract).

Owner:	Contractor:
CITY OF OPELOUSAS	
(typed or printed name of organization)	*(typed or printed name of organization)*
By: _____	By: _____
(individual's signature)	*(individual's signature)*
Date: _____	Date: _____
(date signed)	*(date signed)*
Name: JULIUS ALSANDOR	Name: _____
(typed or printed)	*(typed or printed)*
Title: MAYOR	Title: _____
(typed or printed)	*(typed or printed)*
	*(If **[Type of Entity]** is a corporation, a partnership, or a joint venture, attach evidence*
Attest: _____	Attest: _____
(individual's signature)	*(individual's signature)*
Title: _____	Title: _____
(typed or printed)	*(typed or printed)*
Address for giving notices:	Address for giving notices:
CITY OF OPELOUSAS	
P.O. BOX 1879	
OPELOUSAS, LA 70571-1879	
Designated Representative:	Designated Representative:
Name: JULIUS ALSANDOR	Name: _____
(typed or printed)	*(typed or printed)*
Title: MAYOR	Title: _____
(typed or printed)	*(typed or printed)*
Address:	Address:
CITY OF OPELOUSAS	
P.O. BOX 1879	
OPELOUSAS, LA 70571-1879	
Phone: 337-948-2520	Phone: _____
Email: MAYORALSANDOR@CITYOFOPELOUSAS.COM	Email: _____
*(If **[Type of Entity]** is a corporation, attach evidence of authority to sign. If **[Type of Entity]** is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*	License _____ *(where applicable)*
	State: _____

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SALES TAX EXEMPTION CONTRACT

STATE OF LOUISIANA
PARISH OF ST. LANDRY

CONTRACT FOR LA R.S. 47:301(8)(c) SALES AND TAX EXEMPTION

WHEREAS, Construction Pro, Inc., (Contractor), has been awarded a Contract with City of Opelousas, (Owner), a public entity/political subdivision, in accordance with the Louisiana Public Bid Law for the following public project:

Sewer Collection System Rehabilitation – Phase 3
(Monitor Basins OPL01, OPL02, OPL04, PS08, PS10)
City of Opelousas
MGA Project SC251-3

WHEREAS, the Contractor and/or its subcontractors on this project, in their execution of the Project will use and/or purchase tangible property and/or goods which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Contractor and/or its subcontractors on this project, in bidding on the Project, did not include sales and use taxes on tangible property and/or goods which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Owner wishes to avail itself of the sales and use tax exemption afforded to it by LA R.S. 47:301(8)(c);

WHEREAS, the Owner wishes to avoid paying sales and use taxes when it has no legal obligation to do so;

WHEREAS, the Owner's unnecessary payment of sales and use taxes could be a violation of its duty to prudently administer the public funds in its charge;

WHEREAS, the parties may avoid the unnecessary payment of sales and use taxes if the Contractor or its subcontractors on this project act as the Owner's agent and/or instrumentality for the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project;

WHEREAS, the Contractor and its subcontractors on this project and the Owner mutually agree to a contract of agency and/or instrumentality between them for the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project and thereby avoid the unnecessary payment of sales and/or use taxes;

NOW THEREFORE the Owner appoints the Contractor and its subcontractors on this project as its agent and/or instrumentality for purposes of the purchase and/or use of tangible property which will be consumed in completing the Project or which will be incorporated into the Project subject to the following conditions:

All purchases under this Contract shall be made from the public funds paid to the Contractor and/or its subcontractors on this project and shall be charged to the contract price for the Project. The Contractor and/or its subcontractors on this project shall obtain invoices for all purchases made under this Contract. The invoices shall bear the name and number of the Project as listed above. All materials and equipment shall be purchased by the Contractor and/or its subcontractors on this project in the name of the Owner using funds that are accounted for to the Owner and that are traced to public funds.

Title to all property purchased under this Contract shall immediately pass to the Owner at the time of the purchase, but the Contractor and/or its subcontractors on this project shall be the depositary or custodian of the property until the Owner accepts the Project as substantially complete at which time this Contract shall terminate.

In the event that the Contractor and/or its subcontractors on this project are subject to a sales or use tax audit by either the State of Louisiana or a local government subdivision and the taxing authority assess taxes on any materials or equipment incorporated into the Project or use in its work, the Owner shall be responsible for defending the tax-exempt status or the purchases at issue. Moreover, should the taxing authority prevail in imposing its sales or use tax, the Owner shall be ultimately liable for remitting to the taxing authority the taxes, interest and penalties ultimately found due unless the Contractor and/or its subcontractors on this project have failed to comply with this Contract.

This Contract does not limit or otherwise alter Contractor's responsibilities (1) to fully insure materials and equipment to be furnished by Contractor; (2) to insure the work at all times prior to substantial completion; (3) to fully warrant all materials and equipment furnished by Contractor; (4) to alter the method or time frames for payments established under the Project; (5) to change the rights of the Owner to accept or reject the work or any part thereof or alter the manner or time frames in which inspections may be made by the Engineer or Architect on behalf of the Owner; (6) to provide for the safety and protection of materials and equipment whether in storage on or off site and regardless whether titled to the contracting agency as part of the work; (7) to maintain liability and property insurance, specifically including coverage for damages to the materials and equipment prior to final acceptance and claims for damages because of bodily injury, sickness, or death and any of the Contractor's and/or it subcontractors on this project employees or any person other than the Contractor's and/or its subcontractors on this project employees; (8) to properly correct the work as required by the Engineer or Architect or diminish the Owner's and Engineer's or Architect's right to reject any portions of the work.

The Contractor accepts its appointment as indicated by the signature of its authorized agent on the date shown below. The subcontractors of the Contractor on this project shall accept this appointment by their execution of a subcontract with the Contractor to which this Sales Tax Exemption Agreement shall be incorporated by reference and attached as an Exhibit thereto.

CONSTRUCTION PRO, INC.

CONTRACTOR WITNESS DATE

WITNESS DATE

Sworn to and subscribed before me on this ___ day of_____ , 2026

Notary Public

CITY OF OPELOUSAS

OWNER WITNESS DATE

WITNESS DATE

Sworn to and subscribed before me on this ___ day of_____ ,2026

Notary Public

Louisiana Department of Revenue

R-1020 (11/04)

Designation of Construction Contractor as Agent of a Governmental Entity and Exemption Certificate

THE CITY OF OPELOUSAS , an agency of the
Legal name of Governmental Entity

United States government, or an agency, board, commission, or instrumentality of the State of Louisiana or its political subdivisions, including parishes, municipalities and school boards, does hereby designate the following contractor as its agent for the purpose of making sales tax exempt purchases on behalf of the governmental body:

Name of Contractor

Address

City, State, ZIP

This designation of agency shall be effective for purchases of component construction materials, taxable services and leases and rentals of tangible personal property for the following named construction project:

Sewer Collection System Rehabilitation Phase 3; MGA Project SC251-3

This designation and acceptance of agency is effective for the period _____, through_____.

Purchases for the named project during this period by the designated contractor shall be considered as the legal equivalent of purchases directly by the governmental body. Any materials purchased by this agent shall immediately, upon the vendor's delivery to the agent, become the property of this government entity. This government entity, as principal, assumes direct liability to the vendor for the payment of any property, services, leases, or rentals made by this designated agent. This agreement does not void or supersede the obligations of any party created under any construction contract related to this project, including specifically any contractual obligation of the construction contractor to submit payment to the vendors of materials or services for the project.

This contractor-agent is not authorized to delegate this purchasing agency to others; separate designations of agency by this governmental entity are required for each contractor or sub-contractor who is to purchase on behalf of this governmental entity. The undersigned hereby certify that this designation is the entirety of the agency designation agreement between them. In order for a purchase for an eligible governmental entity through a designated agent to be eligible for sales tax exemption, the designation of agency must be made, accepted, and disclosed to the vendor before or at the time of the purchase transaction.

Designation of Agency

Signature of Authorized Designator, Date

JULIUS ALSANDOR, MAYOR
Name of Authorized Designator

CITY OF OPELOUSAS
Name of Governmental Entity

P.O. BOX 1879
Address

OPELOUSAS, LA 70571-1879
City, State, ZIP

Acceptance of Agency

Signature of Contractor Authorized Acceptor, Date

Name of Contractor's Acceptor

Name of Contractor

Address

City, State, ZIP

This designation of agency form, when properly executed by both the contractor and the governmental entity, shall serve as evidence of the sales tax exempt status that has been conferred onto the contractor. No other exemption certificate form is necessary to claim exemption from sales taxes.

RF-373
04/23/13

DBE CERTIFICATION

Loan Recipient City of Opelousas

Project Number SC251-3 DEQ Contract No. CS221198-01

The Loan Recipient has determined that a fair share of subagreements CAN/CANNOT be awarded to disadvantaged, minority and/or women's businesses on this project.

Determination has been made that the Disadvantaged Business Enterprises participating in this project have been certified by the State of Louisiana's Unified Certification Program or by another certifying agency.

The following is the Loan Recipients effort to show compliance with DEQ's policy.

Prime Construction Contractor _____

Construction Contract Amount _____

WBE	MBE	Name of Firm	Subcontract Amount
( )	( )	_____	_____
( )	( )	_____	_____
( )	( )	_____	_____
( )	( )	_____	_____
( )	( )	_____	_____
( )	( )	_____	_____

*Attach additional sheets if necessary

_____ _____

Date Authorized Representative of Recipient

DOCUMENTS TO BE COMPLETED BY SUCCESSFUL BIDDER

PERFORMANCE BOND

Contractor Name: Address *(principal place of business)*:	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner Name: **CITY OF OPELOUSAS** Mailing address *(principal place of business)*: **P.O. BOX 1879** **OPELOUSAS, LA 70571-1879**	**Contract** Description *(name and location)*: **SEWER COLLECTION SYSTEM REHABILITATION PHASE 3 - OPELOUSAS, LOUISIANA** **MGA PROJECT SC251-3** Contract Price: Effective Date of Contract: **[Date from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 16

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

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

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

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

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

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

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

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

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

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

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

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

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

    5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

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

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

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

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

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

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

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

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

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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

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

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

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

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statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

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PAYMENT BOND

Contractor	**Surety**
Name:	Name: **[Full formal name of Surety]**
Address *(principal place of business)*:	Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner	**Contract**
Name: **CITY OF OPELOUSAS**	Description *(name and location)*: **SEWER COLLECTION SYSTEM REHABILITATION PHASE 3 - OPELOUSAS, LOUISIANA MGA PROJECT SC251-3**
Mailing address *(principal place of business)*: **P.O. BOX 1879 OPELOUSAS, LA 70571-1879**	Contract Price:
	Effective Date of Contract: **[Date, from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 18

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

Contractor as Principal	Surety
_____	_____
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____	By: _____
(Signature)	*(Signature)(Attach Power of Attorney)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____
Attest: _____	Attest: _____
(Signature)	*(Signature)*
Name: _____	Name: _____
(Printed or typed)	*(Printed or typed)*
Title: _____	Title: _____

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

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

    7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

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8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

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

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

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

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

        16.1.4. A brief description of the labor, materials, or equipment furnished;

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16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

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

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

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

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

18. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

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United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services , Equipment or Supplies	Amount Received by Prime Contractor

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

Please use the space below to report any concerns regarding the above EPA-funded project:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Subcontractor Signature	Print Name
Title	**Date**

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services , Equipment or Supplies	Price of Work Submitted to the Prime Contractor

DBE Certified By: ___ DOT ___ SBA ___ Other: _____	Meets/ exceeds EPA certification standards? ___ YES ___ NO ___ Unknown

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Subcontractor Signature	Print Name
Title	**Date**

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity:		

I have identified potential DBE certified subcontractors	___ YES	___ NO
If yes, please complete the table below. If no, please explain:		

Subcontractor Name/ Company Name	**Company Address/ Phone/ Email**	**Est. Dollar Amt**	**Currently DBE Certified?**

Continue on back if needed

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

DOCUMENTS TO BE UTILIZED DURING CONSTRUCTION

NOTICE TO PROCEED

Owner:	CITY OF OPELOUSAS	Owner's Project No.:	CS221198-01
Engineer:	MORGAN GOUDEAU & ASSOC, INC.	Engineer's Project No.:	SC251-3
Contractor:	CONSTRUCTION PRO, INC.	Contractor's Project No.:	N/A
Project:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Contract Name:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Effective Date of Contract:			

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

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **THREE HUNDRED SIXTY-FIVE (365)** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **FOUR HUNDRED TEN (410)** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**. Liquidated damages are $500.00 per day in accordance with Article 4.05 of the Agreement.

Before starting any Work at the Site, Contractor must comply with the following: NONE

CITY OF OPELOUSAS
OWNER

BY: _____

TITLE: PROJECT ENGINEER

ACCEPTANCE OF NOTICE
Receipt of the above NOTICE TO PROCEED
is hereby acknowledged by:

_____

this the ____ day of _____, 2026

By: _____

Title: _____

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Contractor's Application for Payment

Owner:	City of Opelousas	**Owner's Project No.:**	CS221198-01
Engineer:	Morgan Goudeau & Associates, Inc.	**Engineer's Project No.:**	SC251-3
Contractor:		**Contractor's Project No.:**	N/A
Project:	Sewer Collection System Rehabilitation Phase - 3		
Contract:	Sewer Collection System Rehabilitation Phase - 3		

Application No.: _____ **Application Date:** _____

Application Period: **From** _____ **to** _____

1. Original Contract Price		$ -
2. Net change by Change Orders		$ -
3. Current Contract Price (Line 1 + Line 2)		$ -
4. Total Work completed and materials stored to date (Sum of Column and Stored Materials)		$ -
5. Retainage		
a. _____ X $ -	Work Completed	$ -
b. _____ X $ -	Stored Materials	$ -
c. Total Retainage (Line 5.a + Line 5.b)		$ -
6. Amount eligible to date (Line 4 - Line 5.c)		$ -
7. Less previous payments (Line 6 from prior application)		$ -
8. Amount due this application		$ -
9. Balance to finish, including retainage (Line 3 - Line 4)		$ -

Contractor's Certification

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

Contractor: _____

Signature: _____ **Date:** _____

Recommended by Engineer		**Approved by Owner**	
By:		**By:**	
Title:	PROJECT ENGINEER	**Title:**	
Date:		**Date:**	

Approved by Funding Agency			
By:		**By:**	
Title:		**Title:**	
Date:		**Date:**	

PROGRESS ESTIMATE - UNIT PRICE WORK

OWNER: City of Opelousas

ENGINEER: Morgan Goudeau & Associates, Inc.

CONTRACTOR:

PROJECT: Sewer Collection System Rehabilitation Phase - 3

CONTRACT: Sewer Collection System Rehabilitation Phase - 3

OWNER'S PROJECT NO. CS221198-01

ENGINEER'S PROJECT NO. SC251-3

CONTRACTOR'S PROJECT NO.

APPLICATION NO.: **APPLICATION PERIOD:** **FROM** **TO** **APPLICATION DATE:**

A	B	C	D	E	F	G	H	I	J	K	L
		CONTRACT INFORMATION				WORK COMPLETED					
ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	CONTRACT UNIT PRICE	CONTRACT AMOUNT	THIS PERIOD QUANTITY	THIS PERIOD AMOUNT	PREVIOUS QUANTITY	PREVIOUS AMOUNT	TOTAL TO DATE QUANTITY	TOTAL TO DATE AMOUNT
1					$ -		$ -		$ -	-	$ -
2					$ -		$ -		$ -	-	$ -
3					$ -		$ -		$ -	-	$ -
4					$ -		$ -		$ -	-	$ -
5					$ -		$ -		$ -	-	$ -
6					$ -		$ -		$ -	-	$ -
7					$ -		$ -		$ -	-	$ -
8					$ -		$ -		$ -	-	$ -
9					$ -		$ -		$ -	-	$ -
10					$ -		$ -		$ -	-	$ -
11					$ -		$ -		$ -	-	$ -
12					$ -		$ -		$ -	-	$ -
13					$ -		$ -		$ -	-	$ -
14					$ -		$ -		$ -	-	$ -
15					$ -		$ -		$ -	-	$ -
16					$ -		$ -		$ -	-	$ -
17					$ -		$ -		$ -	-	$ -
18					$ -		$ -		$ -	-	$ -
19					$ -		$ -		$ -	-	$ -
20					$ -		$ -		$ -	-	$ -
21					$ -		$ -		$ -	-	$ -
22					$ -		$ -		$ -	-	$ -
23					$ -		$ -		$ -	-	$ -
24					$ -		$ -		$ -	-	$ -
25					$ -		$ -		$ -	-	$ -
26					$ -		$ -		$ -	-	$ -
27					$ -		$ -		$ -	-	$ -
28					$ -		$ -		$ -	-	$ -
29					$ -		$ -		$ -	-	$ -
30					$ -		$ -		$ -	-	$ -
31					$ -		$ -		$ -	-	$ -
32					$ -		$ -		$ -	-	$ -

PROGRESS ESTIMATE - UNIT PRICE WORK

OWNER: City of Opelousas

ENGINEER: Morgan Goudeau & Associates, Inc.

CONTRACTOR:

PROJECT: Sewer Collection System Rehabilitation Phase - 3

CONTRACT: Sewer Collection System Rehabilitation Phase - 3

OWNER'S PROJECT NO. CS221198-01

ENGINEER'S PROJECT NO. SC251-3

CONTRACTOR'S PROJECT NO.

APPLICATION NO.: **APPLICATION PERIOD:** **FROM** **TO** **APPLICATION DATE:**

A	B	C	D	E	F	G	H	I	J	K	L
		CONTRACT INFORMATION				WORK COMPLETED					
ITEM NO.	DESCRIPTION	CONTRACT QUANTITY	UNIT	CONTRACT UNIT PRICE	CONTRACT AMOUNT	THIS PERIOD QUANTITY	THIS PERIOD AMOUNT	PREVIOUS QUANTITY	PREVIOUS AMOUNT	TOTAL TO DATE QUANTITY	TOTAL TO DATE AMOUNT
33					$ -		$ -		$ -	-	$ -
34					$ -		$ -		$ -	-	$ -
35					$ -		$ -		$ -	-	$ -
36					$ -		$ -		$ -	-	$ -
37					$ -		$ -		$ -	-	$ -
38					$ -		$ -		$ -	-	$ -
39					$ -		$ -		$ -	-	$ -
40					$ -		$ -		$ -	-	$ -
41					$ -		$ -		$ -	-	$ -
42					$ -		$ -		$ -	-	$ -
43					$ -		$ -		$ -	-	$ -
44					$ -		$ -		$ -	-	$ -
45					$ -		$ -		$ -	-	$ -
					$ -		$ -		$ -	-	$ -
					$ -		$ -		$ -	-	$ -
					$ -		$ -		$ -	-	$ -
				TOTAL WORK COMPLETED	$ -		$ -		$ -		$ -

CHANGE ORDER NO.: [Number of Change Order]

Owner:	CITY OF OPELOUSAS	Owner's Project No.:	CS221198-01
Engineer:	MORGAN GOUDEAU & ASSOC, INC.	Engineer's Project No.:	SC 251-3
Contractor:		Contractor's Project No.:	N/A
Project:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Contract Name:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Date Issued:		Effective Date of Change Order:	

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

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	**Change in Contract Times [State Contract Times as either a specific date or a number of days]**
Original Contract Price: $ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. **[Number of previous Change Order]**: $ _____	**[Increase] [Decrease]** from previously approved Change Orders No.1 to No. **[Number of previous Change Order]**: Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: $ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: $ _____	**[Increase] [Decrease]** this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: $ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

	MORGAN GOUDEAU & ASSOCIATES, INC.	CITY OF OPELOUSAS
By:	_____	_____
Title:	PROJECT ENGINEER	MAYOR
Date:	_____	_____
	Authorized by Contractor	Approved by Funding Agency (if applicable)
By:	_____	_____
Title:	_____	_____
Date:	_____	_____

EJCDC® C-941, Change Order.
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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	CITY OF OPELOUSAS	Owner's Project No.:	
Engineer:	MORGAN GOUDEAU & ASSOC, INC.	Engineer's Project No.:	SC251-3
Contractor:		Contractor's Project No.:	
Project:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		
Contract Name:	SEWER COLLECTION SYSTEM REHABILITATION – PHASE 3		

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

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

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

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

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

Morgan Goudeau & Associates, Inc.
ENGINEER BY DATE

CONTRACTOR BY DATE

City of Opelousas
OWNER BY DATE

EJCDC® C-625, Certificate of Substantial Completion.
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PUNCH LIST

Project Sewer Collection System Rehabilitation Phase 3 No. SC251-3

Location Opelousas, Louisiana Date

Inspection was conducted at above project by _____ at ____o'clock this date.

REPRESENTATION

CONTRACTOR-OWNER	ENGINEER-ARCHITECT
Contractor:	Firm: Morgan Goudeau & Associates, Inc.
Owner: City of Opelousas	Project Engineer: William H. Jarrell, III
	Construction Inspector:

The following items are to be corrected or completed to comply with the contract documents.

Item No.	DESCRIPTION

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GENERAL CONDITIONS

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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SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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

No Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

No Supplementary Conditions in this Article.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

No Supplementary Conditions in this Article.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

No Supplementary Conditions in this Article.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL 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
NONE	N/A	**NONE**

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

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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
NONE	N/A	**NONE**

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 **[location]** during regular business hours, or may request copies from Engineer.~~ **DELETED**

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
NONE	N/A	**NONE**

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
NONE	N/A	**NONE**

ARTICLE 6—BONDS AND INSURANCE

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **NONE**

E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United

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States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Policy limit	$1,000,000.00

F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
2. damages insured by reasonably available personal injury liability coverage, and
3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
    a. Such insurance must be maintained for three years after final payment.
    b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
4. Underground, explosion, and collapse coverage.
5. Personal injury coverage.
6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

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7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
2. Any exclusion for water intrusion or water damage.
3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
4. Any exclusion of coverage relating to earth subsidence or movement.
5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
6. Any limitation or exclusion based on the nature of Contractor's work.
7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	**Policy limits of not less than:**
General Aggregate	$2,000,000.00
Products—Completed Operations Aggregate	$2,000,000.00
Personal and Advertising Injury	$1,000,000.00
Bodily Injury and Property Damage—Each Occurrence	$1,000,000.00

J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	**Policy limits of not less than:**
Bodily Injury	
Each Person	$1,000,000.00
Each Accident	$1,000,000.00
Property Damage	
Each Accident	$500,000.00
OR	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	$1,000,000.00

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K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	$1,000,000.00
General Aggregate	$1,000,000.00

L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of $1,000,000.00 after accounting for partial attribution of its limits to underlying policies, as allowed above.

M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	$ N/A
General Aggregate	$ N/A

N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	Policy limits of not less than:
Each Claim	$ N/A
Annual Aggregate	$ N/A

O. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly *referred* to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer,

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and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	Policy limits of not less than:
Each Claim	$1,000,000.00
General Aggregate	$1,000,000.00

SC-6.04 Delete Paragraph 6.04. – BUILDER'S RISK INSURANCE SHALL NOT BE REQUIRED.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "…all Work at the Site must be performed during regular working hours, Monday through Saturday. Contractor will not perform Work on a **Sunday**, or any legal holiday." If the project schedule becomes delayed or interrupted and work falls behind schedule, work on Sundays and holidays can be considered and acceptable option as a Recovery Plan.

SC-7.05 Delete Paragraph 7.05.A and replace with the following:

A. The name of a certain brand, make, manufacturer, or definite specifications is to denote the quality of standard of the article desired, but does not restrict bidders to the specific brand, make, manufacturer, or specification named. It is to set forth and convey to prospective bidders the general style, type, character, and quality of the article desired. When in specifications or contract documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device, or equipment shall be regarded merely as a standard. When in specifications or contract documents, engineer specifies a particular brand, make of material, device, or equipment, or equal thereto, he shall adequately identify said product by including, minimally, the model or catalog number of the product. If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven (7) working days prior to the opening of bids. Within three (3) days, exclusive of holidays and weekends, after such submission, the engineer shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted.

SC-7.05.D Delete this paragraph in its entirety.

SC-7.10 Delete Paragraph 7.10 in its entirety and replace with the following:

A. Contractor shall include all city, state, and federal taxes and sales taxes in his bid except when exempted as an Agent of Governmental Entity by Louisiana Department of Revenue Form LDR R-1020. Tax Exempt status will be granted to the Contractor, providing the Contractor processes the necessary LDR form(s).

B. In accordance with applicable rules adopted and promulgated by the Louisiana Department of Revenue, the Owner intends to designate the contractor and all subcontractors as its agents for the purchase and lease of materials, supplies or equipment for this Project. The contractor and all subcontractors shall accept the agency designation. The designation and acceptance thereof shall be made on the form prescribed by the Louisiana State Department

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of Revenue which form shall be part of the contract between the Owner, and the Contractor. A copy of this form is included in the Contract Documents in the section titled “Documents to be Completed by Successful Bidder and Prior to Award of Contract”.

ARTICLE 8—OTHER WORK AT THE SITE

No Supplementary Conditions in this Article.

ARTICLE 9—OWNER’S RESPONSIBILITIES

No Supplementary Conditions in this Article.

ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

2. *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.

3. *Liaison*

    a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

    b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.

    c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.

4. *Review of Work; Defective Work*

    a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.

    b. Observe whether any Work in place appears to be defective.

    c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

5. *Inspections and Tests*

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a. 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.

b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.

6. *Payment Requests:* Review Applications for Payment with Contractor.

7. *Completion*

a. Participate in Engineer's visits regarding Substantial Completion.

b. Assist in the preparation of a punch list of items to be completed or corrected.

c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.

d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.

5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11—CHANGES TO THE CONTRACT

No Supplementary Conditions in this Article.

ARTICLE 12—CLAIMS

No Supplementary Conditions in this Article.

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ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

No Supplementary Conditions in this Article.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCCEPTANCE OF DEFECTIVE WORK

No Supplementary Conditions in this Article.

ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

SC-15.01.D.1 Amend the first sentence of Paragraph 15.01.D.1 as follows:

Delete the word "Ten" and Replace with the word "Thirty".

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.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

No Supplementary Conditions in this Article.

ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES

No Supplementary Conditions in this Article.

ARTICLE 18—FEDERAL REQUIREMENTS

I. EQUAL OPPORTUNITY CLAUSE: 40 CFR PART 8.

During the performance of this contract, the contractor agrees as follows:
(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this equal opportunity clause.

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(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract, or understanding, a notice to be provided by the agency contracting officer, advising the labor union or worker's representative of the contractor's commitments under this equal opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
(4) The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
(5) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and. orders.
(6) In the event of the contractors noncompliance with the equal opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in. part, and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

II. HISTORICAL PRESERVATION CLAUSE: 36 CFR PART 800.

The contractor agrees that, should evidence of historical or archeological sites be discovered during construction, all work in the area will cease immediately and the owner will be informed of the discovery. The owner will, in turn, promptly notify the Clean Water State Revolving Fund Program of the Louisiana Department of Environmental Quality (DEQ).

After consulting with the appropriate State and Federal agencies the DEQ will advise the owner of any protective measurers that may be required.

III. ENDANGERED SPECIES CLAUSE: ENDANGERED SPECIES ACT OF 1973, AS AMENDED

The contractor agrees that, should plants or animals belonging to either endangered or threatened species be discovered in the area of construction or adjacent areas, all work in that area will cease immediately, and the owner will be informed of the discovery. The owner will, in turn, promptly notify

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the Clean Water State Revolving Fund Program of the Louisiana Department of Environmental Quality (DEQ).

After consulting with the appropriate State and Federal agencies, the DEQ will advise the owner of any protective measurers that may be required.

IV. PRESIDENTIAL EXECUTIVE ORDERS

The contractor is required to comply with the following Presidential Executive Orders:
(1) 11625, 12138, and 12432 - Women's and Minority Business Enterprise;
(2) 12549 - Debarment and Suspension
(3) 11246 - Equal Employment Opportunity.

V. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

Recipients and subrecipients of EPA funded assistance agreements must comply with regulations at 2 CFR 200.216, *Prohibition on certain telecommunication and video surveillance services or equipment*, implementing section 889 of Public Law 115-232. The regulation prohibits the use of Federal funds to procure (enter into, extend, or renew contracts) or obtain equipment, systems, or services that use "covered telecommunications equipment or services" identified in the regulation as a substantial or essential component of any system, or as critical technology as part of any system. Prohibitions extend to the use of Federal funds by recipients and subrecipients to enter into a contract with an entity that "uses any equipment, system, or service that uses covered telecommunications equipment or services" as a substantial or essential component of any system, or as critical technology as part of any system. Certain equipment, systems, or services, including equipment, systems, or services produced or provided by entities subject to the prohibition are recorded in the System for Award Management (https://sam.gov/SAM/) exclusion list.

As described in section 889 of Public Law 115-232, covered telecommunications equipment or services includes:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.
- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

VI. USE OF AMERICAN IRON AND STEEL

The following text must be included the bidding documents:

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"In accordance with Section 608 of the Clean Water Act as amended by the Water Resources Reform and Development Act of 2014, the contractor agrees that all of the iron and steel products used in the performance of the contract will be produced in the United States."

(a) ***Definitions.*** As used in this award term and condition—

(1) "**iron and steel products**" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(2) ***Steel*** means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements.

(b) ***Domestic preference.***

(1) This award term and condition implements -the Water Resources Reform and Development Act of 2014 (WRRDA) by requiring that all iron and steel products used for a project for the construction, alteration, maintenance or repair of a public water system or treatment work are produced in the United States except as provided in paragraph (b)(2) and (b)(3) of this section and condition.

(2) This requirement does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to January 17, 2014.

(3) This requirement shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency finds that:—

(i) applying the requirement would be inconsistent with the public interest;

(ii) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(iii) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) ***Request for a Waiver under (b)*****(3)**

(1) Any recipient request to use foreign iron or steel products in accordance with paragraph (b)(3) of this section shall include adequate information for Federal Government evaluation of the request, including—

(A) A description of the foreign and domestic iron, steel, and/or manufactured goods;

(B) Unit of measure;

(C) Quantity;

(D) Cost;

(E) Time of delivery or availability;

(F) Location of the project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign iron or steel products cited in accordance with paragraph (b)(3) of this section.

(2) If the Administrator receives a request for a waiver under this section, the waiver request shall be made available to the public for at least 15 days prior to making a finding based on the request.

(3) Unless the Administrator issues a waiver of this term, use of foreign iron and steel products is noncompliant with the -FY 2015 Water Resource Reform and Development Act.

(d) This term and condition shall be applied in a manner consistent with United States obligations under international agreements.

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For additional information including published waivers, please see the EPA website: http://water.epa.gov/grants_funding/aisrequirement.cfm

VII. REQUIRED USE OF AMERICAN IRON, STEEL, MANUFACTURED PRODUCTS, AND CONSTRUCTION MATERIALS

Recipients of an award of Federal financial assistance from a program for infrastructure are hereby notified that none of the funds provided under this award may be used for a project for infrastructure unless:

(1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;

(2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and

(3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project.

Waivers

Definitions

"Construction materials" includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives[46]—that is or consists primarily of:

- non-ferrous metals;
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- glass (including optic glass);
- lumber; or
- drywall.

"Domestic content procurement preference'' means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

"Infrastructure" includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and

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systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

''Project'' means the construction, alteration, maintenance, or repair of infrastructure in the United States.

For additional information including published waivers, please see the EPA website: https://www.epa.gov/cwsrf/build-america-buy-america-baba

VIII. DAVIS BACON AND RELATED ACTS

The bidding documents must include the current U.S. Department of Labor wage rates for the project. Wage rates may be downloaded from https://beta.sam.gov/ and clicking on "Search Wage Determinations" under the "What Can I Do Here?" subsection. Search for the appropriate Wage Determination for your project and include it in the specifications when you advertise for bids. Recheck the Wage Determination ten days before bid opening, and if it has been revised, the revised version must be issued to bidders as an addendum.

Some consulting engineers have staff members that are capable of monitoring Davis-Bacon and Related Acts requirements, and others may not. There are administrative consultants that specialize in monitoring and managing contractor submittals and conformance with Davis-Bacon and Related Acts requirements. An administrative consultant engaged for this purpose is considered an eligible project cost.

The following text must be included in the bidding documents:

Wage Rate Requirements Under The Clean Water Act, Section 513

Preamble

With respect to the Clean Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides sub grants or loans to eligible entities within the State. Typically, the sub recipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the sub recipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements Under The Water Resources Reform and Development Act of 2014 (WRRDA) For Sub recipients That Are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the Water Resources Reform and Development Act of 2014 (WRRDA) - with respect to State recipients and sub recipients that are governmental entities. If a sub recipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. If a State recipient needs guidance, the recipient may contact EPA's Julie Milazzo at Milazzo.Julie@epa.gov or 415-972-3687 for guidance. The recipient or sub recipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/whd/

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1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the Water Resources Reform and Development Act of 2014 (WRRDA) -, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving. If a sub recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the sub recipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Sub recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the sub recipient shall monitor https://beta.sam.gov/ weekly to ensure that the wage determination contained in the solicitation remains current. The sub recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the sub recipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the sub recipient.

(ii) If the sub recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the sub recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The sub recipient shall monitor https://beta.sam.gov/ on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the sub recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the sub recipient shall insert the appropriate DOL wage determination from https://beta.sam.gov/ into the ordering instrument.

(c) Sub recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a sub recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the sub recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the sub recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The sub recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

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3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the sub recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF - financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or -FY 2014 Water Resource Reform and Development Act, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Sub recipients may obtain wage determinations from the U.S. Department of Labor's website, www.dol.gov or from the following website: https://beta.sam.gov/.

(ii)(A) The sub recipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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

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

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

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(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sub recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the sub recipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the sub recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

(2) Withholding. The sub recipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

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(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the sub recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the sub recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at https://www.dol.gov/whd/forms/index.htm or its successor site.

The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the sub recipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sub recipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either

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directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, 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 Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or sub contractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable

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apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7.

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Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and sub recipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The sub recipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The sub recipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any

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subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Sub recipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Sub recipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The sub recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(3), all interviews must be conducted in confidence. The sub recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The sub recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Sub recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB. Sub recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The sub recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The sub recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the sub recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Sub recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the sub recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The sub recipient shall periodically review contractors and subcontractor's use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

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(e) Sub recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/whd/america2.htm.

II. Requirements Under The Water Resource Reform and Development Act of 2014 (WRDA) -) For Sub recipients That Are Not Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under –FY 2014 Water Resource Reform and Development Act with respect to sub recipients that are not governmental entities. If a sub recipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. If a State recipient needs guidance, the recipient may contact EPA's Julie Milazzo at Milazzo.Julie@epa.gov or 415-972-3687 for guidance. The recipient or sub recipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/whd/

Under these terms and conditions, the sub recipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2014 Water Resource Reform and Development Act, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund. If a sub recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the sub recipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Sub recipients must obtain proposed wage determinations for specific localities at https://beta.sam.gov/. After the Sub recipient obtains its proposed wage determination, it must submit the wage determination to **Scott Templet, P.E.,** Scott.Templet@La.Gov**, and 225-219-3463**, for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official.)

(b) Sub recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the sub recipient shall monitor https://beta.sam.gov/ on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The sub recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the sub recipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the sub recipient.

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(ii) If the sub recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the sub recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The sub recipient shall monitor https://beta.sam.gov/ on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the sub recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the sub recipient shall insert the appropriate DOL wage determination from https://beta.sam.gov/ into the ordering instrument.

(d) Sub recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(e) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a sub recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the sub recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the sub recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The sub recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the sub recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF - or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2014 Water Resouce Reform and Development Act -, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or

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incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Sub recipients may obtain wage determinations from the U.S. Department of Labor's web site, https://beta.sam.gov/.

(ii)(A) The sub recipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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

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

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

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sub recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the sub recipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the sub recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

(2) Withholding. The sub recipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the sub recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the sub recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out

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accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/forms/wh347instr.htm or its successor site.

The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the sub recipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sub recipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

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

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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees—

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide

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apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, 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 Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractors registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Sub recipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The sub recipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

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(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The sub recipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Sub recipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Sub recipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The sub recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(3), all interviews must be conducted in confidence. The sub recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The sub recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Sub recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB.

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Sub recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c). The sub recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The sub recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the sub recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Sub recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the sub recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The sub recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Sub recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/whd/america2.htm.

6. State Cybersecurity Condition

(a) The recipient agrees that when collecting and managing environmental data under this assistance agreement, it will protect the data by following all applicable State law cybersecurity requirements.

(b) (1) EPA must ensure that any connections between the recipient's network or information system and EPA networks used by the recipient to transfer data under this agreement, are secure.

For purposes of this Section, a connection is defined as a dedicated persistent interface between an Agency IT system and an external IT system for the purpose of transferring information. Transitory, user-controlled connections such as website browsing are excluded from this definition.

If the recipient's connections as defined above do not go through the Environmental Information Exchange Network or EPA's Central Data Exchange, the recipient agrees to contact the EPA Project Officer (PO) and work with the designated Regional/Headquarters Information Security Officer to ensure that the connections meet EPA security requirements, including entering into Interconnection Service Agreements as appropriate. This condition does not apply to manual entry of data by the recipient into systems operated and used by EPA's regulatory programs for the submission of reporting and/or compliance data.

(2) The recipient agrees that any subawards it makes under this agreement will require the subrecipient to comply with the requirements in (b)(1) if the subrecipient's network or information system is connected to EPA networks to transfer data to the Agency using systems other than the Environmental Information Exchange Network or EPA's Central Data Exchange. The recipient will be in compliance with this condition: by including this requirement in subaward agreements; and during subrecipient monitoring deemed necessary by the recipient under 2 CFR 200.331(d), by inquiring whether the subrecipient has contacted

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the EPA Project Officer. Nothing in this condition requires the recipient to contact the EPA Project Officer on behalf of a subrecipient or to be involved in the negotiation of an Interconnection Service Agreement between the subrecipient and EPA.

Note that "subrecipient" in the preceding regulations refers to the municipality.

IX. EXPLANATION OF SIX GOOD FAITH EFFORTS

It is a Federal requirement that all procurement made with Federal funds utilize six (6) good faith efforts to utilize disadvantaged business enterprises (DBE's) in the areas of construction, services, equipment, and supplies as follows:

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
5. Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.
6. If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs (1) through (5) of this section.

The Louisiana Department of Transportation and Development (DOTD) has an online, certified list of DBE firms. Entering **www.dotd.state.la.us/cgibin/construction.cgi** will direct an individual to the website to find the most current list of certified DBE firms. The phone number for DOTD is (225) 379-1232.

Access the Dynamic Small Business Search (DSBS) database by typing **www.sba.gov/dsbs/search/dsp_dsbs.cfm.** The DSBS database allows someone to conduct a search for firms based on a number of criteria such as location, government certifications, ownership, bonding capability, keywords, etc. This database also allows locating firms that have been certified through the 8(a) program, which certifies that the company has at least two years experience, has adequate financing and bonding, and has references from previous jobs. If you do not have Internet access, you can contact the New Orleans SBA District Office at (504) 589-6685.

Additionally, the Sewerage and Water Board of New Orleans (SWBNO) also has an online searchable directory of certified DBE firms called the Economically Disadvantaged Business Program (EDBP). Typing **https://www.swbno.org/Business/DisadvantagedBusinesses** will take you to this website. The phone number for the SWBNO phone number is (504) 529-2837.

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The Minority Business Development Agency (MBDA) also maintains a database. Typing **www.mbda.gov** will reach their opportunity database. Submitting Information to this agency about the job specifics regarding DBE participation will be compared with information in the Phoenix database of minority companies. When an eligible DBE is matched to the job details, they will receive a copy of the job prospect, and you will receive a list of the DBE companies that have been referred to the opportunity. The closest MBDA Business Center is located in Houston. The phone number for the Houston MBDA Business Center is (713) 718-8974.

The successful bidder must provide documentation to demonstrate that the affirmative action steps were pursued. Documentation might include records of telephone calls, records of utilization of either of the above websites, and relevant correspondence. Where DBEs are contacted but not utilized, an explanation as to why each one contacted was not utilized should be provided.

18.02 The following pages provide the occupational classifications and minimum hourly wage rates required for this project.

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"General Decision Number: LA20260002 05/18/2026

State: Louisiana

Construction Types: Heavy

Counties: Louisiana Counties of
Acadia, Ascension, Bossier, Caddo,
Calcasieu, East Baton Rouge, Lafayette,
Lafourche, Livingston, Ouachita,
Rapides, St Landry, St Martin,
Terrebonne, Webster and West Baton Rouge

Excludes elevated storage tanks, Industrial Construction, Processing Plants, and Refineries

Modification Number	Publication Date
1	01/30/2026
2	05/18/2026

CARP1098-004 07/01/2024

	Rates	Fringes
CARPENTER: FORMBUILDING/FORMSETTING (ASCENSION, EAST BATON ROUGE, LIVINGSTON AND WEST BATON ROUGE PARISHES)	$ 32.59	11.06

CARP1098-014 07/01/2024

	Rates	Fringes
CARPENTER: FORMBUILDING/FORMSETTING (CALCASIEU PARISH)	$ 32.59	11.06

CARP1098-015 07/01/2024

	Rates	Fringes
CARPENTER: FORMBUILDING/FORMSETTING (ACADIA, LAFAYETTE, ST. LANDRY AND ST. MARTIN PARISHES)	$ 32.59	11.06

CARP1098-016 07/01/2024

	Rates	Fringes
CARPENTER: FORMBUILDING/FORMSETTING (BOSSIER, CADDO, OUACHITA, RAPIDES AND WEBSTER PARISHES)	$ 32.59	11.06

CARP1846-008 07/01/2024

	Rates	Fringes
CARPENTER: FORMBUILDING/FORMSETTING (LAFOURCHE AND TERREBONNE PARISHES)	$ 32.59	10.52

ELEC0130-009 12/01/2025

	Rates	Fringes
ELECTRICIAN (LAFOURCHE AND TERREBONNE PARISHES)	$ 36.00	16.66

ELEC0194-007 09/02/2025

	Rates	Fringes
ELECTRICIAN (BOSSIER, CADDO, AND WEBSTER PARISHES)..	$ 35.85	15.58

ELEC0446-007 03/01/2025

	Rates	Fringes
ELECTRICIAN (OUACHITA PARISH)	$ 29.55	14.36

ELEC0576-006 09/01/2025

	Rates	Fringes
ELECTRICIAN (RAPIDES PARISH)	$ 30.00	12.03

ELEC0861-006 09/01/2024

	Rates	Fringes
ELECTRICIAN (ACADIA, CALCASIEU, LAFAYETTE, AND ST. MARTIN PARISHES)	$ 31.98	15.14

ELEC0995-006 01/01/2025

	Rates	Fringes

ELECTRICIAN (ASCENSION, EAST BATON ROUGE,
LIVINGSTON, ST. LANDRY, AND WEST BATON ROUGE
PARISHES).....$ 29.47 13.50

SULA2004-006 04/29/2004

	Rates	Fringes
TRUCK DRIVER, DUMP	$ 10.25	0.00
POWER EQUIPMENT OPERATORS: WINCH	$ 11.38	0.00
POWER EQUIPMENT OPERATORS: WATER WELL DRILLER	$ 11.91	2.44
POWER EQUIPMENT OPERATORS: TRACKHOE	$ 12.64	0.00
POWER EQUIPMENT OPERATORS: OILER	$ 8.59	2.50
POWER EQUIPMENT OPERATORS: MOTOR GRADER/BLADE	$ 11.75	0.00
POWER EQUIPMENT OPERATORS: FRONT END LOADER	$ 11.50	0.00
POWER EQUIPMENT OPERATORS: DRAGLINE	$ 15.16	0.00
POWER EQUIPMENT OPERATORS: CRANE	$ 16.62	3.28
POWER EQUIPMENT OPERATORS: BULLDOZER	$ 13.83	0.00
POWER EQUIPMENT OPERATORS: BACKHOE/EXCAVATOR	$ 13.01	0.00
LABORERS: PIPELAYER	$ 9.45	0.00
LABORERS: COMMON	$ 8.20	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.77	0.00
CARPENTER (ALL OTHER WORK)	$ 12.81	0.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO
is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject
to the Davis-Bacon Act that were awarded on or between January 1,
2015 and January 29, 2022, and that have not been renewed or
extended on or after January 30, 2022. Executive Order 13658 does
not apply to contracts subject only to the Davis-Bacon Related Acts
regardless of when they were awarded. If a contract is subject to
Executive Order 13658, the contractor must pay all covered workers
at least $13.65 per hour (or the applicable wage rate listed on this
wage determination, if it is higher) for all hours spent performing on
the contract from May 11, 2026, through December 31, 2026. The
applicable Executive Order minimum wage rate will be adjusted annually.
Additional information on contractor requirements and worker
protections under Executive Order 13658 is available at
www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than
&#65533;SU&#65533;, &#65533;UAVG&#65533;, &#65533;SA&#65533;, or &#65533;SC&#65533; denotes that a union rate was
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2024. PLUM is an identifier of the union
whose collectively bargained rate prevailed in the survey for
this classification, which in this example would be Plumbers.
0198 indicates the local union number or district council
number where applicable, i.e., Plumbers Local 0198. The next
number, 005 in the example, is an internal number used in
processing the wage determination. The date, 07/01/2024 in the

example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "SU" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

"SU" wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the "SA" identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

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

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

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

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

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END OF GENERAL DECISION"

LIST OF DRAWINGS

Sheet	Description
1	TITLE SHEET
2	VICINITY MAP
3	GENERAL LAYOUT PLAN
4	MAINLINE REHABILITATION PLAN - MONITOR BASIN OPL01
5	MANHOLE REHABILITATION PLAN - MONITOR BASIN OPL01
6	MAINLINE REHABILITATION PLAN - MONITOR BASIN OPL02
6A	MAINLINE REHABILITATION PLAN - MONITOR BASIN OPL02
7	MANHOLE REHABILITATION PLAN – MONITOR BASIN OPL02
8	MAINLINE REHABILITATION PLAN – MONITOR BASINS PS08 AND PS10
8A	MAINLINE REHABILITATION PLAN – MONITOR BASIN PS10
9	MANHOLE REHABILITATION PLAN – MONITOR BASINS PS08 AND PS10
10	MAINLINE REHABILITATION PLAN – MONITOR BASIN OPL04
10A	MAINLINE REHABILITATION PLAN – MONITOR BASIN OPL04
11	MANHOLE REHABILITATION PLAN – MONITOR BASIN OPL04
12	TYPICAL DETAILS
13	TYPICAL DETAILS
14	TYPICAL DETAILS

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION OF WORK

All of the work of this Contract is located in rights-of-way servitudes, or on property owned by the Owner.

1.02 WORK TO BE DONE

A. The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by these Specifications and as shown on the Drawings, all as prepared by Morgan Goudeau and Associates, Inc.

B. The Contractor shall perform the work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, cleanup, replacements and restoration, including restoration of vegetative cover required as a result of damages caused during this construction.

C. All materials, equipment, skills, tools and labor which are reasonably and properly inferable and necessary for the proper completion of the work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.

D. The Contractor shall comply with all Federal, State, and local codes which are applicable to the proposed construction work.

1.03 GENERAL DESCRIPTION OF WORK TO BE PERFORMED

A. The work included in the Contract shall be described in the Construction Contract.

B. All work shall be done as described in the Specifications and as shown on the Drawings, complete, tested and ready for operation.

1.04 WORK SEQUENCE

A. A sequence of construction must be developed so as to minimize the temporary loss of electrical power, water and gas to all buildings on all streets within and around the limits of the project. Driveways and pedestrian entrances to all buildings or residences must be provided and maintained at all times. No direct pay will be made for minimizing temporary loss of utilities and providing and maintaining driveways and entrances.

B. If the Owner is desirous of performing certain portions of the project prior to other portions, the sequence of work shall be performed in accordance with the Contract Documents and shall be stated in the Drawings. The Contractor shall advise the Owner of any adverse effects the desired sequence of work may have on the successful completion or operation of the project.

1.05 SCHEDULING OF WORK

A. Prior to commencement of work, a pre-construction conference shall be conducted and a proposed schedule of work and sequence of construction shall be submitted to the Engineer by the Contractor for approval. If the presence of a Project Engineer is required, the

Contractor will be required to schedule work so that such personnel will not be required to be on duty on Sundays.

B. The Contractor shall cooperate fully with all utility forces of the Owner or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the work, and shall schedule the work so as to minimize interference with said relocation, altering, or other rearranging of facilities.

C. The Contractor shall schedule and perform the work in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewage, drainage structures, ditches, and canals, gas, and telephone. The Contractor shall also deliver notice to property occupants (private and public) of all planned disruption to roadways, driveways, and utilities seventy-two (72) hours in advance of the disruption.

D. After work has begun on any portion or designated part of the project, it shall be carried forward to its final completion. All work shall conform to the provisions of the approved Contractor's schedule.

E. Prior to commencement of any phase of work, the Contractor is required to notify the Engineer twenty-four (24) hours in advance.

1.06 SPECIFICATIONS AND DRAWINGS

A. Specifications

The Technical Specifications consist of three parts: General, Products, and Execution. The General section contains general requirements which govern the work. The Products and Execution sections modify and supplement these by detailed requirements of the work and shall always govern whenever there appears to be a conflict.

B. Intent

All work called for in the Specifications applicable to the Contract but not shown on the Drawings in their present form or vice versa shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications but involved in carrying out their intent or in the complete and proper execution of the work is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specification shall be made upon that basis.

C. Conflict Between Drawings and Specifications

Where an obvious conflict exists between the Drawings and Specifications, the Engineer shall decide which governs and the Contractor shall comply with the decision. Such decision shall not be grounds for additional payment to the Contractor, i.e., the Contractor shall include the price of the most expensive alternative in his bid.

SECTION 01010 - SUMMARY OF WORK

1.07 CONTRACTOR'S RESPONSIBILITY CONCERNING DRAWINGS AND SPECIFICATIONS

A. All Drawings, project Specifications and Addenda are mechanically reproduced. The Contractor is responsible for checking his sets of Drawings and Specifications to assure they are complete in number and all sheets are legible. The Engineer will replace any copies of sheets as necessary without additional charge to the Contractor when notified.

B. Contractor is responsible for compliance with all Drawings, drawing revisions, Specifications and Addenda to Specifications, whether or not the set(s) issued to the Contractor are complete and totally legible.

C. It shall be understood that the failure of the Contractor to review and verify his set(s) of Drawings, drawing revisions, project Specifications, and Addenda for completeness and legibility which results in additional costs to the Contractor shall in no way increase the cost of the project to the Owner or the Owner's Engineer after bids are received.

D. Contractor shall have present on the jobsite at all times a minimum of two (2) complete sets of construction Drawings and Specifications. One (1) set shall be used for record keeping for preparation of record drawings upon completion of project.

1.08 RIGHTS OF LAND USAGE

A. Refer to Article 4 and 8.4 of the General Conditions. All permanent lands, rights-of-way, and easements for utility lines or access to the work, as indicated on the Drawings, shall be furnished by the Owner. The location and limits of both permanent and temporary lands for the work, if not shown on the Drawings, will be indicated in detailed survey plats, descriptions and titles. Copies of available documents will be furnished by the Owner upon request. Copies of permits issued to the Owner will be made available upon request. The Contractor shall keep his work within the limits of the lands for the work. Storage of the Contractor's material and equipment on privately owned lands which are outside the limits of land for the work or are inside the limits of lawful use of publicly owned lands shall only be done with written agreement between the property owner and the Contractor, subject to notification of the Engineer and the Owner by the Contractor.

B. The land available for the Contractor's use during the performance of the work is limited to the area defined by that area which is shown on the Plans.

C. Nothing in this Contract shall imply that the Contractor has exclusive use of roadways or public and/or private land employed to perform the work.

D. In addition, areas of privately owned land may be made available through a right-of-way document executed by the property owner and the Owner for the Contractor's use subject to provisions of the right-of-way document. These areas and their use limitations are as follows:

1. The Contractor's use of this area shall be limited to the direct performance of the work and shall not be used for storage of materials and/or equipment. Existing pavements, sidewalks, landscape and all miscellaneous items within the boundaries shall be removed as required to perform the work and be immediately restored to an equal or better condition upon successful completion of the work, all in accordance with the Contract Documents.

2. The Contractor is hereby made aware that the area is an active site and special measures will be required to maintain traffic and access to the property at all times. All work in this area must be coordinated with the Owner and the Contractor shall minimize any disruption to the normal activities of the Owner.

E. All other land deemed necessary by the Contractor for the storage of materials and equipment and other facilities or required for the performance of the work shall be arranged for by the Contractor at no additional cost to the Owner.

1.09 RAIN DAYS

A. If requested the Contractor shall be granted time extensions for excessive rain days, beyond the reasonably anticipated days of adverse weather. This time extension must be requested monthly. The following are considered reasonably anticipated days of adverse weather on a monthly basis.

January	11 days	July	6 days
February	10 days	August	5 days
March	8 days	September	4 days
April	7 days	October	3 days
May	5 days	November	5 days
June	6 days	December	8 days

1.10 OWNER OCCUPANCY

A. Owner will have full access to and use of all existing Owner-owned facilities during the entire period of construction for the conduct of his normal operations. Cooperate with Engineer in all construction operations to minimize conflict and to facilitate Owner usage. A listing of the Owner's existing facilities in conjunction with this project may be shown in the Drawings.

1.11 PARTIAL OWNER OCCUPANCY

A. The Contractor shall schedule his operations for completion of portions of the work, as designated, for the Owner's occupancy prior to Substantial Completion of the entire work. Refer to Paragraph 1.04 Work Sequence for completion schedule.

1.12 OWNER FURNISHED ITEMS

A. Items to be furnished by the Owner on this project shall be listed in the Supplementary Conditions. If no items are listed in the Supplementary Conditions, it is understood by all parties that materials and/or equipment furnished on this project shall be by the Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SCOPE

A. The scope of this Section defines the items included in each Bid Item. Payment will be made based on the specified items included in the description in this Section for each Bid Item.

B. All Contract Prices included in the Schedule of Bid Items will be full compensation for all labor, materials, tools, equipment, procedures and incidentals necessary to complete the work as shown on the Drawings and/or as described in the Specifications for the work to be performed under this Contract. Payment for all items listed in the Schedule of Bid Items will constitute full compensation for all work specified to be performed under this project.

1.02 SMOKE TEST LINE SEGMENT - (ITEM 1)

A. Measurement

The work will be measured by the actual number of line segments of sewer mains smoke tested which are included on the Drawings or on a work order issued by the Engineer. A line segment is defined as the section of mainline from manhole to manhole that is isolated for the smoke test, irregardless of the distance between manholes.

B. Payment

All work performed and measured as provided under Paragraph 1.02.A will be paid for as “Smoke Test Line Segment”, at the unit price bid, which said price shall be full compensation for smoke testing line segment as specified in Section 02957.

1.03 DYE-WATER FLOODING - (ITEM 2)

A. Measurement

The work will be measured as one (1) unit for each dye-water flooding test completed at the location indicated on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.03.A will be paid for as “Dye-Water Flooding”, at the unit price bid, which said price shall be full compensation for dye-water flooding as specified in Section 02970.

1.04 CLEANING SEWER LINES - (ITEMS 3 - 4)

A. Measurement

The work will be measured by the length of each line section cleaned which are included on the Drawings or on a work order issued by the Engineer. The length shall be measured from center of manhole to center of manhole along the line section of size cleaned.

B. Payment

All work performed and measured as provided under Paragraph 1.04.A will be paid for as either “Clean Sewer Line” or “Heavy Clean Sewer Line” for the pipe size cleaned, at the unit price

bid, which said price shall be full compensation for clean sewer line as specified in Section 02956. Heavy clean sewer line is defined as a line segment with more than 1/3 pipe debris for the pipe size cleaned, at the unit price bid, which said price shall be full compensation for heavy clean sewer line.

1.05 CLOSED CIRCUIT TV INSPECTION - (ITEMS 5 - 6)

A. Measurement

The work will be measured by the length of each line section TV inspected for the category (delineated by pipe size) which are included on the Drawings or on a work order issued by the Engineer. The length shall be measured from center of manhole to center of manhole along the line section of size TV inspected.

B. Payment

All work performed and measured as provided under Paragraph 1.05.A will be paid for as “Closed Circuit TV Inspection”, for the category (delineated by pipe size) at the unit price bid, which said price shall be full compensation for closed circuit TV inspection as specified in Section 02958.

1.06 REVERSE SETUP OF TV EQUIPMENT - (ITEM 7)

A. Measurement

The work will be measured by the number of additional setups of TV equipment required to complete a TV inspection of a mainline from the downstream manhole due to the inability to TV inspect the mainline from the upstream manhole as a result of a blockage discovered during the mainline inspection.

B. Payment

All work performed and measured as provided under Paragraph 1.06.A will be paid for as “Reverse Setup of TV Equipment”, at the unit price bid, which said price will be full compensation for reverse setup as specified in Section 02958.

1.07 ROOT REMOVAL – (ITEMS 8 - 9)

A. Measurement

The work will be measured by the length of each line section that roots were removed and chemical treated for the category (delineated by pipe size) which was included on the Drawings or on a work order/directive issued by the Engineer. The length shall be measured from center of manhole to center of manhole along the line section of size that roots are removed from.

B. Payment

All work performed and measured as provided under Paragraph 1.07.A will be paid for as “Root Removal and Chemical Treatment” for the category (delineated by pipe size) at the unit price bid, which said price shall be full compensation for root removal as specified in Section 02961.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.08 REPLACE MANHOLE COVER WITH NEW MANHOLE COVER (RETROFIT) - (ITEM 10)

A. Measurement

The work will be measured by the actual number of manhole covers of the type replaced (i.e. standard cast iron or retrofit) with new manhole covers which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.08.A will be paid for as "Replace Manhole Cover with New Manhole Cover", at the unit price bid, which said price shall be full compensation for the replacement of manhole covers of the type replaced with new manhole covers as specified in Section 02536 or as detailed on the plans.

1.09 REPLACE EXISTING MANHOLE FRAME AND COVER WITH NEW MANHOLE FRAME AND COVER (COMPOSITE) – (ITEM 11)

A. Measurement

The work will be measured by the actual number of manhole frames and covers of the type replaced (i.e., standard cast iron or composite) which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.09.A will be paid for as "Replace Existing Manhole Frame and Cover with New Manhole Frame and Cover", of the type replaced (i.e., standard cast iron or composite) at the unit price bid, which said price shall be full compensation for the replacement of existing manhole frames and covers with new manhole frames and covers as specified in Section 02536 or as detailed on the plans.

1.10 REALIGN AND SEAL MANHOLE FRAME AND COVER - (ITEM 12)

A. Measurement

The work will be measured by the number of manhole frames and covers realigned and sealed which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.10.A will be paid for as "Realign and Seal Manhole Frame and Cover", at the unit price bid, which said price shall be full compensation for realigning and sealing of manhole frame and cover as specified in Section 02962 or as detailed on the plans.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.11 REBUILD MANHOLE BENCH/INVERT – (ITEM 13)

A. Measurement

The work will be measured by the number of manhole benches that have been rebuilt which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.11.A will be paid for as "Rebuild Manhole Bench/Invert", at the unit price bid, which said price shall be full compensation for rebuilding manhole bench/invert as specified in Section 02536 or as detailed on the plans.

1.12 REMOVE MANHOLE STEPS – (ITEM 14)

A. Measurement

The work will be measured by the number of manholes that steps have been removed from which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.12.A will be paid for as "Remove Manhole Steps", at the unit price bid, which said price shall be full compensation for removing manhole steps as specified in Section 02536 or as detailed on the plans.

1.13 LOCATE MANHOLE AND RAISE MANHOLE TO GRADE – (ITEM 15)

A. Measurement

The work will be measured by the actual number of manholes located and raised to grade which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.13.A will be paid for as "Locate Manhole and Raise Manhole", at the unit price bid, which said price shall be full compensation for locating and raising manhole to grade as specified.

~~1.14 REPAIR MANHOLE /PIPE CONNECTION (INTERNAL) (10" AND SMALLER) – (ITEM)~~ **DELETED**

~~A. Measurement~~

~~The work will be measured by the actual number of manhole/pipe connections for the category (delineated by pipe size) repaired from inside the manhole that do not require excavation which are included on the Drawings or on a work order issued by the Engineer.~~

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

~~B. Payment~~

~~All work performed and measured as provided under Paragraph 1.14.A will be paid for as "Repair Manhole/Pipe Connection (Internal)" for the category (delineated by pipe size) at the unit price bid, which said price shall be full compensation for repairing manhole/pipe connections (internal) as specified in Section 02536 or as detailed on the plans.~~

1.15 REPAIR MANHOLE /PIPE CONNECTION (EXTERNAL) (10" AND SMALLER) – (ITEM 16)

A. Measurement

The work will be measured by the actual number of manhole/pipe connections (external) for the category (delineated by pipe size) repaired that require excavation which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.15.A will be paid for as "Repair Manhole/Pipe Connection (External)" for the category (delineated by pipe size) and for "Excavation and backfill for mainline point repair" of pipe size and depth, at the unit price bid for each item, which said price shall be full compensation for repairing manhole/pipe connections (external) as specified or as detailed on the plans.

1.16 INSTALL NEW MANHOLE WITH FRAME AND COVER (0' – 6' DEPTH) - (ITEM 17)

A. Measurement

The work will be measured by the actual number of new manholes installed with frame and cover for the category of depth which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.16.A will be paid for as "Install New Manhole with Frame and Cover" for the category of depth, at the unit price bid, which said price shall be full compensation for the installation of new manhole with frame and cover as specified in Section 02536.

1.17 PLUG AND WATERPROOF COAT ENTIRE MANHOLE - (ITEM 18)

A. Measurement

The work will be measured by the actual number of vertical feet of waterproof coating installed which is included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.17.A will be paid for as "Plug and Waterproof Coat Entire Manhole" at the unit price bid, which said price shall be full compensation for plugging and waterproof coating manhole walls as specified in Section 02962.

1.18 SEAL ALL MANHOLE JOINTS IN PRE-CAST CONCRETE MANHOLE – (ITEM 19)

A. Measurement

The work will be measured by the actual number of vertical feet of sealing manhole walls installed which is included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.18.A will be paid for as "Seal All Manhole Joints in Pre-Cast Concrete Manhole" at the unit price bid, which said price shall be full compensation for sealing manhole walls as specified in Section 02962.

1.19 POINT REPAIRS TO GRAVITY MAINS AND SERVICE LINES - (ITEMS 20 - 38)

A. Measurement

1. Point Repair

The work will be measured by the actual number of point repairs for the category (delineated by pipe size and depth) shown on the Bid Form. Depths will be determined by the vertical distance measured between the existing ground line or pavement surface over the pipe before it is disturbed, and the pipe invert. The nominal depth brackets are 0-6 feet, 6-8 feet, 8-10 feet, 10-12 feet, etc. The nominal length for point repair shall be ten (10) feet as shown on the drawings and as specified in Section 02965. Only point repairs indicated on the Drawings or on a work order issued by the Engineer will be measured for payment.

2. Abandon Point Repairs, All Sizes

The work will be measured by the actual number of point repairs abandoned for the category (delineated by depth) shown on the Bid Form. Only abandoned point repairs, as declared by the Engineer in accordance with Section 02965, will be measured for payment.

3. Excavation and Backfill for Point Repair

The work will be measured by the actual number of excavations for the category (delineated by pipe size and depth) shown on the Bid Form or on a work order issued by the Engineer.

4. Excavation and Backfill for Point Repair by Hand

   The work will be measured by the actual number of excavations performed by hand without the use of mechanical equipment for the category (delineated by pipe size and depth) shown on the Bid Form or on a work order issued by the Engineer.

5. Additional Excavation and Backfill for Mainline and Service Line Point Repair

   The work will be measured by the actual number of excavations performed in excess of the ten (10') feet included in the point repair as directed by the Engineer or designated representative.

B. Payment

1. Point Repair

   All work performed and measured as provided under Paragraph 1.19.A.1 will be paid for as "Point Repair" of pipe size and depth at the unit price bid, which said price shall be full compensation for point repair as specified in Section 02965.

2. Abandon Point Repairs, All Sizes

   All work performed and measured as provided under Paragraph 1.19.A.2 will be paid for as "Abandon Point Repairs, All Sizes" at the unit price bid, which said price shall be full compensation for abandonment of point repair as specified in Section 02965.

3. Excavation and Backfill for Point Repair

   All work performed and measured as provided under Paragraph 1.19.A.3 will be paid for as "Excavation and Backfill for Point Repair" of pipe size and depth at the unit price bid, which said price shall be full compensation for excavation and backfill for point repair as specified in Section 02965.

4. Excavation and Backfill for Point Repair by Hand

   All work performed and measured as provided under Paragraph 1.19.A.4 will be paid for as "Excavation and Backfill for Point Repair by Hand" of pipe size and depth at the unit price bid, which said price shall be full compensation for excavation and backfill for point repair by hand as specified in Section 02965.

5. Additional Excavation and Backfill for Mainline and Service Line Point Repair

   All work performed and measured as provided under Paragraph 1.19.A.5 will be paid for as "Additional Excavation and Backfill for Mainline and Service Lines Point Repair" at the unit price bid, which said price shall be full compensation for additional excavation and backfill for point repair as specified in Section 02965. Contractor will also receive compensation for other items of work performed, including point repair of pipe size repaired, excavation and backfill for sewer line point repair for specific depth excavated, and remove and replace section of sewer main or service line of depth replaced in excess of the ten (10') feet included in the point repair.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.20 REPAIR FAULTY MAINLINE TAP - (ITEMS 39 - 40)

A. Measurement

The work will be measured by the actual number of faulty mainline taps (materials and labor only) included on the Drawings or on a work order issued by the Engineer. Work shall include the installation of a new wye fitting of size required to match existing in place tap and replacement of ten (10) feet of service line as shown on the drawings.

B. Payment

All work performed and measured as provided under Paragraph 1.20.A will be paid for as ”Repair Faulty Mainline Tap”, at the unit price bid, which said price shall be full compensation for the additional materials (fittings) and labor to repair faulty mainline taps. Additional compensation will include a point repair, and excavation and backfill of mainline point repair. Service line installed in excess of 10’ will be paid for under the applicable items for remove and replace section of 4” – 6” service line.

1.21 REMOVE AND REPLACE SERVICE LINES AND GRAVITY MAINS - (ITEMS 41 - 46)

A. Measurement

The work will be measured by the linear foot for removal and replacement of gravity mains or service lines for the category (delineated by pipe size and depth) shown on the Bid Form. The nominal depth brackets are 0-6 feet, 6-8 feet, etc. The nominal length for point repair shall be ten (10) feet as shown on the drawings and this item will be measured in excess of the 10’ point repair. Only gravity mains or service lines indicated on the Drawings or on a work order issued by the Engineer will be measured for payment.

B. Payment

All work performed and measured as provided under Paragraph 1.21.A will be paid for as “Remove and Replace Gravity Mains or Service Lines”, of pipe size and depth at the unit price bid, installed in excess of 10’ for the point repair which said price shall be full compensation for removal and replacement of sewer line as specified in Section 02964.

1.22 GRAVITY SEWER REHABILITATION BY CURED-IN-PLACE LINING - (ITEMS 47 - 50)

A. Measurement

1. Cured-in-Place Liner

The work will be measured by the actual length of cured-in-place liner of size installed which is included on the Drawings or on a work order issued by the Engineer. The length shall be measured from center of manhole to center of manhole along the line section of size that is lined.

2. Repair/Cut Protruding Tap

   Protruding taps repaired or cut internally shall be measured by the actual number of taps repaired or cut irrespective of pipe size.

B. Payment

1. Cured-in-Place Liner

   All work performed and measured as provided under Paragraph 1.22.A.1 will be paid for as "Gravity Sewer Rehabilitation by Cured-in-Place Lining" of pipe size lined at the unit price bid, which said price shall be full compensation for gravity sewer rehabilitation by cured-in-place liner as specified in Section 02967.

   Payment for this item shall also include pre-inversion cleaning, pre-inversion closed circuit TV inspection, post inversion closed circuit TV inspection, testing, and cleanup.

2. Repair/Cut Protruding Tap

   All work performed and measured as provided in Paragraph 1.22.A.2 will be at no direct pay.

1.23 RESTORATION OF SERVICE CONNECTION FOR CURED-IN-PLACE LINING – (ITEM 51)

A. Measurement

Restoration of services shall be measured by the actual number of service connections fully restored irrespective of pipe size.

B. Payment

All work performed and measured as provided in Paragraph 1.23.A will be paid for as "Restoration of Service Connection for Cured-In-Place Lining" at the unit price bid, which said price shall be full compensation for restoration of service as specified in Section 02967.

1.24 PIPE BURSTING - (ITEMS 52 - 54)

A. The work will be measured by the linear foot of pipe bursting of size (including internal and external manhole pipe connections) which is included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided in Paragraph 1.24.A will be paid for as "Pipe Bursting" of pipe size pipe busted at the unit price bid, which said price shall be full compensation for pipe bursting as specified in Section 02968. Payment for this item shall also include Pre-bursting TV inspection, External and internal manhole connections, removal of internal fusion bead (internal de-beading), Post- bursting TV inspection, testing, and cleanup.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.25 PLUG AND ABANDON SERVICE LINE - (ITEM 55)

A. Measurement

The work will be measured by the actual number of service lines plugged and abandoned which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.25.A will be paid for as “Plug and Abandon Service Line” at the unit price bid, which said price shall be full compensation for service lines plugged and abandoned as specified in Section 02965.

1.26 REPLACE OR INSTALL CLEANOUT - (ITEMS 56 - 57)

A. Measurement

The work will be measured by the actual number of cleanouts replaced or installed (including box, cover, and concrete pad) or repair/cap faulty cleanout which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.26.A will be paid for as “Replace or Install Cleanout” or “Repair/Cap Faulty Cleanout” at the unit price bid, which said price shall be full compensation for cleanouts replaced or installed as specified in Section 02536.

1.27 BYPASS PUMPING - (ITEMS 58 - 59)

A. Measurement

1. Set-up Bypass Pump

The work will be measured by the actual number of set-ups of bypass pumping equipment at each location which are included on the Drawings or on a work order issued by the Engineer.

2. Operation of Bypass Pump

The work will be measured by the actual number of hours bypass pumping occurs.

B. Payment

1. Set-up Bypass Pump

All work performed and measured as provided under Paragraph 1.27.A.1 will be paid for as “Set-up Bypass Pump” at the unit price bid, which said price shall be full compensation for set-up of bypass pump as specified in Section 02959.

2. Operation of Bypass Pump

All work performed and measured as provided under Paragraph 1.27.A.2 will be paid for as "Operation of Bypass Pump" at the unit price bid, which said price shall be full compensation for operation of bypass pump as specified in Section 02959.

1.28 BEDDING MATERIAL - (ITEM 60)

A. Measurement

The work will be measured by the actual number of additional cubic yards of bedding material placed in excess of bedding material called for on the Drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.28.A will be paid for as "Bedding Material" at the unit price bid, which said price shall be full compensation for bedding material as specified in Section 02315.

1.29 SELECT BACKFILL MATERIAL - (ITEM 61)

A. Measurement

The work will be measured by the actual number of cubic yards of select backfill material placed (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.29.A will be paid for as "Select Backfill Material" at the unit price bid, which said price shall be full compensation for select backfill material as specific in Section 02315.

1.30 FLOWABLE FILL – (ITEM 62)

A. Measurement

The work will be measured by the actual number of cubic yards of flowable fill material placed (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.30.A will be paid for as "Flowable Fill" at the unit price bid, which said price shall be full compensation for flowable fill material as specific in Section 02315.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.31 REMOVE & REPLACE EXISTING FENCE - (ITEM 63)

A. Measurement

The work will be measured by the actual number of linear feet of fence removed and replaced as necessary in the performance of the work which are included on the Drawings or on a work order issued by the Engineer.

B. All work performed and measured as provided under Paragraph 1.31.A will be paid for as "Remove and Replace Existing Fence" at the unit price bid, which said price shall be full compensation for removal and replacement of existing fence as specified in Section 02820.

1.32 REMOVAL AND REPLACEMENT OF DRAINAGE PIPE - (ITEM 64)

A. Measurement

The work will be measured by the actual number of linear feet of storm drainage pipe removed and replaced which are included on the Drawings or on a work order issued by the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.32.A will be paid for as "Remove and Replace Drainage Pipe" (irrespective of size up to 36" diameter), at the unit price bid, which said price shall be full compensation for the removal and replacement of drainage pipe. For drainage pipes larger than 36", additional compensation will be due to the Contractor. Additional compensation shall be determined on a case by case basis prior the work being performed.

1.33 LIMESTONE FOR MAINTENANCE - (ITEM 65)

A. Measurement

The work will be measured by the actual number of tons of limestone placed as directed by the Resident Project Representative or the Engineer.

B. Payment

All work performed and measured as provided under Paragraph 1.33.A.1 will be paid for as "Limestone for Maintenance" at the unit price bid, which said price shall be full compensation for limestone as specified in Section 02060.

1.34 REMOVAL AND REPLACEMENT OF CONCRETE CURB AND GUTTER – (ITEM 66)

A. Measurement

The work will be measured by the actual number of linear feet of concrete curb and gutter removed and replaced which are included on the Drawings or on a work order issued by the Engineer.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

B. Payment

All work performed and measured as provided under Paragraph 1.34.A will be paid for as "Removal and Replacement of Concrete Curb and Gutter" at the unit price bid, which said price shall be full compensation for the removal and replacement of concrete curb and gutter.

1.35 SAW-CUT EXISTING ASPHALTIC OR P.C. CONCRETE PAVEMENT - (ITEM 67)

A. Measurement

The work will be measured by the actual number of inch-linear foot of saw-cut of existing concrete or asphaltic pavement (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details. Quantity shall be determined by multiplying the number of linear feet sawcut by the depth of the cut.

B. Payment

All work performed and measured as provided under Paragraph 1.35.A will be paid for as "Saw-Cut Asphaltic or P.C. Concrete Pavement" at the unit price bid, which said price shall be full compensation for saw-cut existing pavement or concrete pavement as specified.

1.36 REMOVAL AND RESTORATION OF PAVEMENT - (ITEM 68 - 70)

A. Measurement

1. Concrete Driveway or Sidewalk

The work will be measured by the square yards of concrete driveway or sidewalk removed and replaced in accordance with the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

2. Asphalt Roadway and Base

The work will be measured by the square yards of asphalt roadway and base removed and replaced in accordance with the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

3. P.C. Concrete Roadway and Base

The work will be measured by the square yards of concrete roadway and base removed and replaced in accordance with the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

1. Concrete Driveway or Sidewalk

All work performed and measured as provided under Paragraph 1.36.A.1 will be paid for as “Removal and Restoration of Concrete Driveway or Sidewalk” at the unit price bid, which said price shall be full compensation for concrete driveway or sidewalk as specified in Section 02980, as applicable.

2. Asphalt Roadway and Base

All work performed and measured as provided under Paragraph 1.36.A.2 will be paid for as “Removal and Restoration of Asphalt Roadway and Base” at the unit price bid, which said price shall be full compensation for asphalt roadway and base as specified in Section 02975.

3. P.C. Concrete Roadway and Base

All work performed and measured as provided under Paragraph 1.36.A.3 will be paid for as “Removal and Restoration of P.C. Concrete Roadway and Base” at the unit price bid, which said price shall be full compensation for concrete roadway and base as specified in Section 02980.

1.37 PROJECT SIGN - (ITEM 71)

A. Measurement

The work will be measured by lump sum for project sign erected as called for on the drawings (as directed by the Resident Project Representative or the Engineer) within the limits specified in accordance with the Drawing details.

B. Payment

All work performed and measured as provided under Paragraph 1.37.A will be paid for as “Project Sign” at the lump sum price, which said price shall be full compensation for project sign as specified in Section 01580.

1.38 TRAFFIC CONTROL - (ITEM 72)

A. Measurement

The work will be measured by lump sum for traffic control as necessary for the performance of the work and safety of the public within the limits specified in accordance with the Section 02760 of the Technical Specifications.

B. Payment

All work performed and measured as provided under Paragraph 1.38.A will be paid for as “Traffic Control” at the lump sum price, which said price shall be full compensation for traffic control as specified in Section 02760.

SECTION 01025 (SR) - MEASUREMENT AND PAYMENT

1.39 MOBILIZATION - (ITEM 73)

A. Measurement

The work will be measured by lump sum for mobilization.

C. Payment
All work performed and measured as provided under Paragraph 1.39.A will be paid for as "Mobilization" at the lump sum price in accordance with the schedule of Table 1 below up to a maximum of 10 percent of the original total contract amount, including this item, which said price shall be full compensation for mobilization as specified in Section 01505.

TABLE 1
MOBILIZATION PAYMENT SCHEDULE

PERCENT OF TOTAL CONTRACT AMOUNT EARNED	ALLOWABLE PERCENT OF THE LUMP SUM PRICE FOR MOBILIZATION
1ST Partial Estimate	25
10	50
25	75
50	100
No payment adjustments will be made for this item due to changes in the work.	

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01030 - ALTERNATES/ALTERNATIVES

PART 1 - GENERAL

1.01 SCOPE

A. This Section identifies each alternate/alternative allowance on major equipment and/or material by the Engineer.

1.02 BIDDING REQUIREMENTS

A. In the bid form, the bidder shall identify the type of material or manufacturer of equipment proposed for this project in the blanks provided.

B. When required by these Specifications, pre-qualifications of certain material and/or equipment will be required during the bidding phase of the project. A list of pre-qualified material and/or equipment shall be stated in Paragraph III of the Bid Qualifications.

C. The pre-qualification process requires all data and information of material and/or equipment not listed in the Technical Specification but desiring consideration for this project be submitted to the Engineer, fifteen (15) days prior to the receipt of bids. No submittals will be considered within fifteen (15) days prior to the receipt of bids.

1.03 PRE-QUALIFIED MATERIAL OR EQUIPMENT

A. If pre-qualified material or equipment is specified, only those items listed in the Specification or Addenda will be permitted to be incorporated into the project.

B. Those items which are not listed as pre-qualified materials and/or equipment in the Supplementary Conditions shall be submitted for consideration as product substitutions and options as required by Section 01600.

1.04 APPROVAL OF PRE-QUALIFIED MATERIAL OR EQUIPMENT ALTERNATES/ALTERNATIVES

A. If an alternate material and/or equipment is approved by Addendum, the Contractor shall be responsible for providing design calculations and drawing revisions for alternate products which affect the existing design, Specifications and Drawings, including, but not limited to, hydraulics, structural, piping, and electrical. The cost of these revisions shall be paid for by the Contractor. All design changes shall be approved by the Engineer prior to incorporation into the project.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01035 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS

A. Refer to Articles 10, 11 and 12 of the General Conditions with regards to changes in Contract Price and Contract Time.

B. Promptly implement Change Order procedures.

1. Provide full written data required to evaluate changes.

2. Maintain detailed records of work done on a time and material/force account basis.

3. Provide full documentation to Engineer on request.

C. Designate in writing the member of Contractor's organization:

1. Who is authorized to accept changes in the work.

2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the work.

D. Owner will designate in writing the person who is authorized to execute Change Orders.

1.02 DOCUMENTATION

A. Contractor may initiate a change by submitting a written notice to the Engineer containing:

1. Description of the proposed change.

2. Statement of the reason for making the change.

3. Statement of the effect on the Contract Price and the Contract Time.

4. Statement of the effect on the work of other Contractors.

5. Documentation supporting any change in Contract Price or Contract Time as appropriate and adequate for proper review by the Engineer.

B. If not required by any U.S. Government Agencies, Change Order form shall be E.J.C.D.C. Form No. C-941 (2002 Edition) or the latest revision thereof. Change Order request shall be within thirty (30) days of the occurrence with the exception of inclement weather as outlined by other Sections of this Specification.

1.03 CONSTRUCTION CHANGE AUTHORIZATION

A. Change Orders will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.

B. Change Orders must have the Owner's and Contractor's approvals. Change Orders on projects funded in whole or in part by loans or grants from agencies of the U.S. Government must be approved by the respective agency prior to their incorporation into the project.

1.04 DOCUMENTATION OF PROPOSALS AND CLAIMS

A. Contractor shall support proposed lump sum proposal pricing and each unit price which has not previously been established with sufficient substantiating data to allow the Engineer to evaluate the pricing.

B. Contractor shall provide the following data to support proposed time and pricing of both lump sum proposals, unit pricing, and time and material proposals:

1. Labor required.

2. Equipment required.

3. Products required.

a. Recommended source of purchase and unit cost.

b. Quantities required.

4. Taxes, insurance and bonds.

5. Credit for work deleted from Contract, similarly documented.

6. Overhead and profit.

7. Justification for any change in Contract Time.

C. In addition, Contractor shall support each claim for work done on a time and material/force account basis with the following additional information:

1. Dates and times work was performed and by whom.

2. Time record, summary of hours worked, and hourly rates paid.

3. Receipts and invoices for:

a. Equipment used, listing dates and times of use.

b. Products used, listing quantities purchased.

c. Subcontractors used, showing the same data as above.

1.05 PREPARATION OF CHANGE ORDERS

A. Engineer will prepare each Change Order.

B. Form: E.J.C.D.C. No. C-941 (2002 Edition)

C. Change Order will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

D. Change Order will provide an accounting of the adjustment in the Contract Price and in the Contract Time.

1.06 LUMP SUM/FIXED PRICE CHANGE ORDER

A. Engineer initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor or requests from Owner or both.

B. Once Engineer has completed and signed the form, all copies will be sent to Contractor for execution. The Contractor shall execute the change order documents and return it to the Engineer within seven (7) days. After execution by Contractor, all copies will be sent to the Owner for execution. Engineer will make distribution of executed copies.

1.07 UNIT PRICE CHANGE ORDERS

A. Content of Change Orders will be based on either:

1. Engineer's definition of the scope of the required changes.

2. Contractor's proposal for a change, as recommended by Engineer.

3. Survey of complete work.

B. The amounts of the unit prices to be:

1. Those stated in the Contract Bid Form.

2. Those mutually agreed upon between Owner and Contractor.

1.08 CORRELATION WITH CONTRACTOR'S SUBMITTALS

A. Contractor shall revise monthly the Schedule of Values and Application for Payment forms to record each Change Order as a separate item of work and to record the adjusted Contract Price.

B. Contractor shall revise monthly the Construction Schedule to reflect each change in Contract Time, to include subschedules to show changes for other items of work affected by the changes.

C. Upon completion of work under a Change Order, the Contractor shall enter pertinent changes in Record Documents.

1.09 PROCEEDINGS WHEN CONTRACTOR DOES NOT EXECUTE THE CHANGE ORDERS

It is anticipated that at the time of submittal to the Contractor, negotiations will have been completed with all parties agreeing to the change(s) in the work, change in Contract Price, and change in Contract Time. In the event that no agreement can be reached and the Contractor fails to execute the Change Order within the specified time limit, the Owner may issue a Change Order without signature of the Contractor establishing a change to Contract Price or Contract

SECTION 01035 - MODIFICATION PROCEDURES

Time in accordance with the provisions of Article 10 of the General Conditions. The Contractor will then be paid or assessed time on the basis of the Change Order for the change in work with the Contractor not relinquishing his rights to submit a claim in accordance with Articles 11 and 12 of the General Conditions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01041 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 WORK PROGRESS

The Contractor shall furnish personnel and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such personnel appear to the Engineer to be inefficient, inappropriate, or insufficient for performing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the personnel and equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to perform the work at the specified quality and rate of progress.

1.02 PRIVATE LAND

A. The Contractor shall be aware that his work will be performed adjacent to private property. The Contractor shall notify all property owners adjacent to and along the route of construction by means of either a printed circular or form letter of the general details of the construction. The letter shall also include names and telephones numbers for key project personnel so that property owners can report problems. These contact telephone numbers shall be given so that appropriate personnel can be contacted twenty-four (24) hours a day, seven (7) days a week.

B. The Contractor shall not enter or occupy private land outside the Owner's land, rights-of-way, or servitudes except by written permission of both the Owner and the owner of the private land. Such permission shall be obtained by and at the expense of the Contractor and at no additional cost to the Owner.

C. Owners of adjacent private land shall be inconvenienced as little as possible by the construction work. Where possible, the Contractor shall maintain access across or over the work to adjacent property. At locations where an adjacent property has more than one (1) access point for vehicular traffic, such as paved or aggregate surfaced driveways, grassed ramps, gaps, etc., the Contractor shall schedule his work so that at least one (1) access point is usable by the property owner, his associates, or his clientele in the case where the adjacent property is a business establishment.

1.03 WORK LOCATIONS

Structures and pipelines shall be located substantially as indicated on the Drawings, but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

1.04 OPEN EXCAVATIONS

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights, and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by the public, Owner's and Engineer's personnel, and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. If the excavation becomes a hazard, or if it excessively

restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open trench, prohibiting the stacking of excavated material in the street, and requiring that the excavations shall not remain open overnight.

B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.

1.05 TEST PITS

Test pits for the purpose of locating underground utilities or structures which may interfere with installation of the work shall be excavated in advance of the work and backfilled by the Contractor. Test pits shall be backfilled immediately after their purpose has been satisfied and maintained in a manner satisfactory to the Engineer. The costs for such test pits, except as provided for in the Bid Form, shall be included in the cost of the work for which the test pits benefit. Backfill shall comply with the Specifications for backfill of pipe. The maximum number of test pits to be excavated shall be equivalent to two (2) for each structure and one (1) for each two hundred linear feet (200') of pipeline.

1.06 MAINTENANCE OF TRAFFIC

A. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Contractor shall provide for normal traffic flow during extended construction stoppage, regardless of the cause.

B. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operation causes traffic safety hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other measures for safety satisfactory to the Engineer. All excavations shall be covered, backfilled, or protected as directed by the Engineer, fully delineated at night when the work is not in progress.

C. Detours around construction areas will be subject to the approval of the Owner and the Engineer. Where detours are permitted the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the Contractor shall expedite construction operations. The periods when traffic may be detoured will be strictly controlled by the Owner.

1.07 CARE AND PROTECTION OF PROPERTY

A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the Engineer.

B. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be

restored in a condition equal to the original construction and in accordance with the best modern practice.

C. Along the location of this work, all fences, walks, brushes, trees, shrubbery, and other physical features shall be protected and restored in a thoroughly workmanlike manner.

Fences and other features removed by the Contractor shall be replaced in the location indicated by the Engineer as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regraded and sodded.

D. Trees close to the work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the Engineer. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials.

E. The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the Contract, and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Proposal.

F. Where fences must be removed for construction purposes or access, they shall immediately be reconstructed or replaced. The Contractor shall provide adequate temporary fence and gates as necessary to contain or restrict domestic farm animals within their proper areas during the life of this Contract and shall provide reasonably safe and convenient means of access where and when required.

1.08 MAINTENANCE OF FLOW

The Contractor shall maintain the flow of sewers, drains, and water courses interrupted during the progress of the work, including complete pumped bypass systems where necessary. The Contractor shall immediately remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer well in advance of the interruption of any flow. All temporary works installed for flow maintenance shall be removed when the permanent work is finished and the areas cleaned and restored to good condition. Pavement removal and replacement which, in the opinion of the Contractor, is necessitated by placement of temporary flow control facilities, shall be considered as an item for convenience to the Contractor. Such costs for pavement removal and replacement shall, therefore, be born by the Contractor at his own cost as required for other flow control measures. The intent of this Specification is that pavement removal be limited to the least amount possible and the Contractor shall investigate alternative methods for flow control which require the least amount of pavement removal.

1.09 CONNECTION TO WORK BY OTHERS

It is anticipated that pipeline construction by others may occur at the same time and in the same areas as work being done under this Contract. The Contractor will, therefore, conduct his operations as follows:

A. Sewer Lines

1. If shown on the Drawings, sewers built by others may be connected to sewers and/or manholes constructed under this Contract.

2. If the sewers and/or manhole by others have already been constructed, the manholes and/or sewers under this Contract shall be built at the exact locations of the connection as actually exist in the field. The Contractor is responsible for pot holing the connection points in advance of constructing manholes and/or sewers under this Contract to ensure the proper alignment at the connection point.

3. If the sewers and/or manholes by others have not been constructed, the sewers shall be built at the exact locations of the connection as shown on the Drawings and plugged.

B. Force Mains and Waterline

1. Where shown on the Drawings, force mains constructed under this Contract shall be connected to pipelines to be built by others. All connections at the Contract limits of force mains shall be terminated with a standard mechanical joint bell end and plugged with a standard mechanical joint plug.

2. If the force main or waterlines by others have already been constructed, the force mains built under this Contract will be connected to the force mains constructed by others by removing all necessary plugs and making the connection(s). The Contractor shall pot hole connection points in advance of development of laying schedules for all pipe size of sixteen inches (16") and larger to ensure the proper alignment at the connection point. Upon completion of the tie-in connection(s), Contractor shall deliver all removed plugs to the Owner's facility.

3. If the force mains or waterlines have not been constructed by others, the force mains or waterlines under this Contract shall be laid to the required line and grade, terminated with a plug at the location of the connection indicated on the Drawings, backfilled and marked with a stake.

4. The notation on the Drawings at tie-in points states that the Contractor shall tie to facilities constructed by others or provide a plug. The intent of this instruction is that, if a tie-in cannot be made, the Contractor shall furnish and install a plug at the terminal end as defined above.

1.10 PROTECTION OF CONSTRUCTION AND EQUIPMENT

A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed. All portions injured shall be reconstructed by the Contractor at his own expense.

B. All structures shall be protected in a manner approved by the Engineer. Should any of the floors or other parts of the structures become heaved, cracked or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor at no additional cost to the Owner and to the satisfaction of the Engineer. Special attention is directed to substructure bracing requirements, described in other sections. If, in the final inspection of the work, any defects, faults or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein for at least the guarantee period described in the Contract.

C. The Contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the Owner.

D. After the buildings or structures have been made weathertight and ready for the installation of pumps, motors, piping and other equipment, the interior temperature shall be maintained at a minimum temperature of 50° F., and thereafter until the completion of the contract, temperature shall not be allowed to drop below 50° F.

1.11 CLEANUP DURING CONSTRUCTION

During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

1.12 COOPERATION WITHIN THIS CONTRACT

A. All firms or persons authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.

B. Cutting and patching, drilling, and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the Engineer.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01046 - MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

PART 1 - GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment, and incidentals required to modify, alter and/or convert existing structures as shown or specified and as required for the installation of new mechanical equipment, pumping units, piping, and appurtenances. Work shall be performed within the requirements of Special Project Procedures in Section 01100 and required Progress Schedules in Section 01310. Existing pumping units, piping, and equipment shall be removed and dismantled as necessary for the performance of structural alterations in accordance with the requirements herein specified.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall dismantle and remove all existing pumping units, equipment, piping, electrical conduit and wiring, electrical panels, and other appurtenances required for the completion of the work. Where called for or required, he shall cut existing pipelines for the purpose of making connections thereto.

   1. Anchor bolts for equipment and structural steel removed shall be cut off one inch (1") below the concrete surface. Surface shall be finished as specified in Division 3.

B. No existing structure, equipment, or appurtenance shall be shifted, cut, removed, or otherwise altered except with the express approval of and to the extent approved by the Engineer.

C. When removing materials or portions of existing structures and when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work and not to damage the structures or contents by falling or flying debris.

D. Materials and equipment removed in the course of making alterations and additions shall remain the property of the Owner, except that items not salvageable, as determined by the Engineer and the Owner shall become the property of the Contractor to be disposed of by him off the site of the work at his own place of disposal. Operating equipment shall be thoroughly cleaned and then lubricated and greased for protection during prolonged storage as specified in other Sections.

E. All work of altering existing structures shall be done at such time and in such manner as will comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.

F. All workmanship and new materials involved in constructing the alterations shall conform to the Specifications for the classes of work insofar as such Specifications are applicable.

G. All cutting of existing masonry or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective Section of these Specifications covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the Engineer.

H. Where holes in existing masonry are required to be sealed, unless otherwise herein specified, they shall be sealed with cement mortar or concrete. The sides of the openings shall be provided with keyed joints and shall be suitably roughened to furnish a good bond and make a watertight joint. All loose or unsound material adjacent to the opening shall be removed, and if necessary, replaced with new material. The method of placing the mortar seal shall provide a suitable means of releasing entrapped air.

I. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.

J. Nonshrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.

K. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, he shall weld bends, flanges, or provide dresser couplings, all as required.

L. The Contractor shall provide flumes, hoses, piping, etc., to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of wastewater, water, or other liquids, all as required in the performance of the work under this Contract.

3.02 WALL PENETRATIONS

Unless otherwise shown on the Drawings or specified herein, wall penetrations for pipes or conduits shall be made using a modular sealing strip such as the Link-Seal as manufactured by Thunderline Corporation, Wayne, Michigan, or approved equal. Wall sleeves for use with the sealing strips shall be Schedule 40, galvanized steel pipe. A suitable water stop approximately one-fourth inch (¼") thick by two-inch (2") wide shall be welded to the sleeve completely around the periphery of the pipe. The use of such sealing strips shall not relieve the Contractor of his responsibility of providing a guaranteed water tight seal. Wall penetrations will be permitted only with the expressed approval of the Engineer. Wall seals exposed to sewage or sewage gasses shall be rated for corrosive service.

3.03 CLEANING EXISTING STRUCTURES

A. After dewatering and before commencing work on each structure, the Contractor shall remove and dispose of, away from the site and at a properly permitted disposal site, any sand, sludge, and other solids remaining in such structure.

B. The use of explosives will not be permitted to complete any work under this Contract. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

END OF SECTION

SECTION 01048 - UTILITIES COORDINATION

PART 1 - GENERAL

1.01 UTILITIES

Utilities for the purpose of these Specifications shall be considered as including, but not limited to: pipelines, conduits, cables, transmission lines and appurtenances of Public Utilities and those of Special Utility Districts, Cities or Towns, businesses or individuals solely for their own use or for use of their tenants; and storm drains, sanitary sewers, street lighting, traffic signal and fire alarm systems, except those owned or under the direct control of the Owner.

1.02 UNDERGROUND INSTALLATIONS

Existing underground pipelines and utilities are indicated on the Drawings only to the extent such information was made available to or discovered by Engineer in preparing Drawings. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness thereof is expressly disclaimed by the Owner and the Engineer.

1.03 UTILITIES LOCATED IN OWNER'S RIGHT-OF-WAY

Unless otherwise provided or excepted herein, the removal, adjusting, relocation, or replacement of utility structures or facilities within the Owner's right-of-way which may be necessary for construction of the work being done, in accordance with these Contract Documents, shall be at the expense of the owners of the utilities.

While it is the utility owner's responsibility to perform any work and bear any expense involved in relocations and adjustments within Owner's right-of-way, it shall be the Contractor's responsibility to protect and maintain those utilities which, in the opinion of the Engineer, do not need to be disturbed in order to accomplish the work required by the Contract.

1.04 RELOCATIONS OF EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES, CABLE TV LINES, AND WATER LINES

The Contractor shall notify the proper authority of the utility involved when relocation of these lines is required. The Contractor shall coordinate all work by the utility so that the progress of construction will not be hampered.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL

The Contractor, when the Notice to Proceed is received, shall notify the owners of utilities affected by the work, the approximate date upon which he will begin work, and shall submit a progress schedule of the proposed work. This shall be deemed sufficient notice if the project progresses according to the progress schedule submitted with the notification. If changes in the schedule of the work occur, the Contractor shall appraise both the owner of the utility affected, and the Engineer so that adjustments in the work schedule of the utility can be made. The Contractor shall be responsible for damages to the utility facility and construction delays resulting from failure to notify the utility and the Engineer of changes in procedure or location.

SECTION 01048 - UTILITIES COORDINATION

3.02 UTILITY CROSSINGS

It is intended that wherever existing utilities such as water, gas, telephone, electrical, drains, or other service lines must be crossed by a force main or waterline, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated on the Drawings. However, when in the opinion of the Owner or Engineer this procedure is not feasible, he may direct the use of fittings for a utility crossing as detailed on the Drawings.

3.03 TEST PITS

A. Test pits for the purpose of locating underground pipelines or structures shall be excavated prior to development of laying schedules for all pipe sizes of sixteen inches (16") and larger. The test pits shall be for the purpose of accurately locating underground utilities and structures both horizontally and vertically. Underground utilities' and structures' locations shall be referenced to the project baseline by station and offset distance, left or right and measured perpendicular to the baseline, along with the elevation of the top of the utility or structure. The data shall also include the size and depth or diameter of the utility or structure.

B. This procedure shall be completed for the entire project and all underground utilities and structures shall be located as described above in conformance with the requirements of the field engineering provision of Section 01050. The data collected shall be used to develop a pipe laying schedule with accurately depicts the location of underground utilities and structures and details both horizontal and vertical deflections and adjustments of the proposed force main pipe required to eliminate conflicts. This laying schedule shall be submitted to the Engineer for approval prior to fabrication of the pipe.

C. Test pits shall be excavated and backfilled prior to both the preparation of the pipe laying schedule and the commencement of construction. The test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer. The costs of the test pit excavations shall be included in the various bid items for which the test pits benefit, except as otherwise allowed by Section 01025, Measurement and Payment.

3.04 PROTECTION OF EXISTING UTILITIES

A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the Owner.

B. The Contractor shall assume full responsibility for the protection of all utilities, public and private, including poles, services to buildings, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by him at his expense.

The protection and preservation of utility facilities which are located within the right-of-way, but outside the normal limits of construction, as determined by the Engineer, shall be the responsibility of the Contractor. The Contractor shall be responsible for all damage to utilities which are due to his negligence.

C. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the Owner is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the unit prices bids, if applicable, or as extra work under Article 10 of the General Conditions. If relocation of a privately owned utility is required, the Contractor will notify the utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Owner and utility and shall have no claim for delay due to such relocation.

E. The Contractor shall notify public and private utility companies in writing at least two (2), but not more than five (5) full days (excluding Saturdays, Sundays, and legal holidays) before excavating near their utilities.

F. The Owner will not be responsible for any delay or inconvenience to the Contractor in carrying out the work resulting from the existence, removal or adjustment of any public utility. Additional costs incurred as a result thereof shall be the expense of the Contractor.

3.05 UTILITIES TO BE ADJUSTED

A. The owners of utility facilities which required relocation, removal, adjustment or replacement shall, if possible and feasible, perform this work prior to the commencement of the Contractor's work. Where utility work must be done in conjunction with the Contractor's work on the project or in conjunction with the work of other utilities, arrangements for when, how and where the operation is to proceed shall be worked out among the parties concerned. If disputes arise, the Engineer shall decide the course of action to be taken.

3.06 UTILITIES CONFLICTING WITH OPERATIONS

A. Those utility facilities which do not conflict with the improvement, but which are obstructions to the operations required for installation or which present unusual difficulty due to their close proximity to the area of the operations shall be located with certainty by the owners of the utility prior to the arrival of the Contractor's operation which would be hindered by the utility facility. The Contractor is required to preserve the utility facility in place without damage and shall be responsible for damages sustained, if the utility owner has located the facility by exposing it to the view of the Contractor or has otherwise shown the Contractor, with certainty, the location of the facility. Any other arrangements that the Contractor may make with a utility owner as a substitute for the requirements of this Section shall require the approval of the Engineer, in writing.

3.07 MISLOCATED UTILITIES

A. The owner of a utility shall be wholly responsible for the proper location of his facilities which are affected by construction work performed according to these Specifications. Improperly located or mislocated facilities which are damaged during construction shall be the responsibility of the utility, providing proper notification has been given.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01050 - FIELD ENGINEERING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Contractor shall provide and pay for field engineering services for:

1. Survey work required in execution of work.

2. Civil, structural, or other professional engineering services specified or required to execute the Contractor's construction method.

B. The method of field staking for the construction of the work shall be at the option of the Contractor. The Owner shall provide the engineering surveys to establish reference points which in his judgement are necessary to enable the Contractor to proceed with his work.

C. The accuracy of any method of staking shall be the responsibility of the Contractor. All engineering for vertical and horizontal control shall be the responsibility of the Contractor.

D. The Contractor shall be held responsible for the preservation of all stakes and marks. If any stakes or marks are carelessly or willfully disturbed by the Contractor, the Contractor shall not proceed with any work until he has reestablished such points, marks, lines and elevations as may be necessary for the prosecution of the work.

E. The Contractor shall retain the services of a competent surveyor, registered in the State of Louisiana, to layout the work and maintain a survey during construction. The Contractor shall be solely responsible for proper location of the work.

1.02 SURVEY REFERENCE POINTS

Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.

1. Make no changes or relocations without prior written notice to the Engineer.

2. Report to the Engineer when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.

3. Require surveyor to replace control points which may be lost or destroyed. Establish replacements based on original survey control.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01050 - FIELD ENGINEERING

1.03 PROJECT SURVEY REQUIREMENTS

A. Establish temporary bench marks as needed, referenced to data established by survey control points. Record locations, with horizontal and vertical data, on Record Drawings.

B. Establish lines and levels, and locate and lay out, by instrumentation and similar appropriate means:

1. Site improvements, including utility slopes and invert elevations.

2. Batter boards for structures.

3. Controlling lines and levels required for mechanical and electrical trades.

C. From time to time, verify layouts by same methods.

D. Establish all lines and grades prior to construction of pipe work at one hundred foot (100') increments.

1.04 RECORDS

A. Maintain a complete, accurate log of all control and survey work as it progresses.

B. At Contract closeout, submit a survey of installation of structures and pipelines at the same scale as the Engineer's Drawings indicating elevations and stationing at one hundred foot (100') increments and at all valve and fitting locations when applicable.

1.05 SUBMITTALS

A. On request of the Engineer, submit documentation to verify accuracy of field engineering work including cut sheets when applicable.

B. Submit Drawings showing locations of all pipes and structures constructed. This Drawing shall be included with the Record Drawings.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01060 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Abbreviations and acronyms used in Contract Documents to identify reference standards are illustrated in Section 01092 - Abbreviations.

1.02 QUALITY ASSURANCE

A. Application

When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.

B. Publication Date

The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

C. Merchantable timber must be harvested and sold commercially to satisfy requirements of the State of Louisiana Forestry Commission.

D. Siltation and sedimentation control shall be practiced to satisfy requirements of the State of Louisiana Department of Wildlife and Fisheries.

E. Detailed requirements such as fertilizer and seeding types, application rates, and seasons shall be subject to modification by the local Soil and Water Conservation District.

1.03 FINANCING BY GOVERNMENTAL AGENCIES

A. When projects are funded by Federal or State agencies, the regulations and rules of the funding agency shall be strictly adhered to.

B. Contractor shall secure from the Owner or the funding agency the regulation applicable to his work and organization including all labor requirements.

C. The Contractor shall be responsible to comply with all rules and regulations as outlined by the funding agency.

1.04 COMPLIANCE WITH REGULATIONS

A. The Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the work, the materials used in the work, or the conduct of the work. If any discrepancy or inconsistency should be discovered in this Contract in relation to any such law, ordinance, code, order, or regulation, the Contractor shall report the same in writing to the Engineer. Any particular law or regulation specified or referred to elsewhere in these Specifications shall not in any way limit the obligation of the Contractor to comply with all other provisions of Federal, State and local laws and regulations.

SECTION 01060 - REGULATORY REQUIREMENTS

B. The Contractor shall be responsible for securing all permits and licenses required and shall pay all fees required to complete the job.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01091 - REFERENCE STANDARDS

PART 1 - GENERAL

1.01 UNIT OF MEASURE

A. The standard units of measure shall be the inch-pound as defined by the U.S. National Bureau of Standards. Metric conversion shall be in accordance with ASTM E380.

1.02 STANDARD STATUS

A. All Standards referred to shall be current with latest addenda and supplements as of the date of the Contract Documents.

B. All work shall comply with all governing building and safety laws, ordinances and regulations relating to building and public health and safety laws having jurisdiction.

1.03 REFERENCE MATERIAL

A. All reference material utilized in the formation of these specifications can be obtained from local libraries or from the Engineer at the costs of reproduction.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The following standards are referenced in the Contract Documents. The Contractor shall obtain copies of reference standards directly from the publication source when needed for proper performance of work or when required for submittal by Contract Documents.

AA	Aluminum Association 818 Connecticut Ave. NW Washington, DC 20006	202/862-5100
AABC	Associated Air Balance Council 1518 K Street NW, Suite 503 Washington, DC 20005	202/737-0202
AAMA	American Architectural Manufacturer's Association 2700 River Road, Suite 118 Des Plaines, IL 60018	312/699-7310
AAN	American Association of Nurserymen 1250 I Street NW, Suite 500 Washington, DC 20005	202/789-2900
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Suite 225 Washington, DC 20001	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 Research Triangle Park, NC 27709	919/549-8141
ACI	American Concrete Institute P.O. Box 19150 22400 W. Seven Mile Road Detroit, MI 48219	313/532-2600
ACIL	American Council of Independent Laboratories 1725 K Street NW Washington, DC 20006	202/887-5872
ACPA	American Concrete Pipe Association 8320 Old Courthouse Road, Suite 201 Vienna, VA 22180	703/821-1990
ADC	Air Diffusion Council 230 N. Michigan Ave., Suite 1200 Chicago, IL 60601	312/372-9800

AGA	American Gas Association 1515 Wilson Blvd. Arlington, VA 22209	703/841-8400
AGMA	American Gear Manufacturers Association 1500 King Street, Suite 201 Alexandria, VA 22314	703/684-0211
AHA	American Hardboard Association 887B Wilmette Road Palatine, IL 60067	312/934-8800
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740-1802	301/277-4258
AIA	American Institute of Architects 1735 New York Ave. NW Washington, DC 20006	202/626-7300
A.I.A.	American Insurance Association 85 John Street New York, NY 10038	212/669-0400
AIHA	American Industrial Hygiene Association 475 Wolf Ledges Parkway Akron, OH 44311	216/762-7294
AISC	American Institute of Steel Construction 400 N. Michigan Ave., 8th Floor Chicago, IL 60611	312/670-2400
AISI	American Iron and Steel Institute 1000 Sixteenth Street NW Washington, DC 20036	202/452-7100
AITC	American Institute of Timber Construction 333 W. Hampden Ave. Englewood, CO 80110	303/761-3212
ALI	Associated Laboratories Eight Brush Street Pontiac, MI 48053	313/335-6114
ALSC	American Lumber Standards Committee P.O. Box 210 Germantown, MD 20874	301/972-1700
AMCA	Air Movement and Control Association 30 W. University Drive Arlington Heights, IL 60004	312/394-0150

ANSI	American National Standards Institute 1430 Broadway New York, NY 10018	212/354-3300
APA	American Plywood Association P.O. Box 11700 Tacoma, WA 98411	206/565-6600
A.P.A.	American Parquet Association 1650 Union National Plaza Little Rock, AR 72201	501/375-5561
API	American Petroleum Institute 1220 L Street NW Washington, DC 20005	202/682-8000
ARI	Air Conditioning and Refrigeration Institute 1501 Wilson Blvd. Arlington, VA 22209	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association 6288 Montrose Road Rockville, MD 20852	301/231-9050
ASA	Acoustical Society of America 335 East 45th Street New York, NY 10017	516/349-7800
ASC	Adhesive and Sealant Council 1500 Wilson Blvd., Suite 515 Arlington, VA 22209	703/841-1112
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017	800/548-ASCE
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle NE Atlanta, GA 30329	404/636-8400
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017	212/705-7722
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362	805/495-7120
ASSE	American Society of Sanitary Engineering P.O. Box 40362 Bay Village, OH 44140	216/835-3040
ASTM	American Society for Testing & Materials 655 Fifteenth Street NW Washington, DC 20005 1916 Race Street	202/639-4025

	Philadelphia, PA 19103	215/299-5400
AWI	Architectural Woodwork Institute 2310 S. Walter Reed Drive Arlington, VA 22206	703/671-9100
AWPA	American Wood Preservers' Association P.O. Box 849 Stevensville, MD 21666	301/643-4163
AWPB	American Wood Preservers' Bureau P.O. Box 6058 2772 S. Randolph Street Arlington, VA 22206	703/931-8180
AWS	American Welding Society P.O. Box 351040 550 Le Jeune Road NW Miami, FL 33135	800/443-9353
AWWA	American Water Works Association 6666 W. Quincy Ave. Denver, CO 80235	303/794-7711
BANC	Brick Association of North Carolina P.O. Box 13290 Greensboro, NC 27415	919-273-5566
BHMA	Builders' Hardware Manufacturers Association 60 East 42nd St., Room 511 New York, NY 10165	212/682-8142
BIA	Brick Institute of America 11490 Commerce Park Drive, Suite 300 Reston, VA 22091	703/620-0010
BIFMA	Business and Institutional Furniture Manufacturers Association 2335 Burton Street SE Grand Rapids, MI 49506	616/243-1681
CAUS	Color Association of the United States 343 Lexington Avenue New York, NY 10016	212/683-9531
CAGI	Compressed Air and Gas Institute c/o Thomas Associates, Inc. 1230 Keith Building Cleveland, OH 44115	216/241-7333
CBM	Certified Ballast Manufacturers Association Hanna Building, Suite 772 1422 Euclid Avenue Cleveland, OH 44115	216/241-0711

CDA	Copper Development Association Box 1840, Greenwich Office Park 2 Greenwich, CT 06836	203/625-8210
CGA	Compressed Gas Association 1235 Jefferson Davis Highway Arlington, VA 22202	703/979-0900
CISPI	Cast Iron Soil Pipe Institute 1499 Chain Bridge Road, Suite 203 McLean, VA 22101	703/827-9177
CLFMI	Chain Link Fence Manufacturers Institute 1776 Mass Avenue N.W. Suite 500 Washington, DC 20036	202/659-3537
CLPA	California Lathing and Plastering Association 25332 Narbonne, Suite 170 Lomita, CA 90717	213/539-6080
CRI	Carpet and Rug Institute Box 2048 Dalton, GA 30720	404/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195	312/490-1700
CTI	Ceramic Tile Institute of America 700 North Virgil Avenue Los Angeles, CA 90029	213/660-1911
DHI	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102	703/556/3990
DIPRA	Ductile Iron Pipe Research Association 245 Rivercase Parkway E, Suite 100 Birmingham, AL 35244	205/988-9870
DLPA	Decorative Laminate Products Association (Formerly the National Assoc. of Plastic Fabricators) 600 South Federal Street, Suite 400 Chicago, IL 60605	312/345-1600
ECSA	Exchange Carriers Standards Association Four Century Drive, 3rd Floor Parsippany, NJ 07054	201/538-6111
EIA	Electronic Industries Association 2001 Eye Street NW Washington, DC 20006	202/457-4900
EIMA	Exterior Insulation Manufacturers Association P.O. Box 75037 Washington, DC 20013	202/783-6582

ETL	ETL Testing Laboratories, Inc. P.O. Box 2040 Route 11, Industrial Park Cortland, NY 13045	604/753-6711
FCI	Fluid Controls Institute P.O. Box 9036 Morristown, NJ 07960	201/829-0990
FGMA	Flat Glass Marketing Association White Lakes Professional Building 3310 Harrison Topeka, KS 66611	913/266-7013
FM	Factory Mutual Engineering and Research 1151 Boston-Providence Turnpike Norwood, MA 02062	617/762-4300
FTI	Facing Tile Institute c/o Box 8880 Canton, OH 44711	216/488-1211
GA	Gypsum Association 1603 Orrington Ave. Evanston, IL 60201	312/491-1744
HEI	Heat Exchange Institute c/o Thomas Associates, Inc. 1230 Keith Building Cleveland, OH 44115	216/241-7333
HI	Hydronics Institute P.O. Box 218 35 Russo Place Berkeley Heights, NJ 07922	201/464-8200

HMA	Hardwood Manufacturers Association 805 Sterick Building Memphis, TN 38103	901/525-8221
ICEA	Insulated Cable Engineers Association, Inc. P.O. Box P South Yarmouth, MA 02664	617/394-4424
IEC	International Electrotechnical Commission 655 Fifteenth Street NW, Suite 300 Washington, DC 20015	202/639-4090
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th Street New York, NY 10017	212/705-7900
IESN	AIlluminating Engineering Society of North America 345 E. 47th Street New York, NY 10017	212/705-7926
IGCC	Insulating Glass Certification Council Route 11, Industrial Park Cortland, NY 13045	607/753-6711
ILI	Indiana Limestone Institute of America Stone City Bank Building, Suite 400 Bedford, IN 47421	812/275-4426
IMSA	International Municipal Signal Association P.O. Box 8249 Fort Worth, TX 76112	817/429-8638
IRI	Industrial Risk Insurers 85 Woodland Street Hartford, CT 06102	203/520-7300
ISA	Instrument Society of America P.O. Box 12277 67 Alexander Drive Reseach Triangle Park, NC 27709	919/549-8411
LPI	Lightning Protection Institute P.O. Box 458 Harvard, IL 60033	815/943-7211
MBMA	Metal Building Manufacturers Association 1230 Keith Building Cleveland, OH 44115	216/241-7333
MCAA	Mechanical Contractors Associations of America 5410 Grosvenor Lane; Suite 120 Bethesda, MD 20814	301/897-0770

MIA	Marble Institute of America 33505 State Street Farmington, MI 48024	313/746-5558
ML/SFA	Metal Lath/Steel Framing Association 600 South Federal Street, Suite 400 Chicago, IL 60605	312/346-1600
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park Street NE Vienna, VA 22180	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 221 N. LaSalle Street Chicago, IL 60601	(312) 346-1600
NAPA	National Asphalt Pavement Association Calvert Building, Suite 620 6811 Kenilworth Avenue Riverdale, MD 20737	(301) 779-4880
NAPF	National Association of Plastic Fabricators (Now DLPA)	
NBGQA	National Building Granite Quarries Association c/o H.E. Fletcher Co. West Chelmsford, MA 08163	(617) 251-4031
NBHA	National Builders Hardware Association (Now DHI)	
NCMA	National Concrete Masonry Association P.O. Box 781 Herndon, VA 22070	(301) 435-4900
NCRPM	National Council on Radiation Protection and Measurement 7910 Woodmont Avenue, Suite 1016 Bethesda, MD 20814	(301) 657-2652
NEC	National Electric Code (by NFPA)	
NECA	National Electrical Contractors Association 7315 Wisconsin Ave. Bethesda, MD 20814	(301) 657-3110
NEII	National Elevator Industry, Inc. 630 Third Avenue New York, NY 10016	(212) 986-1545
NEMA	National Electrical Manufacturers Association 2101 L Street NW, Suite 300 Washington, DC 20037	(202) 457-8400

NFPA	National Fire Protection Association Batterymarch Park Quincy, MA 02269	(617) 770-3000
N.F.P.A.	National Forest Products Association 1250 Connecticut Ave. NW Washington, DC 20036	(202) 463-2700
NHLA	National Hardwood Lumber Association P.O. Box 34518 Memphis, TN 38184	(901) 377-1818
NKCA	National Kitchen Cabinet Association P.O. Box 6830 Falls Church, VA 22046	(703) 237-7580
NOFMA	National Oak Flooring Manufacturers Association 8 North Third Street 804 Sterick Building, Suite 810 Memphis, TN 38103	(901) 526-5016
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879	(301) 670-0604
NPCA	National Paint and Coatings Association 1500 Rhode Island Avenue NW Washington, DC 20005	(202) 462-6272
NRCA	National Roofing Contractors Association 8600 Bryn Mawr Avenue Chicago, IL 60631	(312) 693-0700
NSF	National Sanitation Foundation P.O. Box 1468; 3475 Plymouth Road Ann Arbor, MI 48106	(313) 769-8010
NSPE	National Society of Professional Engineers 1420 King Street Alexandria, VA 22314	(703) 684-2835
NSSEA	National School Supply and Equipment Association 2020 Fourteenth Street North, Suite 400 Arlington, VA 22201	(703) 524-8819
NTMA	National Terrazzo and Mosaic Association 3166 Des Plaines Ave. Suite 132 Des Plaines, IL 60018	(312) 635-7744
NWMA	National Woodwork Manufacturers Association (NWWDA)	
NWWDA	National Wood Window & Door Assoc. (Formerly NWMA) 205 West Touchy Avenue Park Ridge, IL 60068	(312) 823-6747

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077	(312) 966-6200
PCI	Prestressed Concrete Institute 201 N. Wells Street Chicago, IL 60606	(312) 346-4071
PDI	Plumbing and Drainage Institute (c/o Austin 0. Roche, Jr.) 5342 Boulevard Pl. Indianapolis, IN 46208	(317) 251-5298
PEI	Porcelain Enamel Institute 1111 Nineteenth Street Arlington, VA 22209	(703) 527-5257
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805	(301) 340-8580
RIS	Redwood Inspection Service 591 Redwood Highway, Suite 3100 Mill Valley, CA 94941	(415) 381-1304
RMA	Rubber Manufacturers Association 1400 K Street NW Washington, DC 20005	(202) 682-4800
SAMA	Scientific Apparatus Makers Association 1101 Sixteenth Street NW Washington, DC 20036	(202) 223-1360
SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711	(216) 493-7886
S.D.I.	Steel Door Institute (c/o A.P. Wherry and Associates, Inc.) 712 Lakewood Center North 14600 Detroit Avenue Cleveland, OH 44107	(216) 226-7700
SGCC	Safety Glazing Certification Council Route 11, Industrial Park Cortland, NY 13045	(607) 753-6711
SHLMA	Southern Hardwood Lumber Manufacturers Assoc. (Now HMA)	
SIGMA	Sealed Insulating Glass Manufacturers Association 111 E. Wacker Drive Chicago, IL 60601	(312) 644-6610

SJI	Steel Joist Institute 1205 48th Street North, Suite A Myrtle Beach, SC 29577	(803) 449-0487
SMACNA	Sheet Metal / Air Conditioning Contractors National Assoc. P.O. Box 70 Merrifield, VA 22116	(703) 790-9890
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504	(904) 434-2611
SPRI	Single Ply Roofing Institute 1800 Pickwick Avenue Glenview, IL 60025	(312) 724-7700
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213	(412) 578-3327
SWI	Steel Window Institute (c/o Thomas Associates, Inc.) 1230 Keith Building Cleveland, OH 44115	(216) 241-7333
TCA	Tile Council of America P.O. Box 326 Princeton, NJ 08542	(609) 921-7050
TIMA	Thermal Insulation Manufacturers Association 7 Kirby Plaza Mt. Kisco, NY 10549	(914) 241-2284
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719	(608) 833-5900
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062	(312) 272-8800
UNI-BELL	Uni-Bell PVC Pipe Association 2655 Villa Creek Drive, Suite 155 Dallas, TX 75234	(214) 243-3902
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97223	(503) 639-0651
WCMA	Wall Covering Manufacturers Association 66 Morris Avenue Springfield, NJ 07081	(201) 379-1100

WIC	Woodwork Institute of California P.O. Box 11428 Fresno, CA 93773	(209) 233-9035
WRI	Wire Reinforcement Institute 8361 A Greensboro Drive McLean, VA 22102	(703) 790-9790
WSC	Water Systems Council 221 North LaSalle St. Chicago, IL 60601	(312) 346-1600
WSFI	Wood and Synthetic Flooring Institute 4415 West Harrison Street, Suite 242 C Hillside, IL 60162	(312) 449-2933
WWPA	Western Wood Products Association 1500 Yeon Building Portland, OR 97204	(503) 224-3930
W.W.P.A.	Woven Wire Products Association 2515 N. Nordica Ave. Chicago, IL 60635	(312) 637-1359

B. Names and titles of federal government standard or specification producing agencies are frequently abbreviated. The following acronyms or abbreviations as referenced in the Contract Documents indicate names of standard or specification producing agencies of the federal government.

CFR	Code of Federal Regulations Available from the Government Printing Office North Capitol Street between G and H Streets NW Washington, DC 20402 (Material is usually first published in the Federal Register)	(202) 783-3238
COE	Corps of Engineers (US Department of the Army) Chief of Engineers-Referral Washington, DC 20314	(202) 693-6456
CPSC	Consumer Product Safety Commission 1111 Eighteenth Street NW Washington, DC 20207	(202) 634-7700
CS	Commercial Standard (U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 377-2000
DOC	Department of Commerce 14th Street and Constitution Avenue NW Washington, DC 20230	(202) 377-2000

DOT	Department of Transportation 400 Seventh Street SW Washington, DC 20590	(202) 426-4000
EPA	Environmental Protection Agency 401 M Street SW Washington, DC 20460	(202) 829-3535
FAA	Federal Aviation Administration (U.S. Department of Transportation) 800 Independence Avenue SW Washington, DC 20590	(202) 426-4000
FCC	Federal Communications Commission 1919 M Street NW Washington, DC 20554	(202) 632-7000
FHA	Federal Housing Administration (U.S. Department of Housing and Urban Development) 451 Seventh Street SW Washington, DC 20201	(202) 755-5995
FS	Federal Specification (General Services Administration) Specifications Unit (WFSIS) 7th and D Streets SW Washington, DC 20406	(202) 472-2205 or 472-2140
GSA	General Services Administration F Street and 18th Street NW Washington, DC 20405	(202) 655-4000
LA DOTD	Louisiana Department of Transportation & Development 1201 Capital Access Road Baton Rouge, LA 70804	(504) 379-1200
MIL	Military Standardization Documents (U.S. Department of Defense) Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120-5099	(215) 697-2667
NBS	National Bureau of Standards (U.S. Department of Commerce) Gaithersburg, MD 20234	(301) 921-1000
OSCI	Office of Standards Code and Information National Bureau of Standards Gaithersberg, MD 20899	(301) 975-4029
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) Government Printing Office Washington, DC 20402	(202) 783-3238

PS	Product Standard of NBS (U.S. Department of Commerce) Government Printing Office Washington, DC 20402	(202) 783-3238
REA	Rural Electrification Administration (U.S. Department of Agriculture) 14th Street and Independence Avenue SW Washington, DC 20250	(202) 382-1255
USDA	U.S. Department of Agriculture Independence Avenue between 12th and 14th Streets 5W Washington, DC 20250	(202) 447-4929
USPS	U.S. Postal Service 475 L'Enfant Plaza 5W Washington, DC 20260	(202) 245-4000

C. Names and addresses are subject to change but are inelieved to be, but are not assured to be, accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01100 - SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes special procedures for alterations, preservation, security, hazardous material, and other types of projects demanding unique procedures.

1.02 SEPARATION BETWEEN SEWER LINES AND WATER LINES

A. See Specifications and applicable piping systems specifications. Where the separation between sanitary sewer and water lines is not clearly defined by dimensions on the Drawings, a sewer shall not be closer horizontally than ten feet (10') to a water supply main or service line, except that where the bottom of the water pipe will be at least eighteen inches (18") above the top of the sewer pipe, the horizontal spacing may be a minimum of six feet (6'). Where gravity flow sewers cross above the water lines, the sewer pipe for a distance of ten feet (10')each side of the crossing shall be ductile iron or PVC pipe, without any joint closer horizontally than ten feet (10') to the crossing, or shall be fully encased in concrete. The thickness of the concrete including at the pipe joints shall be no less than four inches (4"). These provisions are regulations of the State Sanitary Code and Ten States Standards. Unless otherwise approved by the Engineer, the locations, lines and grades shown on the Drawings shall not be changed.

1.03 OPEN WASTEWATER BYPASSING

A. Temporary open wastewater bypass discharges shall generally be prohibited. The applicable State Pollution Control Agency and U.S.E.P.A. must approve open wastewater bypassing if the terms of the N.P.D.E.S. permit allow bypassing. Bypassing will be allowed only when absolutely necessary and the approval of the Engineer, the State and U.S.E.P.A. is mandatory.

1.04 INSTALLATION OF EQUIPMENT

A. Special care shall be taken to ensure proper alignment of all equipment with particular reference to mechanical equipment such as pumps and electric drives. The units shall be carefully aligned on their foundations by qualified millwrights and their base plates shimmed to correct elevation and alignment at the anchor bolts. The anchor bolts shall be set in place and the nuts tightened against the shims. The alignment of equipment shall be further checked after securing to the foundations, and, after confirmation of all alignments, the base plates shall be finally grouted in place. The Contractor shall be responsible for the exact alignment of equipment with associated piping, and under no circumstances will "pipe springing" be allowed.

B. All wedges, shims, filling pieces, keys, packing, grout, and other materials necessary to properly align, level, and secure equipment in place shall be furnished by the Contractor at no additional cost to the Owner. All parts intended to be plumb or level must be proven so.

1.05 SLEEVES, OPENINGS, AND ANCHORS

A. The Contractor shall provide all openings, channels, chases, etc., and install anchor bolts and other items to be embedded in concrete as required to complete the work under this Contract, together with those required by subcontractors, and shall do all cutting and patching, except cutting and patching of materials of a specified trade and as stated otherwise in the following paragraph.

B. The Contractor shall coordinate with equipment suppliers and subcontractors to provide all sleeves, inserts, hangers, anchor bolts, etc. of the proper size and material for the execution of the work. the Contractor shall be responsible for any corrective cutting and refinishing required to make necessary openings, chases, etc. In no case shall beams, lintels or other structural members be cut without the written approval of the Engineer.

1.06 PROVISIONS FOR CONTROL OF EROSION AND POLLUTANTS

Sufficient precautions shall be taken during construction to minimize the runoff of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other materials harmful to humans, fish, or other life, into the ground and surface waters of the state. Control measures must be adequate to assure that turbidity in the receiving waters will not be increased more than 10 nephelometric turbidity units (NTU), or as otherwise required by the state or other controlling agency, in water used for public water supply or fishing unless limits have been established for the particular water. In surface water used for other purposes, the turbidity must not exceed 25 NTU unless otherwise required by the state or other controlling agency. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.

1.07 ROADSIDE CULVERTS AND STRUCTURES

A. Should the scope or location of the Work require the removal of roadside culverts and/or structures (i.e., bridges, pipes), their removal and relaying or replacement shall be included in the cost of the various other pay items at no extra payment. Relaying roadside pipe culverts, replacing broken pipe, setting driveway bridges, or replacing bridges shall be equal to or better than that which existed before the work. Replacements of broken pipe or bridges may be with used materials.

1.08 RELOCATION OF MAILBOXES, STREET AND TRAFFIC SIGNS

A. When mailboxes are located within the limits of construction, the Contractor shall give the mailbox owner sufficient written notice to remove his mailbox from the construction site. If the mailbox is not removed the Contractor shall remove the mailbox and replace the mailbox to the same condition that existed prior to construction.

Street name markers and traffic signs which are within the construction limits shall be removed, stored, protected and reinstated in approximately the original location by the Contractor. Any markers or signs which become lost or damaged shall be replaced by the Contractor equal to or better than the original.

1.09 PROTECTION OF WORK

A. Until the acceptance of the work by the Engineer as evidenced in writing, said work shall be under the charge and care of the Contractor. The Contractor shall take every necessary precaution against damages to any part thereof by the elements or from any other cause. The Contractor shall rebuild, restore, repair, and make good, at his own expense, all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance.

1.10 INCLEMENT WEATHER

A. Within thirty (30) days of the date of Notice to Proceed, the Contractor shall submit to the Engineer an Inclement Weather Preparedness Plan. The plan shall outline the necessary

measures which the Contractor will perform in case of the occurrence of storm conditions and/or hurricanes.

B. In the event of inclement weather, or whenever Engineer shall direct, Contractor and Subcontractors will protect carefully the Work and materials against damage or injury from the weather, including sudden rises in sewer flows due to storms outside the immediate construction zones. Damaged Work and materials shall be removed and replaced. If, in the opinion of the Engineer, any portion of Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or Subcontractors to so protect the Work, no additional time for removal and replacement will be given by the Owner.

1.11 WATERTIGHTNESS

A. Special precautions shall be taken in the curing of concrete to reduce concrete cracking as called for in Section 03300. Each water-retaining structure (those which are intended to hold a liquid) shall be filled and tested for leaks by the Contractor with clean water prior to surface coating or painting. Leaks shall be repaired by the Contractor. The procedure and manner in which leaks are repaired shall meet the approval of the Engineer. All costs associated with the testing and repair of leaks shall be at the expense of the Contractor. Prior to the beginning of the leakage test, the structure shall be filled to the highest working water level (to grade level in pump stations) and allowed to stand for a period of 24 hours to allow for absorption.

Leakage limitations shall be as follows:

1. All water visibly flowing through a concrete wall shall constitute a leak and shall be repaired by pumping and sealing the crack with a two-part water intensive epoxy.

2. Damp areas not exceeding one percent (1%) of the total wall wetted area and not having visible seepage shall be conditionally acceptable subject to all said dampness being eliminated by application of the water side surface treatment as may be specified. In the absence of a specified water side surface treatment or where said treatment does not eliminate wall dampness, the water side of the wall shall be prepared in accordance with the manufacturer's instructions and an approved epoxy concrete surface coating applied.

3. All leakage testing shall be performed prior to tank backfill.

4. To check for leakage through the tank bottoms, the fall in surface water level during tank testing shall be measured and shall not exceed 0.5 inch in a 24 hour period, providing allowance for evaporation at a rate approved by the Engineer. Visual leaks, either flowing or damp areas, observed during the filling, absorption, or test periods shall be marked and locations recorded and repaired.

1.12 SALVAGE

A. The Owner may desire to salvage certain items of existing equipment which are to be dismantled and removed during the course of construction. Prior to removal of any existing equipment from the site of the work, the Contractor shall ascertain from the Engineer whether or not the particular item or items are to be salvaged. Items to be salvaged shall be stockpiled on site in a location as directed by the Engineer. All other items of equipment shall be disposed of off-site by the Contractor at his own expense.

1.13 PUBLIC NUISANCE

A. The Contractor shall not create a public nuisance, including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.

B. Sound levels from Contractor operations shall not exceed 45 dBA 7 P.M. to 7 A.M. or 55 dBA 7 A.M. to 7 P.M. This sound level to be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at operating equipment shall not exceed 85 dBA at the equipment at any time. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. If requirements of the local noise ordinance are more restrictive than the above limits, then the Ordinance shall have precedence over the above requirements. Work stoppage by the Engineer for excessive noise shall not relieve the Contractor of any obligations under the Contract, including, but not limited to, performance of the work at the contract time and contract price.

C. No extra payment will be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.14 UNFAVORABLE CONSTRUCTION CONDITIONS

A. The Contractor shall confine his operations to Work which will not be affected adversely by unfavorable weather, wet ground, or other unsuitable construction conditions. No portion of the work shall proceed under conditions which would affect adversely the quality or efficiency of the work, unless suitable special precautions or countermeasures are taken by the Contractor.

B. During suspension of the work from any cause, the work shall be suitably covered and protected so as to preserve it from injury by the weather.

C. If the Contractors work may be damaged or rendered inferior by unfavorable weather conditions, the Engineer may issue an order to suspend work. Compensation for additional Contract Time under other sections of this Specification will be awarded for suspended work as a result of unfavorable weather conditions. The authority of the Engineer to issue such an order shall not be interpreted as a requirement to do so.

D. Any work constructed during unfavorable weather conditions and found to be damaged or of inferior quality shall be removed and replaced at no additional costs to the Owner or Engineer.

1.15 RELOCATIONS

The Contractor shall be responsible for the relocation of structures, including but not limited to, light poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the costs of work.

1.16 SUBSURFACE AND SURFACE OBSTRUCTIONS

In the event unforeseen subsurface or surface obstructions occur in the progression of work, the Contractor shall confer with the Engineer and obtain his written consent before undertaking any deviations from the plans. At the direction of the Engineer, the Contractor may be permitted to delete construction in the obstruction area temporarily; however, the Contractor shall make no claim for damage by this delay.

1.17 EXAMINATION OF SITE

SECTION 01100 - SPECIAL PROJECT PROCEDURES

Before submitting a bid for this project, the Contractor shall visit the site and become familiar with existing conditions under which the project is to be executed. No additional allowances will be made to the Contractor for any error or negligence on his part.

1.18 TOLERANCES

Contractor shall verify in the field before any material or equipment is fabricated the dimension when those dimensions of existing structures or equipment is dependent as correctness of such information. Should dimensions as shown on the drawing vary from the field, then the Contractor shall notify the Engineer and jointly resolve the figure in favor of the correct dimensions.

All work and materials shall be within reasonably accepted manufacturing and construction tolerances as defined by the drawings, specifications, and the manufacturer of material and equipment. If those tolerances exceed limits, the Engineer may accept the work provided the work will not be materially affected by the change and the interests of the Owner is protected.

1.19 PUMPING

A. The Contractor with his own equipment shall do all pumping necessary to prevent flotation of any part of the structures during construction operations.

B. The Contractor shall, for the duration of the contract and with his own equipment, pump out water and wastewater which may seep or leak into the excavations or structures at the work sites which shall be kept dry at all times.

1.20 HAZARDOUS LOCATIONS

A. The existing wet wells, manholes, sewers, force mains, pipes, and other related areas are hazardous locations in that explosive concentrations of sewage gas may be present. The Contractor is cautioned that the above areas, especially the wet well, may be deficient in oxygen. Checks shall be made by the Contractor whenever personnel are working in these areas to insure that adequate ventilation has been provided.

B. In his operations in hazardous locations, the Contractor shall use spark-proof tools and explosion-proof temporary lighting and shall not use electric power tools, open flame devices, electric welding or any device or methods which might conceivably cause ignition or explosion.

C. If a working area atmosphere is unsafe, the Contractor shall furnish, install, operate, and later remove such temporary auxiliary ventilating facilities as are necessary to provide a safe atmosphere.

D. The Contractor shall also instruct and caution his employees and the employees of his subcontractors to avoid smoking while in the hazardous areas. Suitable prominent "No Smoking" signs shall be placed at locations where sewage gas could be present.

1.21 OPERATING REQUIREMENTS FOR EXISTING PUMPING AND COLLECTION SYSTEMS

A. During construction of the new facilities and rehabilitation of existing facilities the Owner's operators will be responsible for operating and maintaining the existing pumping and collection system located outside of the limits of the Contract site, and the Contractor shall be responsible for operating and maintaining the entire pumping and collection system within the Contract site. The Contractor shall provide adequate trained staff to perform proper system

operation and maintenance. The Owner's operating staff will be responsible for the operation and maintenance of all existing facilities until they are formally taken over by the Contractor.

B. When the Contractor is ready to begin work at a site, including the delivery of material, he shall notify the Engineer, and a date of site take-over by the Contractor will be agreed. On the site take-over date, a walk-through joint inspection will be made by the Contractor, Owner, and Engineer at which notes will be made and photographs taken documenting the conditions of the facilities and a Contractor take-over document prepared and executed by the Owner and Contractor.

Thereafter, the Contractor shall operate and maintain the facilities to the satisfaction of the Engineer and Owner until the Contract work at the site and facilities is finished and the Certificate of Substantial Completion is issued by the Engineer. The cost of operating and maintaining the site and facilities during this construction period shall be included in the bid price except for the following which will be furnished by the Owner:

1. Electricity for operating the facilities.

2. Water for operating the facilities (not for construction).

3. Spare parts for replacements necessary but not caused by the Contractor's deficient operation and maintenance.

1.22 NOTIFICATION OF WORK ON EXISTING FACILITIES

Before commencing work on any of the existing structures or equipment, the Contractor shall notify the Engineer in writing at least ten (10) calendar days in advance of the date he proposes to commence such work.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Engineer shall schedule and administer a preconstruction meeting at the office of the Program Manager, construction progress meetings, and specially called meetings throughout the progress of the work. The Engineer will:

1. Prepare agenda for meetings.
2. Make arrangements for meetings.
3. Preside at meetings.
4. Record the minutes; include significant proceedings and decisions.
5. Reproduce and distribute copies of minutes.

B. The Contractor and representatives of, where appropriate, subcontractors and suppliers shall attend meetings. The representative shall be qualified and authorized to act on behalf of the entity each represents.

C. The Contractor shall attend and identify at the meetings the actual status of the Contract Work and, when the Work is not being performed consistently with the Contract Documents and construction schedules, shall identify at the meetings the steps he is taking to resolve the inconsistency.

1.02 PRE-CONSTRUCTION MEETING

A. The Contractor shall participate in a preconstruction meeting to be held after the effective date of the Agreement and/or on the date of Notice to Proceed.

B. The following are expected to be in attendance:

1. Owner's Representative and other staff as appropriate.
2. Engineer and his professional consultants as appropriate.
3. Engineer's Resident Project Representative.
4. Contractor's Representative and Construction Superintendent.
5. Subcontractors as appropriate.
6. Utility representative as appropriate.
7. Others as appropriate.

C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

1. Description of all parties including contract representatives, phone numbers, and addresses.
2. Responsibilities of Owner.
3. Responsibilities of authorities of the Engineer.
4. Responsibilities of the Contractor.
5. Responsibilities and Authorities of Resident Project Representative.
6. Responsibilities and Authorities of Testing Laboratory.
7. General Project Status and Information.
8. Location of Items.
9. Regulatory Requirements.

SECTION 01200 - PROJECT MEETINGS

10. Site Conditions.
11. Labor Requirements.
12. Submittals required by Contractor.
13. Payment to Contractor.
14. Project Closeout.

1.03 CONSTRUCTION PROGRESS MEETING

A. Construction progress meetings will be held monthly with the first meeting thirty (30) days after the date of Notice to Proceed.

B. Special construction progress meetings will be held as required by progress of the Work.

C. The following are expected to be in attendance:

1. Owner Representative and other staff as appropriate.
2. The Engineer and his professional consultants as appropriate.
3. Contractor's Representative and/or Construction Superintendent.
4. Subcontractors as appropriate.
5. Suppliers as appropriate.
6. Others as appropriate.

D. The following matters are expected to be addressed:

1. Review and approve minutes of previous meeting.
2. Review of work progress.
3. Field observations, problems, conflicts.
4. Problems which impede Construction Schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain Construction Schedule.
7. Revisions to Construction Schedule.
8. Progress and schedule during succeeding work period.
9. Payment applications and processing.
10. Submittals.
11. Maintenance of quality standards.
12. Changes, substitutions, and change orders.
13. Review proposed changes for:

    a. Effect on Construction Schedule and completion date.
    b. Effect on other contracts of the Project.

14. Other matters as appropriate.
15. Record drawings.

E. The Contractor shall be prepared to discuss the above topics and to make commitments for resolving deficiencies.

F. The Contractor shall provide a current submittal log at each progress meeting in accordance with Section 01340.

PART 2 - PRODUCTS - NOT USED

SECTION 01200 - PROJECT MEETINGS

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section refers to the general procedures and requirements for submittals. Specific requirements for submittals are included in other sections of these specifications.

1.02 DEFINITION

The term "submittal" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operation instructions, catalog sheets, data sheets, product data, samples, and similar items.

1.03 LIST OF SUBMITTALS

A. The following is a list of submittals and the times required for submitting all in accordance with the Contract Documents.

	ITEM	TIME
1.	Schedule of Progress	Pre-Construction Conference*
2.	Schedule of Payments	Pre-Construction Conference*
3.	Schedule of Values	Pre-Construction Conference*
4.	List of Manufacturers and Associated Products	Prior to Start of Work
5.	Substitute Material or Equipment	Prior to Start of Work
6.	Manufacturers Certificate of Compliances	Prior to Start of Work
7.	Change Orders	Within 15 days of occurrence
8.	Layout and Shop Drawings of Fabricated Items	Prior to Installation
9.	Shop Drawings	Preferred Prior to Start of Work or Prior to Installation
10.	Operation & Maintenance Manuals and Spare Parts	Completion of Project
11.	Tabulation of Equipment w/Data	Completion of Project
12.	Certificate of Gradation of Aggregate	Prior to Installation
13.	Concrete Mix Design	Prior to Installation

* If no Pre-Construction Conference is held, Prior to First Payment.

B. The Engineer may require submittals not listed above to expedite the work. Contractor shall comply to all submittal requests made by Engineer.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01310 - PROGRESS SCHEDULES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor shall comply with the General Conditions.

B. Submit revised progress schedules periodically.

1.02 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar for each trade or operation.
2. Horizontal time scale: Identify the first work day of each week.
3. Scale and Spacing: To allow for notations and future revisions.
4. Minimum sheet size: 8 1/2" x 11"

B. Formal of Listings: The table of contents of the Contract Documents.

C. Identification of Listings: By bid items.

1.03 CONTENT OF SCHEDULES

A. Construction Progress Schedule:

1. Show the complete sequence of construction by activity.
2. Show the dates for the beginning, and completion of, each major element of construction.
3. Show projected percentage of completion for each item, as of the first day of each month.
4. Show an anticipated monthly payment schedule.

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

1. The dates for Contractor's submittals.
2. The dates approved submittals will be required from the Engineer.

1.04 PROGRESS REVISIONS

A. Indicate progress of each activity to date of submission.

B. Show changes occurring since previous submission of schedule:

1. Major changes in scope.
2. Activities modified since previous submission.
3. Revised projections of progress and completion.
4. Other identifiable changes.

SECTION 01310 - PROGRESS SCHEDULES

C. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.
2. Corrective action recommended, and its effects.

1.05 SUBMISSIONS

A. Submit initial schedules in accordance with the General Conditions.

1. Engineer will review schedules and return review copy within ten (10) days after receipt.
2. If required, Contractor shall resubmit within seven (7) days after return of review copy.

B. Submit revised progress schedules with each Application for Payment.

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

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Contractor shall submit to the Engineer for review and exception, if any, such working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this article called data), and material samples (hereinafter in this article called samples) as are required for the proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.

B. Within fifteen (15) calendar days after the Effective Date of the Agreement, the Contractor shall submit to the Engineer a complete list of preliminary data on items for which shop drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way relieve the Contractor from submitting complete shop drawings, data, and samples in accordance with the Specifications. This procedure is required in order to expedite final review of shop drawings.

C. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting. This log should include the following items:

1. Submittal Description and Number assigned.
2. Date to Engineer.
3. Date returned to Contractor (from Engineer).
4. Status of Submittal (Approved, Approved as Noted, Revise and Resubmit, Not Approved).
5. Date of Resubmittal and Return (as applicable).
6. Date material released (for fabrication).
7. Projected date of fabrication.
8. Projected date of delivery to site.
9. Status of O&M Manuals submitted.

1.02 CONTRACTOR'S RESPONSIBILITY

A. It is the duty of the Contractor to check all Drawings, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp or evidence that the Contractor has not performed the required review will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents.

B. Determine and verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with Specifications and indicate all variances from the Specifications.

C. All shop drawings or other submittals shall be accompanied by the Engineer's standard transmittal form. This form may be obtained in quantity from the Engineer at reproduction cost. Any submittal not accompanied by such a form, or where all applicable items on the

form are not completed, will be returned for resubmittal. A separate transmittal form shall accompany each shop drawing, product data, or sample.

D. The Contractor shall be solely responsible for the accuracy and completeness of the shop drawing. In no case shall a subcontractor or supplier submit shop drawings directly to the Engineer. All communications concerning shop drawings or the project in general shall be directed through the Contractor. Contractor shall coordinate between subcontractor, suppliers, and manufacturers all shop drawings to ensure that the total work including all interconnections, timers, control, etc., or the system confers to the design criteria specified.

E. No products, equipment, or material shall be delivered or fabricated until the shop drawings, product data, or sample have been submitted and checked by the Engineer for its conformance to the drawings and specifications and given final approval for fabrication or erection by the Engineer. Until final approval of shop drawing or sample is given in writing, Contractor shall not proceed with any work directly or indirectly associated with that item.

F. The Contractor shall furnish the Engineer a schedule of shop drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.

G. The Contractor shall submit to the Engineer all Drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the Engineer receives them.

H. All shop drawings shall be clearly marked and labeled as to their intended use. Any submittal which causes the Engineer to ponder or guess at the intended use shall be rejected.

I. The Contractor shall submit seven (7) copies of shop drawings and descriptive or product data submittals to complement shop drawings to the Engineer which will be retained for his use. The Contractor shall submit extra sets as required for his subcontractors, his suppliers, and his own use. The Contractor shall submit one set of three (3) mil thick polyester film reproducibles for blueprinting purposes for all submittal data or Drawings on sheets larger that 11-inches by 17-inches. The Engineer will review the blueprints and return to the Contractor the set of marked-up blueprints with appropriate review comments along with the reproducible sheets.

J. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by Engineer of the necessary shop drawings.

K. The Contractor shall utilize a Sequential Numbering System for submittals (1-999). Resubmittals or confirming material shall be assigned a letter next to the submittal number, i.e., A=second submittal, B=third submittal, etc.

L. Submittals shall include a certified statement of compliance to the requirements detailed in the specifications in addition to other submittal requirements. This certification shall be prepared by the manufacturer and not the local supplier. Validity of the authority and position of the person signing the certification shall be verified by a Notary Public. The statement of compliance shall address each point of conformance contained in the governing specifications with definitive comments of either compliance or non-compliance. Statements of non-compliance with points of conformance shall be accompanied by a statement of justification as to the reason for non-compliance and why the non-complying feature is considered to be either equal to or better than the specified feature. The Engineer will use

the certified statement of compliance in his evaluation of the submittal rendering a judgement as to equality to the specified product and issuing a statement as to whether the product is acceptable for or rejected from incorporation into the work.

M. When a manufacturer named in the controlling specification is chosen to supply a product, and the details of manufacture, size, and installation are shown on his standard catalog cut sheets, the manufacturer may submit the certified statement of compliance as detailed above along with installation details specific to the Work such as laying schedules, etc. as required, deleting the standardized catalog data.

N. Should the Contractor provide a submittal that would require modification to a structure, hydraulic piping, electrical components, layout, controls, or other previously designed aspects of the project, he shall submit with his transmittal, additional design calculations and details of the modification. Any cost incurred by the Engineer for review of these modifications and the direct affect on other designed portions of the project and the implementation of alternate designs shall be borne by the Contractor. No additional costs will be incurred by the Owner or Engineer for modifications or deviations from the original drawings and specifications as submitted by shop drawings, product data, or samples.

O. Shop drawings shall be prepared by a qualified detailer indicating all dimensions, weights, tolerances, clearances, space required, and structures. The manufacturer or supplier of equipment or materials shall certify as to the correctness of the dimensions. Contractor shall verify all drawings submitted as to their completeness with respect to field measurements, field construction criteria, catalog numbers, and similar data. Any drawing submitted through the Contractor not bearing the Contractors approval, data, and checker's name will be returned to the Contractor.

1.03 ENGINEER'S REVIEW OF SHOP DRAWINGS

A. The Engineer's review of Drawings, data and samples submitted by the Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation.

B. The review of Drawings and schedules will be general, and shall not be construed:

1. as permitting any departure from the Contract requirements;
2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. When reviewed by the Engineer, each of the shop drawings will be identified as having received such review being so stamped and dated.

1. If the copies received are marked "Approved", those documents are used as guidelines for installation.

2. If the copies received are marked "Approved As Noted", the Contractor shall make the appropriate corrections to the material and/or product and incorporate the revised material and/or product into the project.

3. If the copies received are marked "Revise and Resubmit", the material or product may be acceptable; however, substantial corrections require the Engineer to review the material or product after the revisions have been made. A formal resubmittal of the revised

material and/or product is required using a separate transmittal form. Seven (7) copies of the revised resubmittal are required.

4. If the copies received are marked "Not Approved", the material and/or product cannot be incorporated into the project. Another product approved by the Contract Documents shall be submitted with a new transmittal form accompanied by seven (7) copies of shop drawings, product data, or samples.

D. Upon review of the shop drawing, product data, or sample by the Engineer, the Engineer will distribute the submittals as follows:

No. Required	To Whom	For Use
1	Engineer	Office
2	Owner	O&M Manuals
1	Resident Project Representative	Field
3	Contractor	Field, Office, Vendor

E. If the drawings or schedules as submitted describe variations per subparagraph 1.04.D, and show a departure from the Contract requirements which Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or Time, the Engineer may return the reviewed Drawings without noting any exception.

F. Resubmittals will be handled in the same manner as first submittals. The Contractor shall direct specific attention to revisions other than the corrections requested by the Engineer on previous submissions by written details or markings on the resubmitted Shop Drawings. The Contractor shall make any corrections required by the Engineer.

G. If the Contractor considers any correction indicated on the Drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.

H. The Engineer will review a submittal/resubmittal a maximum of three (3) times after which cost of review will be borne by the Contractor. The cost of engineering shall be equal to the Engineer's charges to the Owner under the terms of the Engineer's agreement with the Owner.

I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions or approval from the Engineer.

1.04 SHOP DRAWINGS

A. Shop Drawings shall be complete and detailed.

B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.

C. Each shop drawing shall have a blank area three and one-half inches by three and one-half inches (3½" x 3½"), located adjacent to the title block. The title block shall display the following:

1. Number and title of the drawing.
2. Date of drawing or revision.
3. Name of project building or facility.
4. Name of Contractor and Subcontractor submitting drawings.
5. Clear identification of contents and location of the work.
6. Specification number and title.

D. If Drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustments in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such Drawings have been reviewed.

E. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material as required. Materials and equipment lists shall give for each item thereon the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

F. The Contractor shall provide a list including the equipment name, address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained for all mechanical and electrical equipment furnished.

G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the Engineer along with the required Shop Drawings. The installation list shall include at least five installations where identical equipment has been installed and has been in operation for a period of at least one (1) year.

H. Only the Engineer will utilize the color "red" in marking Shop Drawing submittals.

1.05 WORKING DRAWINGS

A. Working drawings shall be considered to mean the Contractor's plans for temporary structures.

B. Copies of working drawings as noted in subparagraph 1.02, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the Engineer) in advance of their being required for work.

C. The Engineer will not review working drawings but shall use them as information to monitor the work performed by the Contractor.

1.06 SAMPLES

A. The Contractor shall furnish for the review of the Engineer samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed and the Contractor shall prepay all shipping charges. Materials or equipment for which samples are required shall not be used in work until reviewed by the Engineer.

B. Samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integrally related parts and attachment devices.
2. Full range of color, texture, and pattern.

C. Each sample shall have a label indicating:

1. Name of Project.
2. Name of Contractor and Subcontractor.
3. Material or Equipment represented.
4. Place of origin.
5. Name of Producer and Brand (if any).
6. Location in Project.

Samples of finished materials shall have additional marking that will identify them under the finished schedules.

D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in subparagraph 1.06.B above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer and the remaining copy shall be for the Contractor's records. Review of a sample shall be only for the characteristics or use named and shall not be construed to change or modify any Contract requirements.

E. Reviewed samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the reviewed samples. Samples which failed testing or were rejected will be returned to the Contractor at his expense, if so requested at time of submission.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01370 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Submit to the Engineer a Preliminary Schedule of Values in accordance with Article 2.6 of the General Conditions.

B. Upon request of the Engineer, support the values with data which will substantiate their correctness.

C. Refine the Schedule of Values to reflect the requirements of Article 2.9 of the General Conditions. The final Schedule of Values shall be used only as the basis for the Contractor's Applications for Payments.

1.02 FORM AND CONTENT OF SCHEDULES OF VALUES

A. Type schedule on 8 1/2" x 11" or 8 1/2" x 14" white paper. Contractor's standard forms and automated printout will be considered for approval by the Engineer upon Contractor's request. Identify schedule with:

1. Title of Contract and location.
2. Engineer and Contract numbers.
3. Name and Address of Contractor.
4. Contract designation.
5. Date of submission.

B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.

C. Identify each line item with the number and title of the respective major section of the specifications.

D. For each major line item, list sub-values of major products or operations under the item.

E. For the various portions of the Work:

1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.

2. For items on which progress payments will be requested for stored materials, break down the value into:

a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the Engineer.

b. The total installed value.

F. Follow the Bid Form Schedule of Prices as the format for listing component items for unit price project.

G. The sum of all values listed in the schedule shall equal the total Contract Sum of all lump sum and extended unit price items in the Bid Form.

SECTION 01370 - SCHEDULE OF VALUES

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor shall take construction record photographs monthly during course of the Work.

1.02 PHOTOGRAPHY REQUIRED

A. Video Survey (Digital) as specified herein (pre-construction).

B. Provide digital photographs each month of each major portion of the work.

C. Provide digital prints of each photograph.

D. Digitals:

1. Remain property of photographer.

2. Maintain digital files for a period of two (2) years from date of Substantial Completion of entire Project.

E. As an alternative to hand held photos, color aerial videos taken from a drone showing construction will be acceptable.

F. When piping is required within a plant site, additional photos will be required showing location of all piping, valves, and fittings with relationship to other objects or structures. Contractor shall include in photograph a colored yard stick so as to allow viewer of photo to make measurement on photograph.

1.03 COSTS OF PHOTOGRAPHY

Contractor shall pay costs for specified video taping, photography, and prints. Additional photography or prints requested will be paid by the requesting agency.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHS

A. Identify each photograph, listing:

1. Name of Project.
2. Facility Location.
3. Orientation of view.
4. Date and time photograph was taken.

2.02 DIGITAL VIDEO

A. Specifications for Audio-Video Survey - Prior to the start of construction on the contract, the Contractor shall furnish to the Engineer, the digital video of the construction areas on a flash drive. The video shall be reviewed by the Engineer and either approved or additional coverage will be required to fully show the physical conditions of the work areas. The Contractor shall have the additional coverage videoed and shall not begin work, including moving equipment

and/or material on the project site, until the audio-video survey has been approved by the Engineer. After approval, the Contractor shall supply one (1) copy of the audio-video survey to the Engineer on a flash or external hard drive. The video will remain available for viewing by the Contractor and may be reviewed by him for any assistance that the video may provide in resolving disputes which arise with the property owners claiming improper restoration of their properties. That copy of the video will also be used as a guide by the Engineer, prior to issuance of final payments, in determining the adequacy of restoration and the extent of damages attributable to the Contractor's work.

B. Technical Requirements - The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project, as well as those more subjective requirements of high-quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortion.

PART 3 - EXECUTION

3.01 TECHNIQUE FOR STILL PHOTOGRAPHS

A. Factual presentation.

B. Correct exposure and focus.

1. High resolution and sharpness.
2. Maximum depth-of-field.
3. Minimum distortion.

3.02 VIEWS REQUIRED FOR STILL PHOTOGRAPHS

A. Contractor shall photograph from locations to adequately illustrate condition of construction and state of progress. Consult with Engineer at each period of photography for instructions concerning views required.

B. In addition, the Contractor shall photograph the sites of each major portion of the work prior to the beginning of work at each site. Views shall be as required by the Engineer. In addition, the same sites shall be photographed utilizing the same views at the completion of construction.

C. The Contractor shall also inspect and photograph any structure within 100 feet of each construction site prior to beginning of work. Photographs of any existing damaged areas shall be taken.

3.03 TECHNIQUE AND VIEWS REQUIRED FOR VIDEO TAPING

A. At the start of production, and at the beginning of a new street or easement, an identification summary shall be read into the record while, at the same time, a wide-angle view with numeric displays shall be provided for a visual record. This summary will include (1) job title, (2) job location, (3) positional location at job start, (4) date and time, (5) weather and (6) any other notable conditions.

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

B. Coverage - The recording shall include coverage of all surface features located within the construction zone-of-influence. This zone shall be defined as (1) the area within the permanent and temporary easements and areas adjacent to these easements which may be affected by routine construction operations, (2) road right-of-way, (3) areas directed by the Owner. The surface features within the construction zone shall include, but not be limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, shrubbery and fences. Of particular concern shall be the existence, or non-existence, of any faults, fractures or defects. The coverage shall be continuous (i.e., the camera shall not be turned off once photography has begun) to the greatest extent practicably possible. If the camera must be turned off, then a verbal message shall be inserted stating that the camera will be turned off and the reason for discontinuing coverage.

C. Visibility - No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording.

D. Rate of Travel - The vehicle's rate of travel shall be indirectly proportional to the number, size and value of the surface features within that construction area's zone-of-influence. The average rate of travel shall not exceed forty-eight feet per minute. Forward motion shall be halted when viewing objects or structures outside the limits of the street or easement being documented. Conversely, only the street or easement being documented shall be viewed while the camera is being moved forward.

E. Camera Elevation - To ensure property perspective and to capture optimal detail, the distance from the camera lens to the ground shall not be less than twelve feet when conventional wheeled vehicles are employed.

F. Experience - The operator in charge must have had previous experience video documenting a minimum of fifty miles of pre-construction work. Any apprentice operators must be continuously supervised by an above-described experienced operator.

3.04 DELIVERY OF PRINTS

A. After approval of videos, deliver record copy to Engineer.

B. Pre-construction photographs shall be delivered to the Engineer prior to the beginning of construction.

C. Deliver progress photographs to Engineer to accompany each Application for Payment.

3.05 DELIVERY OF VIDEO TAPES

A. Recording Schedule - The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site, but not more than seven weeks prior to the placement of materials or equipment.

B. Unacceptable Documentation - The Owner shall have the authority to reject all or any portion of the digital video documentation not conforming to the specifications. Those rejected portions shall be retaped at no additional cost to the Owner.

C. Specification Deviations - Any deviation from these specifications must have the written approval of the Owner/Engineer.

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

E. Payment - Payment for video documentation shall be included in the costs of work.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section includes general quality control procedures and requirements that are applicable to other sections.

1.02 TESTING LABORATORY

A. If desired by the Owner, a qualified testing laboratory will make field visits to sample such items as portland cement concrete, hot or cold-mix asphalt, earthwork fill and compaction, aggregate, welding, etc. The frequency of testing will be at the discretion of the Owner and the recommendations of the Engineer to the Owner.

B. Refer to Section 01410 for detailed description of testing laboratory services.

1.03 INSPECTION SERVICES

A. The Owner may employ the services of a Resident Project Representative (RPR) to review field operations, provide daily reports, and act as a liaison between the Engineer and Contractor.

B. Refer to Section 01420 for detailed description of the Resident Project Representative.

1.04 CONFORMANCE STANDARDS

A. The manufacturer of equipment shall issue a manufacturer's conformance certificate indicating the product was assembled or constructed in accordance with specific standards and that the product performs under specific parameters.

B. Submit conformance certificates in accordance with Section 01300 - Submittals.

1.05 CERTIFIED TEST REPORTS

A. Test reports performed in the field or in the shop shall be certified by the manufacturer of the product.

B. Submit certified test reports in accordance with Section 01300 - Submittals.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01410 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Owner will employ and pay for the services of an Independent Testing Laboratory to perform testing specifically indicated on the Contract Documents or specified in the Specifications and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.

1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.

2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

1.02 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract Documents.
2. Approve or accept any portion of the Work.
3. Perform any duties of the Contractor.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to Work and to Manufacturer's operations.

B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.

D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents.

All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.

E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested.
2. To obtain and handle samples at the Project site or at the source of the product to be tested.
3. To facilitate inspections and tests.

4. For storage and curing of test samples.

F. Notify laboratory at least 24 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the Engineer.

H. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the Contractor may pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 REPORTS

Testing Laboratories are required to provide a minimum of four (4) copies of each testing report. Copies shall be distributed by the testing laboratory to 1) Owner, 2) Engineer, 3) Contractor, and 4) Resident Project Representative.

END OF SECTION

SECTION 01420 - INSPECTION SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Owner will employ the services of a Resident Project Representative (RPR) in an effort to protect the Owner against defects and deficiencies in the work.

B. The RPR will 1) act as the Engineer's agent at the site, 2) act as directed by and under the supervision of the Engineer and 3) will confer with the Engineer regarding the RPR's actions.

C. RPR's dealings in matters pertaining to the on-site work shall in general be with 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.

1.02 DUTIES AND RESPONSIBILITIES OF RPR

A. Schedules - Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.

B. Conferences and Meetings - Attend meetings with Contractor, such as pre-construction conferences, progress meetings, job conferences, and other project-related meetings, and prepare and circulate copies of minutes thereof.

C. Liaison -

1. Serve as Engineer's liaison with Contractor, working principally through Contractor'S superintendent and assist in understanding the intent of the Contract Documents; and assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.

2. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

D. Shop Drawings and Samples -

1. Record date of receipt of Shop Drawings and samples.

2. Receive samples which 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.

E. Review of Work, Rejection of Defective Work, Inspections and Tests -

1. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

2. Report to Engineer whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform 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 startup and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to Engineer appropriate details relative to the test procedures and startup.

4. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.

F. 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.

G. Modifications - Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to Engineer. Transmit to Contractor decisions as issued by Engineer.

H. Records -

1. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

2. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, 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. Records names, addresses and telephone numbers of all Contractors, subcontractors, and major suppliers of materials and equipment.

I. 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 Shop Drawing and sample submittals.

2. Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.

3. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from Contractor and recommend to Engineer Change Orders, Work Directive Changes, and Field Orders.

4. Report immediately to Engineer and Owner upon the occurrence of any accident.

J. Payment Requests - Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with 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.

K. Certificates, Operation and Maintenance Manuals - During the course of the Work, verify that certificates, operation and maintenance manuals and other data required 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.

L. Completion -

1. Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

2. Conduct final inspection in the company of Engineer, Owner and Contractor and prepare a final list of items to be completed or corrected.

3. Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance.

1.03 LIMITATION OF AUTHORITY OF RPR

A. The Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Engineer.

2. Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.

4. Shall not 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.

5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.

6. Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.

7. Shall not authorize Owner to occupy the Project in whole or in part.

8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

SECTION 01420 - INSPECTION SERVICES

END OF SECTION

SECTION 01505 - MOBILIZATION

PART 1 - GENERAL

1.01 DEFINITION

A. Mobilization shall include the obtaining of all permits, insurance, and bonds; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary building, and other construction facilities; all as required for the proper performance and completion of the work. Mobilization shall include but not be limited to the following principal items:

1. Moving on to the site of all Contractor's plant and equipment required for first month operation.

2. Installing temporary construction power and wiring.

3. Establishing fire protection system.

4. Developing construction water supply.

5. Providing field office trailers for the Contractor and the Engineer, complete with all specified furnishings and utility services including telephones.

6. Providing on-site sanitary facilities and potable water facilities as specified.

7. Arranging for and erection of Contractor's work and storage yard.

8. Submittal of all required subcontractor insurance certificates and bonds.

9. Obtaining all required permits.

10. Posting all OSHA required notices and establishment of safety programs.

11. Have the Contractor's superintendent at the jobsite full time.

12. Have provided a detailed schedule acceptable to the Owner for project use as specified.

13. Audio-Video Survey.

1.02 PAYMENT FOR MOBILIZATION

A. The Contractor's attention is directed to the condition that no payment for mobilization, or any part thereof will be approved for payment under the contract until all mobilization items listed above have been completed as specified.

B. If the project is a unit price contract and a line item is designated "mobilization", all costs incurred for the above work shall be placed under that item. If no item is listed for "mobilization", the costs for the above described work shall be placed in other items.

C. For lump sum projects, the costs for this work shall be included in the overall costs of the project and shown as a separate item in the Schedule of Values.

SECTION 01505 - MOBILIZATION

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01570 - TRAFFIC REGULATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Contractor shall be responsible for providing safe and expeditious movement of traffic through or around construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.

B. Remove temporary equipment and facilities when no longer required and restore grounds to original and/or, or to specified conditions.

1.02 TRAFFIC CONTROL

A. The necessary precautions shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization, and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and requirements for the duration of the construction period. Contractor to check traffic control devices on a daily basis as a minimum when beginning and ending the work day, and on weekends at a minimum of once per day.

B. Any additional traffic control devices which may be required at time of construction by the Engineer and/or Owner shall be provided by the Contractor at no additional contract cost.

C. The Contractor shall provide at least five (5) working days notification to the Engineer of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that the final approval of such closing can be obtained from the roadway owner at least 48 hours in advance. With any such closing adequate provision shall be made for the safe expeditious movement of traffic and pedestrians.

D. The Contractor shall also be responsible for notifying Police, Fire and Ambulance Departments whenever roads are impassable.

E. The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal traffic control scheme prior to construction. Any such actions shall be performed by the Contractor under the supervision, and in accordance with the Specifications, of the Owner, unless otherwise specified. Construction signing and activities shall not block existing traffic control signing, unless such signing is superseded by construction signing.

   All traffic control devices not applying to an appropriate situation shall be covered or removed. No traffic conduit or traffic loops shall be disturbed without prior notification. Contractor shall take all precautions to avoid damage to traffic boxes, conduits, loops and supply lines. Should any of the above need to be relocated, the Contractor shall coordinate with roadway owner.

F. The Contractor shall immediately notify the Engineer of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction of the project.

G. Vehicular access to commercial and residential driveways shall be maintained except when necessary construction precludes such access. When such conditions arise that ingress or

egress to the property is to be temporarily terminated, the Contractor shall notify the affected property owner at least 24 hours in advance of such construction.

H. The Contractor shall also cooperate with the various parties involved in the delivery of mail and the collection and removal of trash and garbage to maintain existing schedules of these services.

I. Traffic directors shall be trained flaggers of at least average intelligence, good physical condition, including sight and hearing, having mental alertness, a courteous but firm manner, neat appearance, and a sense of responsibility for the safety of the public. Traffic directors shall wear an orange or fluorescent orange garment such as a shirt, jacket, or vest. This garment shall be reflectorized for nighttime operations. When controlling traffic, traffic directors shall be equipped with a sign and a 24" x 24" red flag. At night, flagmen shall use a red light. They shall follow the procedures stipulated for flaggers in the Louisiana Manual on Uniform Traffic Control Devices.

Flagging operations are most likely required, but not limited to, the following traffic control situations:

1. When one lane is alternately used for both directions of travel;
2. When the roadway is closed for a short period of time to allow equipment movements, blasting operations, etc.;
3. When workers are close to a travel lane without a positive barrier;
4. When traffic speeds must be reduced and traffic control devices alone will not get the job done;
5. When public relations and publicity functions need to be handled at the worksite, such as explaining the situation, alerting motorists to changing conditions, and passing out handouts;
6. When installing and removing traffic control devices;
7. Other situations where variable conditions require responsive traffic control.

J. Construction signing, detours, and traffic control devices shall be in accordance with roadway owner's regulations and with the Louisiana Manual of Uniform Traffic Control Devices.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01580 - PROJECT IDENTIFICATION AND SIGNS

PART 1 - GENERAL

1.01 SUMMARY

A. This specification covers the fabrication and installation of a project identification sign for projects receiving funding through the Louisiana Clean Water State Revolving Fund Program.

PART 2 - PRODUCTS

2.01 GENERAL

A. The project sign shall be fabricated and erected within 21 days following the notice to proceed and shall be maintained by the Contractor until completion of construction and the Owner's acceptance of the work.

B. For projects which include greater than one funding source the information specified for CWSRF projects may be combined with other project signage requirements onto one sign, as allowed and approved by the funding agencies.

C. There should be one project sign per project. If the project has multiple locations, one project sign centrally located as directed by the Engineer is sufficient.

2.02 MATERIALS AND FABRICATION

A. Refer to attached figure titled "CWSRF Project Sign Elevation" for typical layout of a sign. The size and spacing of the lettering on the sign may change to accommodate the addition of other funding agencies.

B. Sign Panel: The sign panel shall be constructed of 3/4-inch APA rated, A-B grade exterior plywood rabbeted into a 2" x 4" nominal frame or other suitable materials and construction capable of withstanding typical weather conditions common to the project site.

C. Fasteners: All fasteners used in the fabrication of the sign shall be rust-proof.

D. Sign Supports: The sign shall be adequately supported and braced to remain in the proper positioning and alignment, including resistance to wind loads and toppling of the sign.

E. Coating: All paint or exterior coverings used shall be exterior grade coating suitable for use on wood or the material of construction. The sign shall be prepared as follows:

Sign Face: The sign face background shall be white and can consist of a minimum two coats of paint.

Supports and Trim: The supports and trim shall be white and can consist of a minimum of two coats of pain. The front facing surface of the 2" x 4" frame shall be royal blue.

F. Lettering and Emblem: The lettering shall be of the size and color as specified on the attached figure. The size and spacing of the lettering on the sign may change to accommodate the addition of other funding agencies. The emblem shall be of the size specified on the attached figure in royal blue.

SECTION 01580 - PROJECT IDENTIFICATION AND SIGNS

PART 3 - EXECUTION

3.01 INSTALLATION

A. The project sign shall be erected in the location and alignment, as directed by the Engineer, with the bottom of the sign panel a minimum of five feet above existing grade.

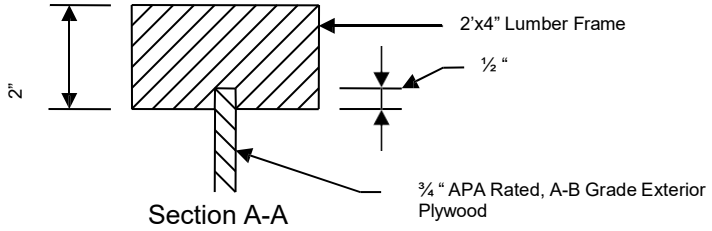
3.02 MAINTENANCE

A. The Contractor shall provide any and all materials required to maintain the sign in good condition throughout the duration of the Contract.

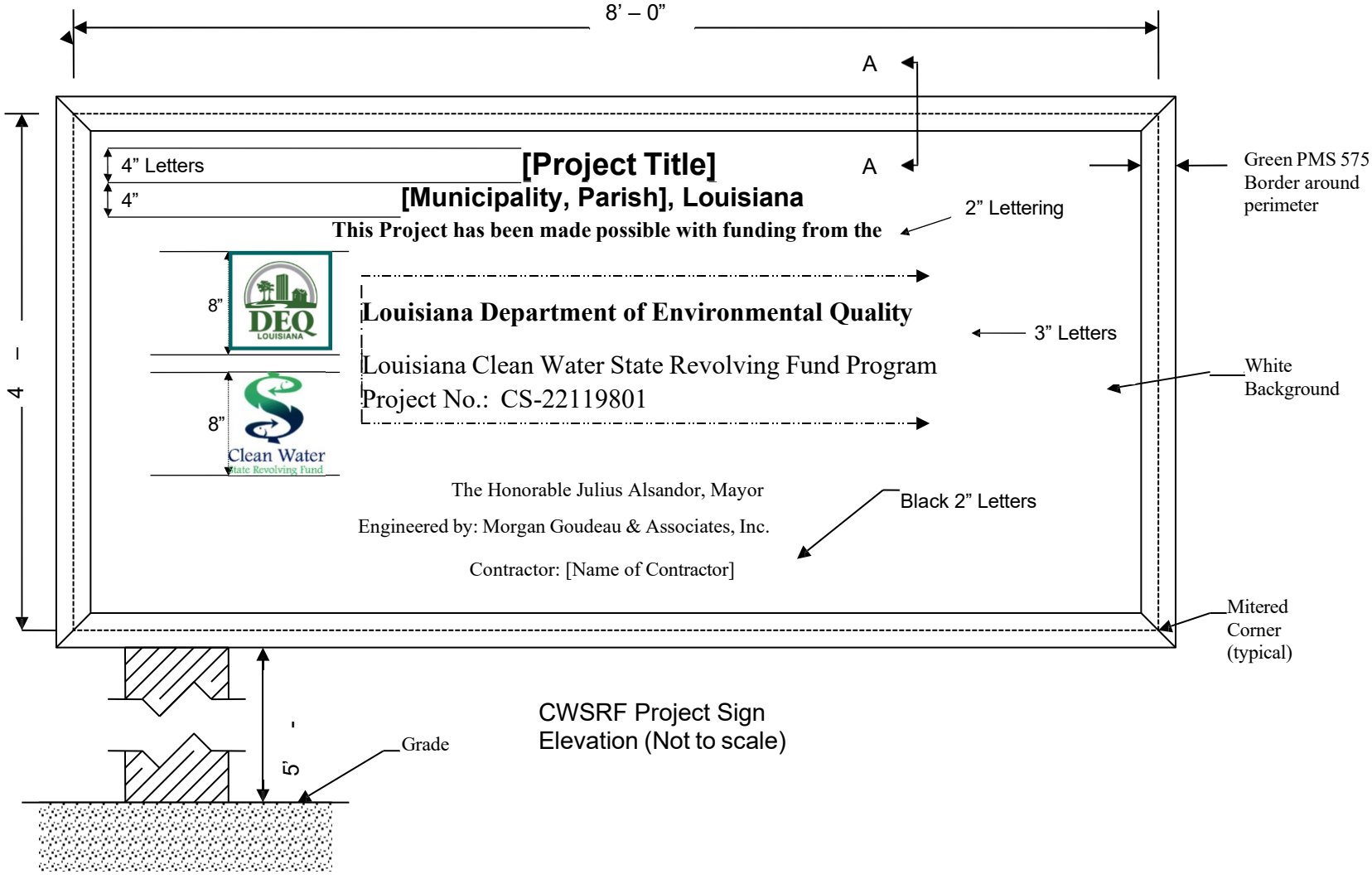
B. The Contractor shall remove the project sign from the construction site upon completion of construction and Owner's acceptance of the work, or when directed by the Engineer.

PROJECT SIGN SCHEMATIC

Note: All lettering shall be Green PMS 575 except as noted. Spacing between lines shall be 1" except as noted.



Section A-A



CWSRF Project Sign
Elevation (Not to scale)

Infrastructure Investment and Jobs Act (IIJA) Signage Required Term and Condition

This Term & Condition applies to construction projects funded in whole or in part by the Infrastructure Investment and Jobs Act (IIJA) for the following programs: Clean Water State Revolving Fund (CWSRF), Drinking Water State Revolving Fund (DWSRF), Brownfields, Superfund, Emerging Contaminants, Great Lakes Restoration Initiative (GLRI), and Solid Waste Infrastructure for Recycling (SWIFR).

1. Signage Requirements

a. Building A Better America Emblem: The recipient will ensure that a sign is placed at construction sites supported under this award displaying the official Building A Better America emblem and must identify the project as a "project funded by President Biden's Bipartisan Infrastructure Law." Construction is defined at 40 CFR 33.103 as "erection, alteration, or repair (including dredging, excavating, and painting) of buildings, structures, or other improvements to real property, and activities in response to a release or a threat of a release of a hazardous substance into the environment, or activities to prevent the introduction of a hazardous substance into a water supply." The sign must be placed at construction sites in an easily visible location that can be directly linked to the work taking place and must be maintained in good condition throughout the construction period.

The recipient will ensure compliance with the guidelines and design specifications for using the official Building A Better America emblem and corresponding logomark available at: https://www.whitehouse.gov/wp-content/uploads/2022/08/Building-A-Better-America-Brand-Guide.pdf

b. EPA Logo: The recipient will ensure that signage displays the EPA logo along with the official Building A Better America emblem. The EPA logo must not be displayed in a manner that implies that EPA itself is conducting the project. Instead, the EPA logo must be accompanied with a statement indicating that the recipient received financial assistance from EPA for the project.

The recipient will ensure compliance with the sign specifications provided by the EPA Office of Public Affairs (OPA) available at: https://www.epa.gov/grants/epa-logo-seal-specifications-signage-produced-epa-assistance-agreement-recipients. As provided in the sign specifications from OPA, the EPA logo is the preferred identifier for assistance agreement projects and use of the EPA seal requires prior approval from the EPA. To obtain the appropriate EPA logo or seal graphic file, the recipient should send a request directly to OPA and include the EPA Project Officer in the communication. Instructions for contacting OPA is available on the Using the EPA Seal and Logo page.

c. Procuring Signs: Consistent with section 6002 of RCRA, 42 U.S.C. 6962, and 2 CFR 200.323, recipients are encouraged to use recycled or recovered materials when procuring signs. Signage costs are considered an allowable cost under this assistance agreement provided that the costs associated with signage are reasonable. Additionally, to increase public awareness of projects serving communities where English is not the predominant language, recipients are encouraged to translate the language on signs (excluding the official Building A Better America emblem or EPA logo or seal) into the appropriate non-English language(s). The costs of such translation are allowable, provided the costs are reasonable.

2. Public or Media Events

EPA encourages the recipient to notify the EPA Project Officer listed in this award document of public or media events publicizing the accomplishment of significant events related to construction projects as a result of this agreement and provide the opportunity for attendance and participation by federal representatives with at least ten (10) working days' notice.

END OF SECTION

SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Material and equipment incorporated into the Work shall:

1. Conform to applicable specifications and standards.

2. Comply with size, make, type, and quality specified to the greatest extent possible, detailing all aspects and providing explicit reasons for parameters not in compliance and specifically approved in writing by the Engineer.

3. Manufactured and Fabricated Products:

   a. Design, fabricate, and assemble in accord with the best engineering and standard shop practice.
   b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
   c. Two or more items of the same kind shall be produced, by the same manufacturer.
   d. Products shall be suitable for service conditions.
   e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

B. The term "Product" shall refer to material and/or equipment when used in these specifications or visa versa.

C. When material or equipment requires pre-qualification as described by Section 01030 - Alternates/Alternatives, only those materials and equipment approved prior to the bid or by addendum will be incorporated into the project.

1.02 SUBSTITUTE MATERIAL AND EQUIPMENT

A. When a particular product is specified or called for, it is intended and shall be understood that the Contractor include those products in his bid. Should the Contractor desire to substitute products which he purports to be equal to those specified and not listed as an alternate/alternative prequalified product, the Contractor shall furnish the information as described in the General Conditions and described in this Section.

The substitute product(s) submitted by the Contractor shall meet the requirements of the specifications and shall, in all respects, be equal to the product's specified by name herein.

B. Manufacturers of substitute equipment must submit through the Contractors evidence of manufacturer, installation and successful operation of their equipment. For ten (10) installations, the manufacturer shall submit the names, addresses, and telephone numbers of owners, engineers, and contractors. These installations shall be over a period of the past three (3) years. Installation shall be equal in application and operating conditions. If a manufacturer cannot meet these requirements as a result of new technology, experimental data can be submitted to meet the experience requirement.

SECTION 01600 - MATERIAL AND EQUIPMENT

C. Substitute equipment by manufacturers which cannot provide acceptable references of comparable installations in successful operation will not be allowed to provide equipment on this project.

D. The Owner and Engineer will solely make the determination as to whether or not a proposed substitute is "equal". This determination will be made in accordance with these Contract Documents and based upon submittal data supplied by the manufacturer. Submittal data which causes the Engineer and Owner to ponder, or does not address key items of the proposed equipment will be rejected. Submittal data shall be precise concerning the equipment parts and its operation.

E. To determine if a substitute product is equal, the following parameters shall be used:

1. Function of equipment
2. Capacity, size, rating
3. Reliability and past performance on similar projects
4. Quality control and workmanship
5. Design data
6. Installation and cost
7. Operational costs (i.e., fuel, electrical, manpower)
8. Maintenance schedules
9. Guarantees
10. Availability of parts and service from area reps
11. Replacement costs
12. Any required license fees or royalties
13. Other available data

F. Proposals for substitute material or equipment shall be made in writing to the Engineer with associated brochures and descriptive data. No substitute product may be submitted as a shop drawing, product data, or sample unless it has been previously approved by the Engineer in writing. In the case where a substitute product is approved, any modifications to the project such as design changes, construction changes, etc., shall be made at the Contractors expense. Any design modification shall be submitted to and approved by the Engineer prior to ordering or installing the substitute product.

G. All apparatus, mechanism, equipment, machinery, and manufactured articles for incorporation into the Work shall be new and unused and the standard products of recognized reputable manufacturers.

H. Contractor's Representation:

1. A request for a substitution constitutes a representation that Contractor:
   a. Has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified.
   b. Will provide the same warranties or bonds for the substitution as for the product specified.
   c. Will coordinate the installation of an accepted substitution into the Work, and make such other changes as may be required to make the work complete in all respects.
   d. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

SECTION 01600 - MATERIAL AND EQUIPMENT

1.03 APPROVAL OF MATERIALS

A. Only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the Work without prior approval of the Engineer.

B. The Contractor shall submit to the Engineer, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product along with reference to the applicable section (s) of the Specifications to form an opinion as to its conformity to the Specifications. The data shall comply with Section 01340 - Shop Drawings, Product Data, and Samples and other paragraphs of this section.

C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, and shipped as directed at the Contractor's expense. Except as otherwise noted, the Contractor will make arrangements for and pay for the tests. Where such tests confirm compliance with the specifications, the Owner will reimburse the actual charges of the testing firm paid by the Contractor.

D. Contractor shall submit data and samples sufficiently early to permit consideration, approval, manufacture, and delivery of materials before they are necessary for incorporation in the work. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of claim against the Owner or the Engineer.

E. The materials and equipment used in the Work shall correspond to the approved samples or other data.

1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

A. When Contract Documents require that installation of the Work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including copies to the Engineer. One complete set of the installation instructions shall be available for use on the job site during and through completion of the Work.

Installation instructions shall be submitted in accordance with Section 01340 - Shop Drawings, Product Data and Samples.

B. Handle, install, connect, clean, condition and adjust products as required by the manufacturer's instructions and in conformity with specified requirements.

1. Should the specified requirements conflict with the manufacturer's instructions, the manufacturer's instructions shall have priority unless changes are authorized in writing by the manufacturer.
2. Should job conditions conflict with the manufacturer's instructions, consult with the manufacturer for clarification.
3. Clarifications of installation instructions shall be issued only by the manufacturer, shall be in writing, and shall be distributed to all parties involved in the installation as stated above and prior to alteration of the installation procedures.
4. Do not proceed with the Work without clear instructions concerning the specific installation procedures.

C. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the manufacturer.

1.05 SERVICES OF MANUFACTURER'S REPRESENTATIVE

A. From each company manufacturing or supplying equipment, the Contractor shall provide as outlined below the services of a qualified factory service representative. Equipment furnished under Divisions 11, 13, 15 and 16 shall include the costs of these services. A service representative shall be a full-time factory-trained service employee with a minimum of two (2) years field service experience. Manufacturer's sales representatives or sales agents, subcontractors to manufacturers, or similar personnel will not qualify. The service rendered by these representatives shall be at the work site for an eight (8) hour work day for each piece of equipment. The number of trips and days required for each piece of equipment stated below is as follows:

- Phase I - Installation

  The factory service representative shall direct the contractor in the proper unloading, setting, installation, erection, storage and connection to adjacent units for their respective equipment. These services shall be for a period of not less than one (1) day. Some equipment may require additional time for the installation of major units of equipment. In this case a longer period may be mutually agreed to by the Contractor and Manufacturer. These services during the installation phase may be omitted if the installation of the equipment is not complicated. Permission for deletion of these services shall be made in writing to the Engineer prior to the delivery of the equipment with the appropriate reasons why these services are not needed for this equipment. Only after written approval has been granted by the Engineer will these services be voided. In any case, the manufacturer is responsible for the correct installation of the equipment in accordance with the manufacturer's recommended practices.

- Phase II - Testing

  After the equipment has been properly installed by the Contractor and readied for operation, each unit of equipment together with piping, power, and controls shall be tested by a factory service representative for its intended use as outlined in the technical specifications and drawings. These services shall be a separate one (1) day minimum visit to inspect and test the unit to verify that the installation is in accordance with the recommended practice of the manufacturer.

  Any calibrations, adjustments, or coordination of controls with other equipment shall be made at this time. The services of a factory service representative will be required on a consecutive day basis until the equipment has been properly tested to perform in accordance with the Contract Documents. If the equipment is not tested as required, the cost for additional visits will be paid for by the Contractor or the manufacturer.

  In the presence of the Owner's representative, the Resident Project Representative and/or Engineer, the operation, testing, and adjustments shall be performed to demonstrate the equipment operates as intended.

  After the site visit during this phase, the manufacturer or the supplier shall certify in writing a report (in triplicate) to the Engineer of the results of the inspection, operation

and condition of the equipment. This report shall include a detailed description of tests performed and the actual performance of the equipment. Any results which would require precautions to be taken to ensure proper maintenance of the equipment should be included in the report. Finally, the report should include a certification that the equipment conforms to the requirements of the Contract Documents and is ready for permanent operation. Furthermore, the certification shall include a statement stating nothing in the installation or testing operations will void the manufacturer's warranty. All manufacturer's are required to provide the services outlined in this phase without exception.

- Phase III - Start-Up, Operation and Training

  Once all equipment has been satisfactorily tested and the facility is substantially complete, the Contractor shall coordinate the concurrent start-up of all units of equipment. This coordination shall include the simultaneous attendance of the Owner's representative, the Engineer, and the factory service representative of each unit of equipment.

  The factory service representative will provide for a minimum of one (1) day instruction and training for the Owner's representative in the proper operation, adjustment and maintenance of the equipment. At this time the service representative shall provide operation and maintenance manuals to the Engineer unless provided for otherwise.

B. For equipment or products furnished under other divisions, the Contractor, unless otherwise specified, shall furnish the services of authorized representatives of the manufacturers only when some evident installation or operation problem makes such services necessary in the opinion of the Engineer.

C. Manufacturer's Operating and Maintenance Manuals shall be delivered to the Engineer in accordance with the requirements of Section 01730.

1.06 TRANSPORTATION AND HANDLING

A. Arrange deliveries of Products as required by the currently approved construction schedule coordinating each delivery to avoid conflict with other work and conditions at the site.

1. Deliver products in an undamaged condition, in the manufacturer's original containers or packaging and with identifying labels intact and legible.

2. Prior to accepting delivery, inspect shipments to assure compliance with approved submittals, and that the products have been properly protected and are undamaged.

B. Provide equipment and personnel to handle products preventing soiling or damage to the products or their protective packaging.

1.07 STORAGE AND PROTECTION

A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weathertight enclosures.

2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

3. Store fabricated products above the ground, on blocking or skids, prevent soiling, staining or corrosion. Cover products which are subject to deterioration with impervious sheet coverings and provide adequate ventilation to avoid condensation.
4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

B. All materials and equipment to be incorporated in the Work shall be handled and stored in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and other injury, theft or damage.

C. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All miscellaneous steel, structural steel and reinforcing steel shall be stored off the ground, kept free of accumulations of dirt and grease, and in areas free of standing water and minimize rusting. Precast concrete sections shall be handled and stored in a manner to prevent staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce staining, breaking, chipping, cracking, and spilling.

D. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended, including aesthetics, shall be promptly removed from the site of the work.

E. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections and exercise or rotate moving parts of stored products as required by the manufacturer to assure that products are maintained under specified conditions and free from damage or deterioration.

F. Provide substantial coverings as necessary to protect installed products from damage caused by traffic and subsequent construction operations. Remove the protective covering when no longer needed.

G. The Contractor shall be responsible for all material, equipment, and supplies sold and delivered to the Owner under this Contract until final inspection of the Work and acceptance thereof by the Owner. In the event any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance they shall be replaced by the Contractor.

H. Should the Contractor fail to take proper action to properly store and handle equipment supplied under this Contract, the Owner retains the right to notify the Contractor in writing of the deficiencies, to correct all deficiencies and deduct the cost associated with these corrections from the Contractor's Contract. These cost may be comprised of expenditures for labor, equipment usage, administration, clerical, engineering and any other costs associated with making the necessary corrections.

1.08 OFF-SITE STORAGE AND PROTECTION

A. Off-site storage arrangements shall be acceptable to the Owner and approved in writing by the Engineer for all material and equipment not incorporated into the Work but included in the application for payment. Off-site storage shall be permitted and payment made therefore if the following conditions are met:

1. Protection - The material and equipment is stored in a security protected environment to avoid damage or theft by vandals.

2. Insurance - Adequate insurance in accordance with Article 5 of the General Conditions shall be maintained by the Contractor and property owner of the site in which the material and equipment is stored. A minimum level of insurance shall be maintained to replace the item should it become damaged or stolen.

3. Title - A title indicating the Owner has purchased the material and equipment is provided by the Contractor to the Owner after payment is made; and

4. Access for Inspection - The Owner, the Engineer or their representatives have access to the site for inspection purposes. Site inspection will be conducted with the site owners.

1.09 PRODUCT TESTING

A. All work installed in accordance with the plans and specifications, shall have post installation tests performed to check the system conformance to the specified operation. The Contractor shall file with the Engineer a standard form written report detailing the field operation of the product. The standard form reports will be furnished by the Engineer and completed by the Contractor and the Resident Project Representative.

B. Report forms shall be listed and shown in the Appendix.

1.10 SPECIAL TOOLS

Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations and maintenance, together with instructions for their use. The Contractor shall preserve and deliver to the Owner these tools and instructions in good order no later than upon completion of the Contract.

1.11 WARRANTY

For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740. The manufacturer's warranty period shall be concurrent with the Contractor's as stipulated in the specifications for each piece of equipment.

1.12 SPARE PARTS

Spare parts for certain equipment provided under Divisions 11, 13, 15 and 16 have been specified in the pertinent sections of the Specifications. The Contractor shall collect and store all spare parts so required in an area to be designated by the Engineer. In addition, the Contractor shall furnish to the Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

1.13 GREASE, OIL AND FUEL

All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The Owner shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item of equipment supplied.

SECTION 01600 - MATERIAL AND EQUIPMENT

The Contractor shall be responsible for changing the oil in all drives and intermediate drives of each mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The Contractor shall comply with the requirements stated in the General Conditions and in the Specifications for administrative procedures in closing out the work.

B. The following is a list of items required to complete the project.

1. Owner may request use of substantially completed portions of the work without such use constituting acceptance. Provision should be made for consent or notification of the survey and the insurers for the project;

2. Contractor to request Substantial Completion inspection of the project or a portion thereof when construction is sufficiently complete to be utilized for the purposes intended;

3. Engineer, Contractor, and Resident Project Representative to make substantial completion inspection. A list of incomplete items will be prepared by the Engineer.

4. Engineer will issue a Substantial Completion Certificate with a date of substantial completion with the attached list of uncompleted items. Certificate will be filed by the Owner for a prescribed period of time. Besides listing the uncompleted items, the substantial completion shall designate the responsibilities for utilities, maintenance and insurance; and any exceptions to guarantees or warranties.

5. Contractor shall complete list of uncompleted items. Upon the completion of work, he shall request a final inspection.

6. Final Inspection shall be made by Owner, Contractor, Engineer, Resident Project Representative, Regulatory Agencies, Funding Agency and any other agency involved in this project.

7. Contractor shall make final request for payment with the appropriate data; i.e., clear-lien certificate, release from surety, etc., all as required by State Law.

8. Engineer to process final payment request and present request to Owner.

1.02 SUBSTANTIAL COMPLETION

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

1. A written notice that the Work or designated portion thereof is substantially complete.

2. A list of items to be completed or corrected.

B. Within five (5) working days after receipt of such notice, the Engineer will make an inspection to determine the status of completion. The Engineer's opinion as to the status of completion shall be based on completion of the following as applicable:

1. Installation of all piping, valves, force mains, and/or gravity sewers including pressure, leakage or other required tests.
2. Installation of all equipment including, but not limited to, fans, blowers, aerators, dehumidifiers, and surge suppressors.

3. Installation or construction of structures including all required protective or aesthetic coatings or devices including required tests.

4. Installation of electrical conduits, wiring, load centers, controls, and all other electrical elements as required including tests, inspections, and approval by local agencies for compliance with ordinances and codes.

5. Backfill and compaction of backfill as indicated by required tests for all structures, pipelines, conduits, and other subterranean installations.

6. Installation or restoration of pavements including required tests for subbase, base and pavement materials, and approval by the local municipality. Pavements shall not be individually considered and shall be considered only with other portions of the Work requiring the installation or restoration of pavement.

7. All painting required by the Contract Documents except for touch-up.

8. Topsoiling, final grading, fertilizing, seeding, sodding, or landscaping except for growth of vegetation and watering to establish the required ground cover of vegetative growth.

9. Release of all permits whether or not the permit was acquired by the Contractor.

10. Installation of all doors, windows, louvers, and other building appurtenances including painting, finish hardware, glazing, locks, and other required devices to secure the Work.

11. All required instructions for the Owner's operation and maintenance personnel including a minimum of one approved copy of the required operation and maintenance manual for use by the Owner's personnel.

C. Should the Engineer determine that the Work is not substantially complete:

1. The Engineer will promptly notify the Contractor in writing, giving the reasons therefore in accordance with the General and Supplemental Conditions.

2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.

3. The Engineer will reinspect the Work.

D. When the Engineer finds that the Work is substantially complete, he will:

1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment in accordance with the General and Supplementary Conditions.

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

1.03 FINAL INSPECTION

A. When Contractor considers the Work is complete, he shall submit written certification that:

1. Contract Documents have been reviewed.

2. Work has been inspected for compliance with Contract Documents.

3. Work has been completed in accordance with Contract Documents.

4. Equipment and systems have been tested in the presence of the Engineer and Owner's representative and are operational.

5. Work is completed and ready for final inspection.

B. The Engineer will make an inspection to verify the status of completion with five working days after receipt of such certification.

C. Should the Engineer consider that the work is incomplete or defective:

1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Engineer that the Work is complete.

3. The Engineer will reinspect the Work.

D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.04 REINSPECTION FEES

Should the Engineer perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:

A. Owner will compensate the Engineer for such additional services.

B. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

A. Evidence of compliance with requirements of governing authorities.

B. Project Record Documents: Requirements of Section 01720.

C. Manufacturer's Certificates of Installation: Requirements of Section 01600.

D. Warranties and Bonds: Requirements of Section 01740.

E. Keys and Keying Schedule.

F. Spare Parts and Maintenance Materials: Requirements of Section 01730.
G. Certificate of Insurance for Products and Completed Operations.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

SECTION 01700 - CONTRACT CLOSEOUT

A. Submit a final statement of accounting to the Engineer.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.

2. Additions and deductions resulting from:

a. Previous Change Orders
b. Unit Prices
c. Deductions for uncorrected Work
d. Penalties and Bonuses
e. Deductions for liquidated damages
f. Deductions for reinspection payments
g. Other adjustments

3. Total Contract Sum, as adjusted.

4. Previous Payments.

5. Sum remaining due.

C. Engineer will prepare a final Change Order reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

D. In accordance with the requirements of Section 01035 - Modification Procedures, the Engineer will submit the final Change Order and a recommendation for acceptance of the Work to the Owner for approval.

1.07 APPLICATION FOR PAYMENT

Upon receipt of approval of the final Change Order, the Contractor shall submit an Application for Payment in accordance with procedures and requirements stated in the General Conditions.

1.08 CONTRACT CLEAR LIEN CERTIFICATE AND PAYMENT OF RETAINAGE

A. Upon receipt of the Owner's acceptance of the work, the Contractor shall make filings with the Recorder of Mortgages as required by Louisiana State Public Contract Statute.

B. In accordance with the Louisiana State Public Contract Statute, the Recorder of Mortgages shall issue a Clean Lien and Privilege Certificate upon expiration of a period of not less than forty-five (45) days, provided no liens are recorded against the Project.

C. Upon receipt of the Clear Lien and Privilege Certificate, the Contractor shall submit an Application for Payment to the Engineer requesting the release of the Project retainage with the certificate attached as evidence of authority for the Owner to pay the retainage.

D. The Engineer shall review the Application for Payment for the Project retainage and if in order shall transmit the application to the Owner for Payment.

E. In accordance with the General Conditions, the Owner shall release the Project retainage and make payment to the Contractor the legal sum of the retainage for which the Contractor is entitled.

SECTION 01700 - CONTRACT CLOSEOUT

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01710 - SITE CLEANING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Cleaning shall include daily "policing" of the work and surrounding areas to clear general debris, waste paper, wood scraps, broken concrete, and other objectionable material along with the final cleanup of site(s) required for project acceptance.

1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

A. Execute daily cleaning to keep the Work, the site and adjacent properties, free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

B. Provide onsite containers for the collection of waste materials, debris and rubbish. All waste materials including containers, food debris and other miscellaneous materials must be disposed of daily in onsite containers.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 FINAL CLEANING

A. Employ skilled workmen for final cleaning.

B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

D. Prior to final completion or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that the entire Work is clean.

E. Apply a finished paint coat per Section 09900 to all equipment incorporated into the project. Final finish coat of paint shall be applied after equipment has been installed.

3.03 FUELING

A. Upon servicing all equipment, all fuel storage and equipment tanks shall be filled to completion.

END OF SECTION

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Maintain at the site for the Owner one record copy of:

1. Conformed Drawings.
2. Conformed Specifications.
3. Change Orders and other Modifications to the Contract.
4. Engineer's Field Orders or written instructions.
5. Approved Shop Drawings, Working Drawings and Samples.
6. Field Test records.
7. Construction photographs.
8. Latest, Approved Progress Schedule.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples in Contractor's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with CSI section numbers.

C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.

D. Make documents and samples available at all items for inspection by the Engineer.

E. As a pre-requisite for monthly progress payments, the Contractor is to exhibit the currently updated "record documents" for review by the Engineer and Owner.

1.03 MARKING DEVICES

Provide felt tip marking pens for recording information in the color code designated by the Engineer.

1.04 RECORDING

A. Label each document "PROJECT RECORD" with rubber stamp.

B. Record information concurrently with construction progress and do not conceal any work until required information is recorded.

C. Legibly mark drawings to record actual construction:

SECTION 01720 - PROJECT RECORD DOCUMENTS

1. The Contractor shall use the following color code in marking Contract Drawings.

    a. Yellow for no change.
    b. Red to indicate additions, deletions and changes.

2. Elevations of various structure elements in relation to elevation datum.

    a. Elevations referenced to control points established by the Owner's agent.
    b. Specifically, elevations of drainage culvert inverts, building slabs, top of roadway and driveway curbs, bridges, etc.

3. All underground piping with elevations and dimensions, changes to piping location, horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements, actual installed pipe material, class, etc.

    a. Elevations of constructed underground piping at 100 ft. increments and points where changes occur in either the slope or horizontal direction.
    b. Three swing ties from referenced permanent surface improvements to the pipe centerline at 500 ft. increments and the center of each manhole cover, valve, wye branch, vent, end of service connection at the property line, other fittings and appurtenances.
    c. Identify existing utilities which parallel the proposed construction, including size and offset distance horizontally and vertically, when exposed by the construction activity.
    d. Identify existing utilities including size, material type, vertical clearance over or under, intersecting station, and angle of intersection crossing proposed construction.

4. Location of internal utilities and appurtenances concealed in the construction by referencing to visible and accessible features of the structure.

5. Field changes of dimension and detail.

6. Changes made by Field Order or by Change Order.

7. Details not on original contract drawings.

8. Equipment and piping relocations.

9. Identify the actual motor installed by manufacturer's name, nameplate horsepower and serial number.

10. Identify the actual pump installed by manufacturer's name, model number, impeller size, rated capacity and serial number.

11. Major architectural and structural changes including relocation of doors, windows, etc.

D. Specifications and Addenda; Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

2. Changes made by Field Order or by Change Order.

SECTION 01720 - PROJECT RECORD DOCUMENTS

E. Shop Drawings (after final review):

Five (5) sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

F. Certified site survey and line elevations and stationing at 100 ft. increments and all points of change of direction of pipelines per Section 01050 by a registered land surveyor.

1.05 SUBMITTAL

A. At Contract close-out, deliver Record Documents to the Engineer for the Owner.

B. Accompany submittal with transmittal letter in duplicate containing:

1. Date.

2. Project title and number.

3. Contractor's name and address.

4. Title and number of each Record Document.

5. Signature of Contractor or his authorized representative.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01730 - OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under Contract.

1. Prepare operating and maintenance data as specified herein and as referenced in other pertinent sections of Specifications.

2. Submit operating and maintenance manuals as specified herein.

B. Instruct Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:

1. Trained and experienced in maintenance and operation of described products.

2. Familiar with requirements of this Section.

3. Skilled in technical writing to the extent required to communicate essential data.

4. Skilled as draftsman competent to prepare required drawings.

1.03 FORM OF SUBMITTALS

A. Prepare data in form of an operating and maintenance manual for use by Owner's personnel.

B. Format:

1. Size: 8 1/2 inches x 11 inches, punches and reinforced for insertion into the binders.

2. Paper: 20 pound minimum white, for typed pages.

3. Text: Manufacturer's printed data, or neatly typewritten.

4. Drawings:

a. Provide reinforced punched binder tabs, bind in with text.
b. Reduce larger drawings and fold to size of text pages but not larger than 11 inches x 17 inches.

5. Provide fly-leaf for each separate product, or each piece of operating equipment.

a. Provide typed description of product, and major component parts of equipment.
b. Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS" List:

    a. Title of Project.
    b. Identity of separate structure as applicable.
    c. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality three-post binders with durable and cleanable plastic covers.

2. Maximum post width: 2-inches, D-ring.

3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF OPERATING AND MAINTENANCE MANUAL

A. A complete neatly typewritten table of contents listing documents in all volumes shall be included and arranged in systematic order.

1. Contractor, name of responsible principal, address and telephone number.

2. A list of each product required to be included, indexed to content of the volume.

3. List, with each product, name, address and telephone number of:

    a. Subcontractor or installer.
    b. Maintenance contractor, as appropriate.
    c. Identify area of responsibility of each.
    d. Local source of supply for parts and replacement.

4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data:

1. Include only those sheets which are pertinent to the specific product.

2. Annotate each sheet to:

    a. Clearly identify specific product or part installed.
    b. Clearly identify data applicable to installation.
    c. Delete references to inapplicable information.

C. Drawings:

1. Supplement product data with drawings as necessary to clearly illustrate:

    a. Relations of component parts of equipment and systems.
    b. Control and flow diagrams.

2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
3. Do not use Project Record Documents as maintenance drawings.

SECTION 01730 - OPERATING AND MAINTENANCE DATA

D. Written text, as required to supplement product data for the particular installation:

1. Organize in consistent format under separate headings for different procedures.

2. Provide logical sequence of instructions of each procedure.

E. Copy of each warranty, bond and service contract issued and provide information sheet for Owner's personnel, giving proper procedures in the event of failure and instances which might affect the validity of warranties or bonds.

F. Provide for each unit of equipment and system, as appropriate:

1. Description of unit and component parts.

   a. Function, normal operating characteristics, and limiting conditions.
   b. Performance curves, engineering data and tests.
   c. Complete nomenclature number of replaceable parts including standard or manufacturer's part.

2. Operating procedures:

   a. Start-up, break-in, routine and normal operating instructions.
   b. Regulation, control, stopping, shutdown and emergency instructions.
   c. Summer and winter operating instructions.
   d. Special operating instructions.

3. Maintenance Procedures:

   a. Routine operations.
   b. Guide to "troubleshooting".
   c. Disassembly, repair, and reassembly.
   d. Alignment, adjusting and checking.

4. Servicing and lubrication schedule including a list of lubricants required.

5. Manufacturer's printed operating and maintenance instructions.

6. Description of sequence of operation by control manufacturer.

7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance including the following:

   a. Predicted life of parts subject to wear.
   b. Items recommended to be stocked as spare parts.

8. As-installed control diagrams by controls manufacturer.

9. Each contractor's coordination drawings including as-installed color coded piping diagrams.

10. Charts of valve tag numbers, with location and function of each valve.

11. Cataloged list of manufacturer's spare parts supplied with the equipment or system, manufacturer's current prices, and recommended quantities to be maintained in storage.

12. Other data as required under pertinent sections of Specifications.

G. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts.

a. Function, normal operating characteristics, and limiting conditions.
b. Performance curves, engineering data and tests.
c. Complete nomenclature including standard or manufacturer's part number of replaceable parts.

2. Circuit directories of panelboards.

a. Electrical service.
b. Controls.
c. Communications.

3. As-installed color coded wiring diagrams.

4. Operating procedures:

a. Routine and normal operating instructions.
b. Sequences required.
c. Special operating instructions.

5. Maintenance procedures:

a. Routine operations including recalibration procedures.
b. Guide to "troubleshooting".
c. Disassembly, repair and reassembly.
d. Adjustment and checking.

6. Manufacturer's printed operating and maintenance instructions.

7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

8. Other data as required under pertinent sections of specifications.

H. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

I. Additional requirements for operating and maintenance data as required by the respective sections of the Specifications.

1.05 SUBMITTAL SCHEDULE AND REQUIREMENTS

A. Submit two (2) copies of preliminary draft of proposed formats and outlines of contents of Operating and Maintenance Manual within thirty (30) days of first Engineer review of shop drawings for each equipment item. The Engineer will review the preliminary draft and return one copy with comments.

SECTION 01730 - OPERATING AND MAINTENANCE DATA

B. Submit five (5) copies of the final manual to the Engineer within thirty (30) calendar days of product shipment to the project site and preferably within thirty (30) days after the reviewed copy is received.

C. Submit five (5) copies of any addenda to the Operating and Maintenance Manual as applicable with certificates as specified in Article 1.05 of Section 01600 within thirty (30) days after final inspection and start-up.

1.06 INSTRUCTION OF OWNER'S PERSONNEL

A. Prior to initial start-up inspection or request for substantial completion, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems. Refer to Article 1.05 of Section 01600.

B. Operating and maintenance manual shall constitute the basis of instruction and shall review comments of manual with personnel in full detail to explain all aspects of operation and maintenance.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Compile specified warranties and bonds, as in Articles 5 and 13 of the General Conditions.

B. Co-execute submittals when so specified.

C. Review submittals to verify compliance with Contract Documents.

D. Submit to the Engineer for review and transmittal to Owner.

1.02 SUBMITTAL REQUIREMENTS

A. Assemble and include warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors including effective dates as required by Section 01730, Operation and Maintenance Data, in the required operation and maintenance manuals.

B. Number of original signed copies required: Two (2) each.

C. Table of Contents: Neatly typed in orderly sequence. Provide complete information for each item.

1. Product or work item.

2. Firm, with name of principal, address and telephone number.

3. Scope.

4. Date of beginning warranty, bond or service and maintenance contract.

5. Duration of warranty, bond or service maintenance contract.

6. Provide information for Owner's personnel:

a. Proper procedure in case of failure.
b. Instances which might affect the validity of warranty or bond.

7. Contractor, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size: 8 1/2 inches x 11 inches, punch sheets for standard 3-post binder.

a. Fold larger sheets to fit into binder.

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS" List:

   a. Title of Project.
   b. Name of Contractor.

C. Binders - Commercial quality three-post binders with durable and cleanable plastic covers and maximum post width: 2-inches, D-ring.

1.04 WARRANTY SUBMITTAL REQUIREMENTS

A. For all major pieces of equipment, unless stated otherwise in the specifications for each individual item of equipment, submit a written warranty from the equipment manufacturer to replace promptly any equipment or component thereof which, in the sole opinion of the Engineer, has defects in design, workmanship, materials, or performance within a one (1) year period following the date of acceptance for operation (Substantial Completion) by the Owner. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year, unless otherwise specified, commencing at the time of acceptance for operation (beneficial use) by the Owner and shall be read in conjunction with the Contractor's warranty which shall operate together to provide for replacement of defective equipment and restoration of proper operation. The Contractor shall be solely responsible for both warranties.

B. The Contractor shall obtain manufacturer's warranties for all equipment which has 1 HP motor or larger and/or which lists for more than $1,000.00. The Engineer reserves the right to request warranties for equipment not so classified. The Contractor shall warrant all equipment in the Contract one-year warranty period even though manufacturer's warranties may not be required.

C. In the event that the Contractor is unable to obtain from an equipment manufacturer or supplier the above one-year warranty, the Contractor shall provide, prior to acceptance for operation of the equipment by the Owner, a bank letter of credit in favor of the Owner in the amount of two-hundred percent (200%) of the purchase price of the equipment for a period of 18 months from the beginning of the warranty period on which the Owner may draw for replacement of defective equipment (materials and labor).

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

DIVISION 2 - SITE CONSTRUCTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02060 - CRUSHED STONE

PART 1 - GENERAL

1.01 DESCRIPTION

A. This item shall consist of furnishing, spreading, and/or spot dumping of crushed stone in the quantities required and at location shown on the Plan Drawings or as designated by the Project Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Crushed stone shall:

1. Be from an approved source.

2. Not show more than forty five percent (45%) abrasion loss when tested in accordance with AASHTO Designation T96.

3. Show no more than fifteen percent (15%) soundness loss when subjected to five (5) cycles of the magnesium sulfate test in accordance with AASHTO Designation T104.

4. Meet the following gradation:

U.S. Sieve	SPR#3	Percent Passing 2½ x 0 RBA	#610	#57
3"	---	100	—	---
2½"	100	90-100	—	---
2"	85-95	85-100	—	---
1½"	35-70	70-90	100	100
1"	0-10	50-70	90-100	95-100
¾"	---	45-60	70-95	---
½"	0-5	30-50	50-80	25-60
No. 4	---	20-40	30-65	0-10
No. 8	---	15-30	—	0-5
No. 10	---	---	25-50	---
No. 16	---	5-25	—	---
No. 40	---	0-15	10-26	---
No. 100	---	0-10	4-12	---
No. 200	---	---	—	---

B. The fraction of stone passing the No. 40 sieve shall be non-plastic.

SECTION 02060 - CRUSHED STONE

PART 3 - EXECUTION

3.01 GENERAL

A. Crushed stone shall be placed at any location and to any depth within the project limits as directed by the Engineer.

B. The stone shall be placed directly on the prepared and approved subgrade from hauling vehicles or spreading equipment. No stone shall be placed on damaged subgrade until repairs have been completed and approved.

C. Stone shall not be placed or spread on adjacent concrete or asphaltic concrete pavements. Placement shall be such that pavement surfaces, edges, and joints are not damaged.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the Plans or as required by the Engineer.

B. Clearing shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.

C. Clearing, when so designated, shall consist of the cutting and removal of isolated single trees or isolated groups of trees. The cutting of all the trees of this classification shall be in accordance with the requirements for the particular area being cleared, or as shown on the Plans, or as directed by the Engineer. The trees shall be considered isolated when they are forty feet (40') or more apart, with the exception of a small clump of approximately five (5) trees or less.

D. Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fence structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the Engineer is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing by burning or otherwise.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. The areas to be cleared or cleared and grubbed shall be indicated on the Drawings.

B. The removal of existing structures and utilities shall be performed in accordance with Section 02221.

C. Fences shall be removed when indicated on the Drawings. Fence wire shall be neatly rolled and the wire and posts stored on the site if they are to be used again. If the fencing is to remain the property of the Owner, the Contractor shall store at a designated location selected by the Owner.

D. Blasting shall not be allowed unless requested by the Contractor and approved in writing by the Engineer and Owner.

E. If the saving of merchantable timber is required, the Contractor shall trim the limbs and tops from designated trees, saw them into suitable lengths, and make the material available for removal by others.

F. Trees shall be filled toward the center of area being cleared in order to minimize damage to

trees that are to be left standing. Trees unavoidably falling outside the specified limits must be cut up, removed, and disposed of in a satisfactory manner. Care shall be taken to protect and preserve all trees not to be removed.

3.02 CLEARING

A. When isolated trees are designated for clearing (unit price contracts), the trees shall be classed in accordance with the butt diameter size as measured at a point eighteen inches (18") above the ground level or at a designated height specified in the Plans.

3.03 CLEARING AND GRUBBING

A. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed, except where embankments exceeding three and one-half feet (3½') in depth are to be made outside of paved areas. In cases where such depth of embankments is to be made, all unsatisfactory materials shall be removed, but sound trees and stumps can be cut off within six inches (6") above the ground and allowed to remain. Tap roots and other projections over one and one-half inches (1½") in diameter shall be grubbed out to a depth of at least eighteen inches (18") below the finished subgrade or slope elevation.

B. All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required in Section 02315. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

3.04 DISPOSAL OF UNSUITABLE MATERIAL

A. All soil materials removed by clearing or by clearing and grubbing may be disposed of by burning when permitted by state and local laws, or by removal to approved disposal areas or landfills. When burning of material is permitted, it shall be burned under the constant care of competent watchmen so that the surrounding vegetation and other adjacent property will not be jeopardized. Burning shall be done in accordance with all applicable laws, ordinances, and regulations. Before starting any burning operations, the Contractor shall notify the agency having jurisdiction.

END OF SECTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to perform all excavation, backfill, grading, and wall protection required to complete the structure and piping work shown on the Drawings and specified herein. The work shall include, but not necessarily be limited to excavation, filling and grading under and around precast and cast-in-place structures to attain the subgrades and grades indicated on the Drawings; trenching operations to install pipe, manholes, vaults, electrical duct conduit, pump station wet wells and valve pits, and other structures, including all backfilling, grading, disposal of surplus and unsuitable materials; and all related work such as sheeting, bracing, and water handling.

1.02 QUALITY ASSURANCE

The Contractor shall perform excavation work in compliance with applicable requirement codes and standards of governing authorities having jurisdiction.

The Owner will engage and pay for soil testing and inspection services for quality control testing during earthwork operations as provided in other sections of this specification.

1.03 JOB CONDITIONS

A. The Contractor shall examine the site and review the available test borings or undertake his own soil borings prior to submitting his Bid, taking into consideration all conditions that may affect his work. The Owner and Engineer will not assume responsibility for variations of subsoil quality or conditions at locations other than places shown and at the time the investigation was made. Boring log data, if available, may be reviewed or purchased at the office of the Engineer.

B. Existing Utilities

Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

1. The location of all pipes, ducts, or underground structures is not warranted to be exact, nor is it warranted that all underground pipes, ducts, or structures are shown. If the project is located in Louisiana the Contractor shall contact LA One Call or the appropriate utility company for location of their underground service a minimum of seventy-two (72) hours prior to beginning construction in each area. If the project is located in another state, Contractor shall contact similar agencies to locate underground existing utilities. It is the Contractor's responsibility to verify and locate all utilities in the field at no additional cost to the Owner.

2. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner or make the site available to the utility owner for his work crews to make the necessary repairs at no additional cost to the Owner.

3. Demolish and completely remove from site existing underground utilities indicated on the Drawings to be removed.

4. Examine the areas and conditions under which excavating, filling, and grading are to be performed. Do not proceed with the work until unsatisfactory conditions have been corrected.

5. Examine existing grade of walks, pavements, and steps prior to commencement of work and report to Engineer if elevations of existing subgrade vary from elevations shown on Drawings.

6. If it is determined that existing utilities are to be relocated by owner of those utilities, the Contractor shall be responsible for that coordination. The Contractor shall notify the utility owner in sufficient time as to avoid any delays to the Contractor's schedule. The Contractor is solely responsible for this coordination, and no delay or extension of time will be allowed as a result of or the cause of inaction by the Contractor or utility owner.

1.04 PROTECTION

A. Slope sides of excavations to comply with OSHA regulation and any applicable local codes and ordinances. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

B. Sheeting and Bracing in Excavations

1. In connection with construction of below grade structures and piping, the Contractor shall construct, brace, and maintain cofferdams consisting of sheeting and bracing as required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction, and to protect adjacent structures, existing yard piping and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed they shall be immediately filled and rammed.

2. Trench sheeting for pipes is not to be withdrawn when driven below mid-diameter of any pipe, and no wood sheeting shall be cut off at a level lower than one foot (1') above the top of any pipe unless otherwise directed by the Owner. If during the progress of the work the Owner decides that additional wood sheeting should be left in place, he may direct the Contractor in writing and the Contractor shall be reimbursed in accordance with the Bid Documents. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given for an alternate method of removal.

3. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, existing utilities, existing piping, or personnel and property. Unless otherwise approved or indicated on the Drawings or in the Specifications, all sheeting and bracing may be carefully removed after completion of the substructure. Care shall be taken not to disturb or otherwise injure any finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by hydraulic compaction or otherwise as may be directed.

4. The right of the Owner to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders, and his failure to exercise his right to do so shall not relieve the Contractor from liability for damages to persons or property occurring from or on the Work occasioned by negligence or other cause, growing out of a failure on the part of the Contractor to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.

5. The Contractor may construct the cofferdams and sheeting outside the neat lines of the foundation for pipes and manholes, unless indicated otherwise, to the extent he deems it desirable for his method of operation. Sheeting shall be plumb and securely braced and tied in position. Sheeting, bracing, and cofferdams shall be adequate to withstand all pressures to which the existing or new structure will be subjected. Pumping, bracing, and other work within the cofferdam shall be done in a manner to avoid disturbing any completed construction or personnel injury. Any movement or bulging which may occur shall be corrected by the Contractor so as to provide the necessary clearances and dimensions.

6. The Contractor is fully responsible for any sheeting, bracing and cofferdams that are required to perform any of the work under the Contract. As part of his submittal of schedules and other data indicating his planning of the work, the Contractor shall provide drawings of the planned supporting system, not for review by the Owner but for informational purposes only and use by the Owner in tracking the progress of the work. Such drawings shall be of sufficient detail to adequately disclose the method of operation that the Contractor plans to use for each of the various stages of construction. The work shall not be started until such drawings are received.

7. Establish requirements for trench shoring and bracing to comply with OSHA regulations and any applicable local codes and ordinances.

8. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

9. As an alternate to sheeting, the Contractor is authorized to utilize a mechanical trench box, the size and construction of which shall be submitted to the Owner for review.

C. Dewatering, Drainage, and Flotation

1. The Contractor shall furnish all materials and equipment and perform all work required to install and maintain the drainage systems he proposes for handling groundwater and surface water encountered during construction of structures, pipelines, and compacted fills.

2. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding, and base course in-the-dry. In addition, the Contractor shall make the final twenty-four inches (24") of excavation for this work in-the-dry, and not until the water level is a minimum of twelve inches (12") below proposed bottom of excavation.

3. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to promptly remove and dispose of all water entering excavations and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition, until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.

4. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.

5. Wellpoints may be required for predrainage of the soils prior to final excavation for some of the deeper below-ground structures or piping, and for maintaining the lowered groundwater level, until construction has been completed to such an extent that the structure, pipeline, or fill will not be floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.

6. If requested by the Owner, the Contractor's proposed method of dewatering shall include a minimum of two (2) four inch (4"), Schedule 40, operating groundwater observation wells at each structure to be used to determine the water level during construction of the structure. Locations of the observation wells shall be at structures and along pipelines as approved by the Owner prior to their installation.

7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the Owner. The Contractor shall be responsible for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance or natural bearing of soils or damage to structures caused by an inadequate dewatering system or by interruption of the continuous operation of the system as specified.

8. As part of the submittal of his dewatering system, the Contractor may be required to demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil particles in a one (1) quart sample.

9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the Owner.

10. Continuous pumping will be required as long as water levels are required to be below natural levels.

11. While dewatering for new construction in the vicinity of existing structures, depletion of the groundwater level underneath these existing structures may cause settlement. To avoid this settlement, the groundwater level under these structures shall be maintained by appropriate methods of construction.

D. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warming lights in accordance with local requirements. Operate warning lights as recommended by authorities having jurisdiction.

2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining washout and other hazards created by earthwork operations.

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

PART 2 - PRODUCTS

2.01 SOIL

A. Definitions

1. Select Material - Select material shall conform to LA DOTD designation TR 423 Classes A-l-a, A-l-b, A-3, A-2-4, A-2-6, A-4, or A-6 having a maximum liquid limit of thirty-five (35) and a maximum plasticity index of fifteen (15). This material is referred to as "selected soils" in the DOTD Specifications. Based on an approved geotechnical engineering report, particularly A-6 soils, a higher plasticity index of up to twenty-five (25) will be considered.

2. Bedding Materials - Bedding material shall be #610 Limestone. The limestone shall be one hundred percent (100%) quarried. The stone shall pass the soundness test and abrasion test. Soundness loss shall not exceed fifteen percent (15%) when subjected to five (5) cycles of the magnesium sulfate soundness test in accordance with AASHTO 104. The stone shall show an abrasion loss of not more than forty percent (40%) when tested in accordance with AASHTO 96.

3. Stabilization Materials - Stabilization materials shall be a blended, manufactured aggregate conforming to the requirements for concrete aggregate as stated in ASTM C33 except for graduation which shall be between sizes seventy-eight (78) and fifty-seven (57) (inclusive) as specified in ASTM D448.

4. Special Stabilization Materials - Where special stabilization materials are required by the Engineer or called for under a specific Bid Item, the following specification shall apply:

4.1 General

The special stabilization material shall be "Perma-Soil" soil stabilizer or approved alternate. This is a product which will dry, strengthen, and bond soils so as to increase the load-bearing properties of the soil while minimizing subsidence, without exceeding a compressive strength which would prevent easy re-excavation. It should exhibit quick setting properties. This special stabilization material, when required, shall be used to a depth of five feet (5'), or maximum portion thereof for excavations of less than five feet (5') in depth, not to extend below the depth of the top of the pipe.

4.2 Performance Characteristics

A. All soils treated with the stabilizer and routinely compacted shall attain unconfined compressive strengths greater than the same soils which are untreated and compacted to ninth five percent (95%) modified proctor of the maximum laboratory dry density.

B. Treated soil should attain a California Bearing Ratio (CBR) of fifty (50) or greater when used in accordance with manufacturer's instructions.

C. Treated soil shall gain in compressive strength and maintain their size and shape when subjected to damp environments.

D. Treated soils shall attain sufficient strength to allow for repaving, removal of any traffic control devices and provide for the return to normal traffic on any site where the stabilizer is used within one (1) hour or less of the final compaction lift, when used in accordance with manufacturer's instructions.

E. Treatment of soil will create less than 10 F exothermic reaction, so as to prevent possible damage to pipe or other underground conduits, plant, or animal life. The stabilizer shall not pose a threat of thermal injury to workers, nor will it cause the ground to expand after compaction which would prevent immediate re-paving.

F. The stabilizer shall be environmentally safe and shall not exceed EPA standards for ingestion or inhalation, nor cause hazards to work crews or the environment.

G. The stabilizer will be non-corrosive to underground pipe and other conduits.

H. The stabilizer shall be packaged in water-tight, puncture-resistant fifty pound (50 lb.) pail type containers to provide ease of handling and storage. Alternate products must be available in containers of a size and weight to allow for ease of handling by one (1) person.

4.3 Specific Mixing Instructions

It is the Contractor's responsibility to insure that proper, updated application instructions from the manufacturer are being followed. The instructions included below are representative of the procedure to be followed, but must be certified as correct by the manufacturer prior to use of the product.

A. Survey moisture content - All soils must have a minimum of seven percent (7%) moisture content. A quick field check is to squeeze a hand full of soil into a ball; if it retains its shape the minimum is present. The only exception to this moisture content is in clay soils without silt or sand (when rubbed between thumb and forefinger this clay will shine). To field test, roll a sample between the hands; it should elongate into a roll, without breaking down to one-half inch (½") diameter. Should it break before reaching one-eighth inch (_") diameter it is too dry and more water should be added.

B. Determine mixture amount - In all soils a minimum mix of one (1) pail fifty pounds (50 lbs.) per cubic yard is required; if the soil is super saturated with moisture it should have two (2) pails per cubic yard. The clay soil identified above will require some special action to ensure proper reaction. This soil should be broken up with the proper equipment into pieces two inches (2") to three inches (3") in diameter and completely covered with Perma-Soil stabilizer. If this is done the proper ratio will be obtained, for this soil type. (Perma-Soil stabilizer will assist breaking up the clay structure as it is mixed into the soil.)

C. Mixing - Mixing should be accomplished with a backhoe or front end loader, where available. When working in clay soil without silt or sand content the procedure described in paragraph two (2) above is necessary to obtain proper reaction and ensure proper mixture ratio of stabilizer to soil. In all other cases the last two (2) lifts, or twelve inches (12") of spoil, should have a higher ratio of stabilizer added to the soil. This is done by holding back one (1) pail to be added and mixed

immediately prior to compaction of the last twelve inches (12"). It is not necessary to allow more curing of this spoil.

D. Curing instructions - This mixture should be allowed to set from forty-five (45) minutes to one (1) hour for curing, or until the mixture becomes compatible. A field check is to squeeze a hand full of soil into a ball. When dropped from waist high it should break into two (2) or three (3) pieces to be at its best compatible state. If it shatters it is too dry. If it stays in one (1) piece and deforms on impact, it is too wet. When this is completed the material is ready to be compacted back in the repair site. Heavy clay soils may take longer to become compactible.

E. Compaction of the spoil - The material should be replaced in the repair site in six inch (6") to eight inch (8") lifts and compacted so that all air voids are removed. Gasoline rammers and hydraulic tampers, can be used to accomplish compaction.

NOTE: VIBRATORY PLATE COMPACTORS ARE NOT SUITABLE FOR COMPACTION EXCEPT FOR OVERLAY MATERIAL OR GRANULAR (NONCOHESIVE SOILS AND THEN ONLY IN THIN LIFTS). COMPACTION WITH THE BACKHOE BUCKET OR ANY OTHER HEAVY APPARATUS NOT DESIGNATED SPECIFICALLY FOR SOIL COMPACTION IS NOT ALLOWED.

F. Overlaying the repair - When compaction is completed the repair site may be overlaid with overlay material immediately. Traffic should be kept from traveling over the repair site for a minimum of one (1) hour after compaction, or until the overlay material has cured.

5. Sand-Clay-Gravel - Sand-clay-gravel shall be composed of either a natural mixture of sand, clay and gravel, or an artificial mixture prepared by either the mixing of washed sand-gravel and binder; washed gravel or crushed stone, sand and binder; or by the addition of washed gravel or crushed stone to natural sand-clay-gravel. It shall be free from an excess of soft or disintegrated pieces, alkali, adobe, vegetable matter, or other deleterious substances and shall be of such quality that it will compact thoroughly when watered and rolled to form a firm, well bonded surfacing.

5.1 Physical Requirement

When sampled and tested in accordance with standard test methods, the aggregate shall meet the following requirements:

a. Combined Gradation: When tested in accordance with ASTM C136, or AASH T27, the material shall meet the following sieve analyzes:

Sieve Sizes	Percent Passing (By Weight)	
	Grade A	Grade B
2½"	100	100
1½"	85-100	85-100
No. 4	40-60	50-75
No. 40	20-45	20-50
No. 200	10-20	12-25

b. Plasticity Index: When tested in accordance with ASTM D424, or AASHO T90, the plasticity index of the material passing the No. 40 Sieve shall not be more than six (6) nor less than two (2).

c. Liquid Limit: When tested in accordance with ASTM D423, or AASHO T89, the liquid limit of the material passing the No. 40 Sieve shall be not more than twenty-five percent (25%).

Either grade may be used unless otherwise shown on the plans or specified in the Special Provisions.

As a matter of information, but not limitation, the several materials may be combined in approximately the following proportions:

	Grade A	Grade B
Gravel or crushed stone, Percent	45	35
Sand, Percent	40	47½
Binder, Percent	15	17½

However, the exact proportion by volume shall be determined by an approved testing laboratory from test samples of the materials proposed to be used.

Gravel and crushed stone shall conform to Section 101 of the Standard Specifications for Public Works Construction. Sand shall comply with the applicable provisions of paragraph 1.21.

Binder material shall not have a plasticity index in excess of the plasticity index indicated above for the terminal product.

6. Usable Excavated Soils: Usable excavated soils, referred to as "usable soils" in LA DOTD specifications, shall conform to Classes A-l-a, A-l-b, A-2-4, A-2-5, A-2-6, A-2-7, A-3, A-4, A-5, A-6, A-7-5, and/or A-7-6, except that soils in Classes A-5, A-6, A-7-5, and A-7-6 which are considered unusable by the Owner and any soil with a plasticity index exceeding sixty (60) will not be accepted in accordance with paragraph 203.06 in the DOTD Specifications. These materials can be used for backfill from twelve inches (12") above the top of the pipe up to the surface in unimproved areas.

7. Soil classifications used herein are to be in accordance with the AASHM table for "Classification of Soils and Soil-Aggregate Mixtures (With Suggested Subgroups)" as shown on LA DOTD designation TR423.

B. General

1. Materials for use as fill and backfill shall be as described above. The Contractor shall notify the Owner of the source of each material and shall furnish to the Owner for testing and approval, a representative sample of each material weighing approximately fifty pounds (50 lbs.), at least ten (10) calendar days prior to the date of anticipated use of such material.

2. Additional materials shall be furnished as required from off-site sources and hauled to the site.

3. Disposal of unsuitable material is specified in this Section, paragraph 3.07.

C. Structural Fill

1. Structural fill shall be used below spread footing foundations, slab-on-grade floors, and other portions of structures, except that, when stabilization layers or courses are shown on the Drawings, stabilization material shall be placed and compacted over the structural fill material in accordance with the requirements for the structural fill.

2. Select material, bedding material, and sand-clay-gravel are acceptable structural fill materials. Any structural fill material encountered during the excavation, may be stored in segregated stockpiles for reuse shall be spoiled as specified herein for disposal of unsuitable materials.

3. Wellpointing - Wellpoints shall be of P.V.C. construction of one and one-half inch (1½") by variable lengths with three feet (3') of .016 slotted screen at one (1) end of this assembly. Other end of this assembly to accept a one (1) piece, cylindrical shape, sleeve design of flexible P.V.C. material and to be self-sealing under any vacuum condition.

   The wellpoint accessories shall be ALCO "Sure-Seal" as manufactured by ALCO pump company or equal.

D. Trench Backfill

1. Backfill methods for trenches, as shown on the Drawings, are classified into four (4) zones; bedding, initial backfill, intermediate backfill, and final backfill.

   a. Bedding is the material a minimum of six inches (6") under the pipe up to a level even with six-tenths (6/10) of the outside diameter of the pipe. Limestone, size 57 or 610. At the Owner's option, the Engineer may direct the use of sand-clay-gravel as initial backfill.

   b. Intermediate Backfill is the material placed above the initial backfill extending up to the final backfill. Acceptable intermediate backfill materials are select material, limestone sizes 57 to 610, sand-clay-gravel, and useable excavated soils. Intermediate backfill of pipes under highways or streets shall be 610 limestone or when directed by the Engineer special stabilization material. Intermediate backfill of pies under paved driveways or parking lots shall be special stabilization material.

   c. Final backfill is the material placed in the upper size to eighteen inches (18") of the trench after densification of the intermediate trench backfill. Acceptable final backfill material are the same as intermediate backfill except in locations under pavements, roads, streets, drives, or walks. Pavement replacements (improved surfaces) over trenches are detailed on the Drawings.

   d. Foundation is the material below the pipe bedding material. Furnish foundation material where shown on the Drawings or where directed by the Engineer. Foundation material shall be as specified for pipe bedding, size 57 limestone.

E. Unsatisfactory Materials

Unsatisfactory materials shall be materials that do not comply with the requirements for other material specified herein. Unsatisfactory materials include but are not limited to those materials containing roots and other matter, trash, debris, frozen materials, and stones larger than six inches (6"), and materials classified in ASTM D2487, as PT, OH, and OL. Unsatisfactory materials also include man-made fills, refuse, or backfills from previous construction. Materials which are referred to a "unstable" and consists of material that are too wet to properly support utility pipe or structures shall be classified as unsatisfactory. All material classified unsatisfactory shall not be used as backfill material.

PART 3 - EXECUTION

3.01 EXCAVATION

A. General

Excavation consists of removal and disposal of material encountered when establishing required grade elevations and in accordance with the Drawings.

B. Excavation Classifications

The following classifications of excavation will be made when unclassified excavation is encountered in the work. Do not perform such work until material to be excavated has been cross-sectioned and classified by Owner or specialized geotechnical consultant.

1. Authorized earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated in soil boring data on subsurface conditions, and other materials encountered that are not classified are unauthorized excavation.

2. Unauthorized excavation consists of removal of material beyond the limits needed to establish required grade and subgrade elevations without specific direction of Owner. Unauthorized excavation, as well as remedial work directed by the Owner shall be at no additional expense to the Owner. Backfill and compact unauthorized excavation, as specified for authorized excavations, except that bedding material as specified above shall be used for backfill under footings, foundations bases, or retaining walls unless otherwise directed by the Owner. If acceptable to the Owner or specialized geotechnical consultant and soil conditions allow the extra loading, the Owner may approve the use of lean concrete fill, reinforced or un-reinforced as required by the site conditions and as required by the Owner.

C. Additional Structural Excavation

When excavation has reached required subgrade elevations, notify the Owner who will contact a specialized geotechnical consultant and make an inspection of conditions.

1. If unsuitable, unsatisfactory bearing materials are encountered at the required subgrade elevation, carry excavation deeper and replace the excavated material as directed by the Owner.

2. Removal of unsuitable material and its replacement as directed beyond the authorized limits will be paid on the basis of Contract conditions relative to changes in the work as provided in the General Conditions.

D. Excavation for Structures

Conform to elevations and dimensions shown within a tolerance ±0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete framework, installation of services, other construction, and for inspection, or as shown on the Drawings.

1. In excavation for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive any required stabilization material or concrete.

2. In the event that excavations subsequent to the placement of the fill are performed by the Contractor to install piping, conduit, or other appurtenances, any fill placed above the level of the planned excavation shall be fully compacted in accordance with the requirements of this specification prior to beginning the excavation.

E. Excavation for Pipelines

1. Excavation for all trenches required for the installation of pipes and electrical ducts shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe or installing the ducts within the trenches, for bracing and supporting and for pumping and drainage facilities. The bottom of the excavations shall be firm and dry, and in all respects acceptable to the Owner.

2. Where pipes or ducts are to be laid in bedding or encased in concrete the trench may be excavated by machinery to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.

3. Where the pipes of ducts are to be laid directly on the trench bottom, the lower part of the trenches shall be excavated to grade by machinery. The material being excavated shall be done in such a manner that will give a flat bottom true to grade so that pipe or duct can be evenly supported on undisturbed material. Bell holes shall be made as required.

4. During excavation, material satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench equal to one-half (½) the depth of the excavation, but in no instance closer than two feet (2'). Excavated material not required or not satisfactory for backfill shall be disposed of by the Contractor. Grading shall be done as may be necessary to prevent surface three (3) water from flowing into the excavation, and any water accumulating therein shall be removed to maintain the stability of the bottom and sides of the excavation. Unauthorized over excavation shall be backfilled at no additional cost to the Owner.

5. Where sheet piling, shoring, sheeting, bracing, or other supports are necessary, they shall be furnished, placed, maintained and removed by the Contractor. Sheet piling and other supports shall be withdrawn in such a manner as to prevent additional backfill on pipelines which might cause overloading.

6. In advance of any excavation of any trench or trenches five feet (5') or more in depth, the Contractor shall submit for acceptance of the Owner, a detail plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of casing earth during the excavation of such trench or trenches. All design of trench protection devices shall be by a registered Civil or Structural Engineer's license in the state in which work is to occur.

3.02 FILL PLACEMENT

A. General

1. Material placed in fill areas under and around structures within the pipe trench limits shall be deposited within the lines and to the grades shown on the Drawings or as directed by the Owner, making due allowance for settlement of the material. Fill shall be placed only on properly prepared surfaces which have been inspected and approved by the Owner. If sufficient fill material is not available from excavation on site, the Contractor shall provide borrows as may be required.

2. Ground Surface Preparation - Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip, or break-sloped surfaces steeper than one (1) vertical to four (4) horizontal so that fill material will bond with existing surface.

3. Fill shall be brought up in substantially level lifts throughout the site, starting in the deepest portion of the fill. The entire surface of the work shall be maintained free from ruts, and in such condition that construction equipment can readily travel over any section. Fill shall not be placed against concrete structures until they have attained sufficient strength.

4. Fill shall be dumped and spread in layers by a bulldozer or other approved method. During the process of dumping and spreading, all roots, debris, and other objectionable material shall be removed from the fill areas, and the Contractor shall assign a sufficient number of men to this work to insure satisfactory compliance with these requirements.

5. If the compacted surface of any layer of material is determined to be too smooth to bond properly with the succeeding layer, it shall be loosened by harrowing or by any other approved method before the succeeding layer is placed.

6. All fill materials shall be placed and compacted "in-the-dry". The Contractor shall dewater excavated areas and is required to perform the work in such manner as to preserve the undisturbed state of the natural inorganic soils.

3.03 COMPACTION

A. General

1. Contractor shall control soil compaction during construction and obtain the minimum required percentage of the total maximum dry densities as specified herein and as shown on the structural or civil drawings. Soil compaction with the backhoe bucket or any other heavy apparatus not designed specifically for soil compaction is not allowed. The Contractor shall maintain the backfill for a period of one (1) year after final acceptance and shall restore any backfill that fails and repair any pavement or other structures which may be damaged as a result of backfill failure.

It shall be the Contractor's responsibility to notify the Owner in writing that compaction tests of either the nuclear gauge, sand-cone, or other method as required can be performed.

2. The frequency for density tests will be a minimum of one (1) test per lift per 1,000 linear feet under pavements, within street and highway rights-of-way, and under building slabs and one (1) randomly selected test per 2,500 linear feet for open areas (testing of each lift in open areas is not required). If the density tests indicate that the work does not meet specified density requirements, the Owner may require additional density tests to determine the extent of the deficient work. The Contractor will not be allowed an extension of contract time as a result of any density testing.

3. It is the Contractor's responsibility to provide equipment and labor as needed to achieve the required compaction as specified herein. Should the rates of compaction fall below the values specified herein, the Owner has the right to instruct the Contractor to alter his work to assure that the required backfill quality is consistently achieved. Any decision by the Owner to forgo such instructions shall in no way relieve the Contractor of his responsibility to provide backfill of the specified quality.

B. Percentage of Maximum Density Requirements

1. Compact soil to not less than the following percentages of maximum dry density as determined in accordance with AASHTO T-180 (ASTM D1557, Modified Proctor) or seventy-five percent (75%) relative density as determined by ASTM D3049 as applicable.

   a. Structures and Five Feet Zero Inches (5'0") Around Perimeter of Building: Compact thirty-six inches (36") of subgrade and each layer of backfill or fill material to a minimum of ninety-five percent (95%) of the maximum dry density.

   b. Building Slabs: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material to a minimum of ninety-five percent (95%) of the maximum dry density.

   c. Compaction of Backfill Near Highways or Streets: Where the trench limit falls under the roadway pavement or within two feet (2') of the edge of pavement, requiring limestone backfill and in other areas designated on the Plans where future roadways are to be constructed, backfill for the balance of the trench above a point one foot (1') above the top of the pipe shall be placed in layers of not more than six inch (6") compacted thickness and compacted with mechanical tampers or by any satisfactory method or methods that will obtain the density hereinafter specified. The density of compacted material in each layer of backfill shall not be less than ninety-five percent (95%) of the maximum dry density.

   d. Walkways: Compact top six inches (6") of subgrade to a minimum of ninety-five percent (95%) of the maximum dry density.

   e. Driveway Pavements and Steps: Compact top twenty-four inches (24") of subgrade to a minimum of ninety-five percent (95%) of the maximum dry density.

   f. Bedding Material: Shall be compacted to a minimum of ninety-two percent (92%) of the maximum dry density.

g. Compaction of All Other Backfill: Where a trench is in open ground and the backfill is not influenced by the loading conditions as described in the other listed backfilling requirements, the balance of the trench above a point one foot (1') above the top of the pipe may be filled and compacted in layers of not more than twelve inches (12") to obtain a minimum density of the measured insitu condition prior to excavation. If the Contractor has to dry the excavated soil to a moisture content below the insitu moisture content in order to achieve the required rate of compaction, he shall do so at no additional expense to the Owner. The final surface shall be left in a condition equal to that originally found at the start of the work.

C. Moisture Control

Condition subgrade or layer material correcting moisture content:

1. When the material is too dry to be compacted efficiently, the Contractor shall uniformly apply water to surface of subgrade or layer of soil material and thoroughly mix the soil to achieve a moisture content near the optimum level to facilitate connection.

2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

3. Soil material that has been removed because it is too wet to permit compaction but is otherwise satisfactory may be stockpiled or spread and allowed to dry. The Contractor may assist the drying process by disking, harrowing or pulverizing to reduce the moisture content to a satisfactory value.

D. Structural fill and base course in open areas shall be placed in layers not to exceed the thickness specified above. Each layer shall be compacted to the minimum dry density as stated herein. Incidental compaction due to traffic by construction equipment will not be credited toward the required minimum compaction as required for any material. Acceptable bedding material is #57 limestone.

E. All other fill shall be placed and compacted in a manner similar to that described above for structural fill except that dike or levee fill required below water level in peat excavation areas, this may be placed as one (1) lift, in-the-wet, to an elevation one foot (1') above the water level at the time of filling.

F. Areas adjacent to structures and other confined areas inaccessible to roller type equipment shall be compacted with approved hand guided mechanical compaction equipment. The Contractor shall also conform to additional backfilling requirements at structures as specified in Part 3 of these Specifications. Compaction of the fill by such means shall be to the same degree of compaction as obtained by roller type equipment and the Owner may make the necessary tests to determine the amount of compactive effort necessary to obtain connection. Unless such tests indicate that modifications may be made, the fill compacted by mechanical compactors shall be placed in six inch (6") layers and thoroughly tamped over the entire surface. Compaction equipment is subject to approval by the Owner.

3.04 PIPE BACKFILLING

A. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed, and inspected and the trench filled with suitable compacted bedding material up to a level even

with six-tenths (6/10) of the outside diameter of the pipe or as otherwise required on the Drawings. Acceptable bedding material is #610 limestone.

B. All backfilling shall be prosecuted expeditiously and as detailed on the Drawings.

C. Any space remaining between the pipe and sides of the trench shall be packed full by hand shovel with bedding material and thoroughly compacted with a tamper as fast as placed in lifts no greater than six inches (6") in thickness, up to a level even with six-tenths (6/10) of the outside diameter of the pipe.

D. The backfilling shall be carried up evenly on both sides of the pipe with at least one (1) man tamping for each man shoveling material into the trench.

E. Acceptable initial backfill material either #610 limestone, sand clay gravel or select material shall then be placed and compacted from the top of the bedding material to a minimum depth of one foot (1') above the top of the pipe.

F. The remainder of the trench intermediate and final backfill, as just described above shall be filled and thoroughly compacted to the required density by rolling, ramming, or puddling to prevent subsequent settling.

3.05 BACKFILLING AROUND STRUCTURES

A. Fill shall be placed in layers having a maximum thickness of eight inches (8") in loose state and shall be compacted sufficiently to prevent settlement. If compaction is by rolling or ramming, material shall be wet down as required. Where material can be suitably compacted by flooding, the Contractor may use this method.

B. Backfilling shall be carried up evenly on all walls of an individual structure simultaneously. A longitudinal variation of two feet (2') and a horizontal variation of three inches (3") in elevation will be the maximum allowable. No backfill shall be allowed against walls until the walls and their supporting slabs if applicable have attained sufficient strength. Backfilling shall be subjected to approval of the Owner.

C. In locations where pipes pass through building walls, the Contractor shall take the following precautions to consolidate the backfilling up to an elevation of at least one foot (1') above the bottom of the pipes:

1. Place structural fill in such areas for a distance of not less than three feet (3') either side of the center line of the pipe in level layers not exceeding six inches (6") in thickness.

2. Wet each layer to the extent directed by the Owner and thoroughly compact each layer with a power tamper to the satisfaction of the Owner.

3. Structural fill shall be of the quality specified under Part 2 of this Section.

D. The final finished surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated on the grading plan, and no soft spots or uncompacted areas will be allowed in the work.

E. Temporary bracing shall be provided as required during construction of all structures to protect partially completed structures against all construction loads, hydraulic pressure, and earth

pressure. The bracing shall be capable of resisting all loads applied to the walls as a result of backfilling.

3.06 GRADING

A. General

Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades as are required or shown on the Drawings.

B. Grading Outside Building Lines

Grade areas adjacent to building lines, as shown on the Drawings, to drain away from structures and to prevent ponding. Finish surface free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas - Finish areas to within not more than 0.10 feet above or below the required elevation.

2. Walks - Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required elevation.

C. Grading Surface of Fill Under Building Slabs

Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of one-half inch (½") when tested with a ten foot (10') straightedge.

D. Compaction

After grading, compact subgrade surfaces to the depth and percentage of maximum dry density for each area classification.

E. Grading shall be performed at such places as are indicated on the Drawings, to the lines, grades, and elevations shown or as directed by the Owner and shall be made in such a manner that the requirements for formation of embankments can be followed. All unacceptable material encountered, of whatever nature within the limits indicated, shall be removed and disposed of in accordance with Paragraph 3.07. During the process of excavation, the grade shall be maintained in such condition that it will be well drained at all times. When directed, temporary drains and drainage ditches shall be installed to intercept or divert surface water which may affect the prosecution or condition of the work.

F. If at the time of excavation it is not possible to place any material in its proper section of the permanent structure, it shall be stockpiled in approved areas for later use. No extras will be considered for the stockpiling or double handling of excavated material.

G. The right is reserved to make adjustments or revisions in lines or grades if found necessary as the work progresses, due to discrepancies on the Drawings or in order to obtain satisfactory construction.

H. All fill slopes shall be uniformly dressed to the slope, cross section and alignment shown on the Drawings, or as directed by the Owner.

I. In cuts, all loose material on the back slopes shall be barred loose and otherwise removed to line or finished grade of slope. All cut and fill slopes shall be uniformly dressed to the slope, cross section and alignment shown on the Drawings or as directed by the Owner.

J. No grading is to be done in areas where there are existing pipelines that may be uncovered or damaged until such lines, which must be maintained, are relocated, or where lines are to be abandoned, all required valves are closed and drains plugged at manholes.

3.07 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL

A. Unsuitable and surplus excavated materials, unless specified otherwise below, and pavement shall become the property of the Contractor to be removed and disposed of by the Contractor off the project site.

B. Usable excavated material may be used for fill or backfill if it meets the Specifications and is approved by the Owner. Excavated material so approved may be neatly stockpiled at the site where designated by the Owner provided there is an area available that will not interfere with the Owner's access nor inconvenience traffic or adjoining property owners.

C. Surplus suitable excavated material shall be used to fill depressions as the Owner may direct.

3.08 SPECIAL FOUNDATIONS

A. The Contractor shall furnish and install a special foundation for gravity sewer pipe and manholes or other pipes (i.e., force mains, water mains, etc.) as shown on the Drawings.

B. All gravity sewer lines and laterals shall be installed on the special bedding foundation and the prices for laying gravity sewer lines shall include this cost. This bedding shall be as previously specified and placed in the trench to the proposed elevation prior to any pipe laying. This bedding shall not be used under any circumstances as a drain for groundwater. The Contractor shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing erosion or loosening of this bed.

3.09 MAINTENANCE

A. Protection of Graded Areas

Protect newly graded areas from traffic and erosion. Keep areas free of trash and debris and repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas

Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02445 - BORING OR JACKING CONDUITS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this Section consists of furnishing and installing pipe in embankments at the locations shown on the Plans by jacking or boring methods.

B. Related Sections

1. 02315 Excavation, Backfilling and Compaction
2. 02510 Water Distribution Lines
3. 02537 Sanitary Sewer Collection Lines
4. 02538 Sanitary Sewer Force Mains
5. 02554 Natural Gas Distribution Systems
6. 02632 Reinforced Concrete Pipe
7. 02633 Corrugated Metal Pipe
8. 02634 Plastic Pipe
9. 02964 Removal and Replacement of Sanitary Sewer Pipe

PART 2 - PRODUCTS

2.01 GENERAL

A. Pipe and joint materials shall conform to the applicable Section of these Specifications for the type of pipe being jacked or bored.

PART 3 - EXECUTION

3.01 GENERAL

A. In general, pipes thirty inches (30") in diameter and greater shall be jacked, and pipes less than thirty inches (30") in diameter shall be bored.

B. Jacking or Boring shall begin at the outfall end of pipe. Any deviations must be approved by the Engineer.

C. Excavation of pits or trenches for jacking or boring and placing of pipe shall be the responsibility of the Contractor. Sheeting and bracing, if necessary, shall also be provided at no additional cost to the Owner.

D. For pipe with bell joints, if the outside diameter of pipe bell exceeds the outside diameter of the pipe barrel by more than one inch (1"), pipe shall be either cased or pressure grouted its full length. Casing shall be an approved type and size (if not specified on the Drawings), and shall be furnished and installed by the Contractor. Pressure grouting shall be performed with approved materials placed by methods approved by the Engineer.

E. Jacking or Boring methods used shall be such as not to weaken or damage the embankment.

3.02 INSTALLATION

A. Jacking

Heavy duty jacks suitable for forcing pipe through the embankment shall be provided. Even pressure shall be applied to all jacks and shall be transmitted to the pipe end through a jacking head. The jacking head shall be designed so that pressure is uniformly applied around the ring of the pipe. Backstop or jacking frame shall be adequate to resist pressure of the jacks under load. Pipe shall be set on guides properly fastened together to support the pipe in the proper direction at correct grade. Suitable cushioning material, such as plywood, shall be provided between sections of concrete pipe.

Material shall be excavated ahead of the pipe and shall be removed through the pipe. Excavation shall not extend more than two feet (2') beyond the forward end of pipe. When the character of embankment material dictates, the distance shall be reduced to prevent the embankment from being damaged.

Excavation on the underside of pipe, for at least one-third ⅓ the circumference of pipe, shall conform to the contour and grade of the pipe. A clearance of not more than two inches (2") may be provided for the upper half of pipe, tapered to zero (0) at the point where excavation conforms to contour of pipe.

A steel cutting edge may be used around the forward end of pipe, constructed so that it will transmit pressures uniformly around the ring of the pipe.

Jacking shall continue without interruption, to prevent pipe from becoming firmly set in the embankment.

Pipe shall not vary horizontally or vertically by more than one inch (1") in ten feet (10') from established line and grade. Any variation shall be regular, and no abrupt changes in direction will be permitted. Any pipe damaged or misaligned in jacking operations shall be removed and replaced by the Contractor at no direct pay.

B. Boring

Boring shall be done mechanically, using a pilot hole approximately two inches (2") in diameter. The pilot hole shall extend through the embankment and shall be checked for line and grade before boring begins. Variations from line and grade shall not exceed those specified for jacking. The pilot hole shall serve as centerline of the larger diameter hole to be bored.

The use of water and other fluids with boring operations will be permitted only to lubricate cuttings. Jetting will not be permitted.

In unconsolidated soil formations, a gel-forming colloidal drilling fluid consisting of at least ten percent (10%) high-grade, bentonite may be used to consolidate cuttings of the bit, seal walls of the hole, and furnish lubrication for subsequent removal of cuttings and installation of pipe.

Overcutting in excess of one inch (1") shall be remedied by pressure grouting the entire length of the installation.

SECTION 02445 - BORING OR JACKING CONDUITS

Pipe shall be joined as specified in accordance with the applicable Section of these Specification for the type of pipe being installed.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02-SITE CONSTRUCTION

SECTION 02536 - SANITARY SEWER, MANHOLES, DROP INLETS AND CLEANOUTS

PART 1-GENERAL

1.01 DESCRIPTION

A. Manholes shall consist of the construction of masonry or concrete manholes with the required steps, metal frames, and covers on sanitary sewer gravity lines.

B. Drop inlets shall consist of the construction of pipe drop inlets on sanitary sewer manholes including pipe, fittings and the encasements for all gravity sewer pipe which exceeds two foot (2') of height above the manhole invert and as indicated on the Drawings.

C. Cleanouts shall consist of constructing cleanouts at the ends of sanitary sewer lines including the pipe, fittings, frame and cover, and encasement, all as shown on the Drawings.

D. These items include furnishing, transportation, excavation, dewatering, bracing, forming, placing, setting, finishing, backfilling, and surface clean up all in accordance with these Specifications, the Supplemental Conditions and/or the Plans.

1.02 REFERENCE STANDARDS

A. American Society of Testing Materials (ASTM)

1. ASTM C478-96 Precast Reinforced Concrete Manhole Sections

2. ASTM C361-96 Reinforced concrete Low-Head Pressure Pipe

3. ASTM D2240 Rubber Property-Dunmeter Hardness

B. Federal Specification

1. SS-S-210

2. TT-V-51

PART 2- PRODUCTS

2.01 MATERIALS

A. Risers and Tops: All cast-in-place or precast manhole risers, eccentric sections, and tops shall consists of the following materials:

1.	Cast-in-Place Concrete	Materials, handling, forms, finishing, curing other work as specified in concrete section.
2.	Precast Concrete Riser	Circular, uniform outside diameter; ASTM and Base Sections C478, except as modified herein.
	Minimum Wall Thickness	1/12 of inside diameter, plus one inch (1").
	Reinforcement	ASTM C478

3. Precast Concrete Cone Sections	Eccentric, ASTM C478; wall thickness and reinforcement as specified for riser sections.
4. Precast Concrete Adjusting Rings	Circular, ASTM C478, with shear keys.
5. Nonshrinking Grout	Gifford-Hill “Supreme”, L&M “Crystex”, Master Builders “Masterflow 713 Grout”, Sauereisen Cements “F-100 Level Fill Grout”, or U.S. Grout “Five Star Grout”.

All large aggregates used in sanitary sewer manholes shall be calcargeous limestone to increase the alkalinity of the surfaces of the manhole in contact with sulfide gases. The Contractor shall provide the Owner with an affidavit by the manufacturer that the provided manholes consist of all the material specified herein.

B. Resilient Manhole/Pipe Connectors	A-Lock “Manhole Pipe Seal” or Dura-Tech“ Dura-Seal”. Conforming to ASTM C923-96
C. Mastic Fill	Butyl rubber compatible with resilient connector material.
D. Gaskets	
1. Mastic	Fed Spec SS-S-210; K.T. Snyder “Ram-Nek”, Hamilton-Kent “Kent-Seal No. 2" or Sheller-Globe “Tac-Tite”. Cross-sectional area as recommended by manhole manufacturer.
2. Rubber	ASTM C361, Section 6.9.1, except gasket shall be synthetic with hardness of 40 ± 5 when measured by ASTM D2240, Type A durometer. Natural rubber will not be acceptable.
E. Rubber Joint Filler	Synthetic.
1. Hardness	40 ± 5 when measured by ASTM D2240, Type A durometer.
2. Tensile Strength	1200 psi min.
F. Coatings	
1. Coal Tar Paint	Koppers “Bitumastic Super-Service Black”, Tnemec “46-449 Heavy Duty Black”, or Valspar “35-J-10”.
2. Asphalt Varnish	Fed Spec TT-V-51

G. Frames, Rings and Covers: Except as otherwise shown on the Drawings, manhole frames, rings and covers shall be in accordance with ASTM A48-94 (Standard Specifications for Grey Iron Castings) or latest revision, thereof, Class 35B or better, with asphalt varnish coating applied at the foundry.

1. Manhole Rings	Clay and Bailey “No. 2008BV” and Covers or Neenah “R-1736" or Vulcan Foundry “VM-3”.

2.02 MANUFACTURER

A. Lifting notches shall be provided for all precast concrete sections on the inside face of each section. Lifting notches shall not extend more than three inches (3") deep. Lifting holes which extend through the wall of the precast section will not be acceptable.

B. All cast-in-place bases shall be provided with horseshoe-shaped box outs for connecting the first riser section to the base with grout. Boxouts for grouting shall be roughened to improve grout bond.

2.03 DELIVERY

Precast concrete sections shall not be delivered to the project site until concrete control cylinders made from representative sample taken in the production of these manholes have attained a strength of at least seventy-five percent (75%) of the specified design strength.

2.04 HANDLING

Hooks used for lifting shall not be allowed to come in contact with joint surfaces. Precast concrete sections shall be handled carefully and shall not be bumped, dropped, or handled with abuse. Any section handled in a manner which, in the opinion of the Engineer or his representative, may cause structure stress or damage as a result of improper handling will be cause for rejection.

2.05 INSPECTION

All precast concrete sections shall be visually inspected when delivered to the project site. Any unit found to have cracks or chipped ends shall be rejected. All concrete sections shall be, unless otherwise specified, new and free of defects.

PART 3 - EXECUTION

3.01 BASE UNITS

For both cast-in-place and precast concrete bases, the subgrade materials shall be excavated to undisturbed earth and to a uniform elevation which will permit at least four inches (4") of granular embedment material, as specified in the excavation section, to be installed and compacted. The surface of the granular material shall be carefully graded and the base section accurately set so that connecting pipes will be on proper line and grade. The elevation of the granular material shall be adjusted as required until proper grade and alignment of the base section has been attained.

No wedging or blocking under precast concrete bases will be permitted.

When resilient connectors are used with cast-in-place bases, the concrete fill under the connecting pipe outside pipe is not required. The shape of the invert shall conform exactly to the lower half of the pipe it connects. Side branches shall be connected with as large radius of curve as practicable. All inverts shall be troweled to a smooth clean surface.

Inverts and bottom curves shall be built accurately and so formed as to facilitate the smooth entrance and flow of sewage through the manhole. A bench shall be provided on each side of any manhole channel when the pipe diameter(s) are less than the manhole diameter. The bench should be sloped on less than one-half inch (½") (13 mm) per foot (305 mm) [four percent (4%)]. **No lateral sewer, services connection, or drop manhole pipe shall extend onto the surface of the bench.**

3.02 RISER AND CONE SECTIONS

Circular precast sections shall be provided with a rubber or mastic gasket to seal joints between sections. Mastic gaskets shall be used only at temperature recommended by the manufacturer. Lifting notches in manhole walls shall be filled with nonshrinking grout.

Manhole steps, if required, shall be plant-installed, driven into prepared holes or vibrated into green concrete in accordance with the recommendations of the step manufacturer. If manhole steps are required a note stating steps are required shall be placed on the Drawings. If no such note or statement is shown on the Drawings, steps located inside manholes will not be required. Backfilling around manholes, digs inlets, and cleanouts shall conform to applicable requirements of Section 0235- Excavation, Backfilling and Compaction of Structure and Pipelines and shall be done after visual inspection of the completed manhole section. All excavation material shall be compacted around structure after structure has reached strength to withstand latered earth pressure.

3.03 GRAVITY PIPE CONNECTION

The space between connecting pipes and the wall of precast sections shall be completely filled with nonshrinking grout, except where resilient connectors are provided.

When resilient connectors are used, the connecting pipe shall be carefully adjusted to proper line and grade, and the bedding material shall be compacted under the haunches and to the springline of the pipe for a distance of at least six feet (6') from the manhole wall and to at least the minimum trench width. The pipe shall be installed in the resilient connector prior to backfilling outside the manhole and backfill. All visible leakage shall be eliminated.

The connecting pipe for installation with resilient connectors shall be plain end, square cut spigots and shall not protrude more than one inch (1") inside the manhole wall. A clear distance of at least one inch (1") from the end of each connecting pipe and around the pipe shall be provided when the concrete invert fill is installed. After completion of the manhole, the boxout shall be filled with mastic filler material, completely filling the space beneath the pipe and extending to at least the springline. The filler material shall provide a smooth, uniform surface between the inside diameter of the pipe and the manhole invert.

3.04 WATER TIGHTNESS

All precast or cast-in-place manholes shall be watertight. All holes or connects shall be sealed with non-shrink grout.

3.05 COATINGS

Before backfilling is started, the outside surfaces of each manhole shall be painted with one heavy coat of coal tar paint. Surfaces to receive paint shall be dry. Damp proofing may be applied to precast units in the shop. If the shop coating is damaged during construction, a touch up coat of paint as required shall be applied and allowed to dry prior to backfilling.

If castings arrive on the job without a foundry coating, one (1) coat of coal tar paint shall be thoroughly cleaned and properly supported. All loose rust shall be removed by wire brushing. Castings shall not be handled until the paint is dry and hard.

3.06 DROP INLETS

All drop inlet pipes shall be provided for a sewer entering a manhole at an elevation of twenty-four inches (24" or 610 mm) or more above the manhole invert. Drop inlet shall be constructed outside the manhole in accordance with the details as shown on the drawings. Due to the unequal earth pressures that would result from the backfilling operation in the vicinity of the manhole, the entrance outside drop inlet pipe, fittings, and connectors shall be encased in concrete. Concrete shall be coated and allowed to cure to seventy percent (70%) of its specified strength of 2000psi.

3.07 CLEANOUTS

Cleanouts shall be designated in the Drawings as a “pressure” or “gravity” type. Either type shall be constructed in accordance with the details as shown on the Drawings.

3.08 TESTING

All manholes shall be vacuum tested prior to backfilling in accordance with ASTM C1244-93, Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test or latest revision thereof.

A. Manhole vacuum tests shall consist of:

1. Manholes shall be tested by vacuum test immediately after assembly of the manhole and connecting pipes and before any backfill is placed around the manholes.

2. All lift holes shall be plugged with nonshrink grout and all pipes entering the manhole shall be plugged, taking care to securely brace the plugs and pipe.

3. The test shall be made using an inflatable compression band, vacuum pump and appurtenances specifically designed for vacuum testing manholes. Test procedures shall be in accordance with the equipment manufacturer’s recommendations and ASTM C124-93.

4. After the testing equipment is in place, a vacuum of ten inches (10") of Hg shall be drawn on the manhole. The manhole will be considered to have passed the test if the vacuum does not drop more than one inch (1") of Hg in one (1) minute.

5. If the manhole fails the initial test, the Contractor shall locate the leakage and make proper repairs as directed by the Engineer, and re-tested until a satisfactory test result is obtained.

SECTION 02536 - SANITARY SEWER, MANHOLES, DROP INLETS AND CLEANOUTS

1. Manhole vacuum test times are as follows:

DEPTH (ft) (length of manhole)	Time (sec)		
	48"	60"	72"
8	14	18	23
10	17	23	28
12	21	28	34
14	25	32	40
16	28	37	45
18	32	41	51
20	35	46	57
22	39	51	62
24	42	55	68
26	46	60	74
28	49	64	80
30	53	69	85

A. After the manholes have been backfilled and prior to final acceptance of the project, any signs of leaks or weeping visible from the inside of the manhole shall be repaired as directed by the Engineer and the manhole made watertight.

B. In areas with a high ground water table, the Engineer may require a visual infiltration test rather than an exfiltration test. **In this case, all leaks or weepings visible from the inside of the manhole shall be plugged.**

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02537 - SANITARY SEWER COLLECTION LINES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Work shall consists of construction of sewage collection lines in reasonably close conformity to the lines and grades indicated on the Plans and/or as established by the Engineer. The work covered by this Section includes all of the labor, materials, equipment, and incidentals necessary to completely furnish, install, test, clean, and accepted by the Owner gravity sewer collection lines. Other miscellaneous appurtenances such as manholes, catch basins, etc., shall be covered in other Sections. Pressure sewage collection piping shall be specified in Section 02538, "Sanitary Sewer Force Mains".

1.02 REFERENCED DOCUMENTS

The publications listed below form a part of this Specification. The publications are referred to by basic designation only as stated below and should be used as a supplement to these Specifications.

Designation	Specifications for
ASTM A74-96	Cast Iron Soil Pipe and Fittings
ASTM A123(1989a)	Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products
ASTM C94	(1990) Ready-Mixed Concrete
ASTM C150	(1989) Portland Cement
ASTM C270	(1991a) Mortar for Unit Masonry
ASTM C425	(1991) Compression Joints for Vitrified Clay Pipe and Fittings
ASTM C478	(1990b) Precast Reinforced Concrete Manhole Sections
ASTM C564	(1988) Rubber Gaskets for Cast Iron Soil Pipe and Fittings
ASTM C700	(1991) Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
ASTM C828	(1990) Low-Pressure Air Test of Vitrified Clay Pipe Lines
ASTM C924	(1989) Concrete Pipe Sewer Lines by Low-Pressure Air Test Method

1.03 QUALITY ASSURANCE

A. All pipe and material to be installed under this Contract shall be inspected and tested at the place of manufacture by the manufacturer whose products have been in satisfactory and acceptable use by the industry in a similar service for not less the five (5) years.

B. Contractor shall have at least three (3) years of installation experience on projects with sewage collection line similar to that required for this project. Installers shall use an adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and

who are completely familiar with the specified requirements and methods as outlined by the material manufacturer for the proper installation of products in this Section.

C. Each length of pipe shall be subject to inspection, approval, and acceptance at the factory, point of delivery, and site of work. At the discretion of the Engineer, a sample of pipe to be tested shall be delivered by the Contractor to the testing laboratory approved by the Owner.

1. When the specimens tested conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameters measured. Copies of test reports shall be submitted to the Engineer before the pipe is installed in the project.

2. In the event that any of the test specimens fail to meet the applicable standards, all pipe represented by such tests shall be subject to rejection. The Contractor may furnish two (2) additional test specimens from the same shipment or delivery for each specimen that failed and the pipe will be considered acceptable if all of these additional specimens meet the requirements of the applicable standards.

3. Pipe which has been rejected by the Engineer shall be removed from the site of the work by the Contractor and replaced with pipe which meets these Specifications.

1.04 SUBMITTALS

A. All products and/or materials to be used in this project shall be submitted to the Engineer in accordance with Section 01340 of Division 1- General Requirements.

B. Manufacturers shall submit with his shop drawings any recommended installation procedures which, when approval by the Engineer, shall become the basis for inspecting, accepting, and/or rejecting actual installation procedures used on this project.

C. The manufacturers shall submit in writing a certification that the product meets these Specifications. Certification shall be in the format similar to the certification form shown at the end of Section 01340.

D. Mill certificates shall be furnished upon request of the Engineer.

PART 2 - PRODUCTS

2.01 GENERAL

A. Sizes and strength classification of gravity sewer pipe to be used in all locations are indicated on the Drawings.

B. Each length of pipe shall bear the name or trademark of the manufacturer, the location of the manufacturing plant, and the class or strength classification of the pipe. The markings shall be plainly visible on the pipe barrel.

C. The following pipes and fittings may be used as gravity sewer pipes as indicated on the Drawings:

1. Polyvinyl Chloride Pipe (PVC)
2. Ductile Iron (DI)
3. Acrylonitrite Butadiene Styrene Plastic Sewer Pipe (A.B.S)
4. Ribbed Polyethylene (P.E.)
5. Fiberglass Reinforced Plastic Sewer Pipe (FRP)

If no designation of pipe material is made on the Drawings or in the proposal, pipe and joints for gravity sewer shall be PVC for pipe sizes four inches (4") through twenty-seven inches (27") with fittings with gasket joints.

2.02 POLYVINYL CHLORIDE PLASTIC SEWER PIPING (PVC)

A. Pipes

PVC pipes in sizes four inches (4") through fifteen inches (15") shall be DR35 (dimension ratio 35) conforming to ASTM D3034 up to depths of ten (10) feet. For depths over ten (10) feet, pipe shall be DR26, conforming to ASTM D3034. PVC pipes in sizes eighteen inches (18") through thirty-six inches (36") shall have a uniform solid wall and a minimum Pipe Stiffness of forty-six (46) p.s.i with a T-1 wall thickness in compliance with ASTM F679. Rib reinforced wall pipe in sizes eighteen inches (18") through thirty-six inches (36") with minimum diameter to wall thickness ratio of one hundred ten (110) will also be acceptable provided it has a minimum Pipe Stiffness of forty-six (46) p.s.i. and complies in all respects other than **wall** thickness with ASTM E679.

B. Joints

Joints for PVC pipes and fittings shall be gasketed and comply with ASTM D3212. Joints made with pipe and fittings shall show no sign of leakage, when tested in accordance with ASTM D3212. All surfaces of the joint upon which the gasket may bear shall be smooth and free of imperfections, ridges, fractures, or cracks that could adversely affect sealability. Rubber gaskets shall conform to ASTM F477. Gaskets shall be made of a properly vulcanized high-grade elastomeric compound.

C. Fittings

PVC fittings shall be injection molded with gasketed joints in sizes eight inches (8") and smaller in compliance with the pipe standard. Sewer sizes ten inches (10") and larger shall use tapped saddle fittings with either gasketed or solvent cemented connections to the main and with two (2) all stainless steel worm gear type banding clamps. PVC solvent cement for saddles shall comply with ASTM D2564.

Fabricated fittings with mitered **cuts** and only solvent cemented connections are not allowed. Fabricated fittings shall be reinforced with fiberglass or sufficient lap of standard wall pipe.

2.03 DUCTILE IRON SEWER PIPING (D.I.)

A. Pipes

1. Pipe sized four inches (4") through fifty-four inches (54") shall conform to ANSI 21.51/AWWA C151. The pipe thickness shall be designed in accordance with ANSI 21.50/AWWA C150, as modified hereinbefore, except with an additional increment of Class thickness (approximately 0.30") on sizes 4 through 10 inches (4"-10") for corrosion protection in addition to the basic design corrosion allowance of 0.080". Unless

designated otherwise on the Drawings or in the proposal based on E' = 200 p.s.i., and trench depths to twenty-two feet (22'), the minimum Class thickness shall be as follows:

Nominal Size, Inches	Thickness Class
4	(51 + 1) 52
6	(50 + 1) 51
8-10	(51 + 1) 52
12	52
14-16	53
18	54
20	55
24-54	56

2. Ductile iron pipe in sizes four through ten inches (4"-10") shall have cement mortar lining and bituminous seal coating on the inside in accordance with A.N.S.I./A.W.W.A. C104. Sizes twelve inch (12") through fifty-four inch (54") shall be lined with polyethylene or epoxy, as follows. A bonded polyethylene lining thickness shall be forty (40) mils nominal and twenty-five (25) mils minimum in pipe tapering to ten (10) mils minimum at joints. Epoxy lining shall be two (2)-coat high-build catalyzed epoxy with thickness range of eight (8) to sixteen (16) mils dry film thickness. Test lines for repair as necessary at manufacture.

3. Coat pipe exteriors with one (1)-mil thickness of asphalt varnish for buried service or one (1) coat of paint primer for exposed service and subsequent field painting.

4. Nominal maximum laying lengths shall be eighteen (18) or twenty (20) feet.

B. Joint Materials

1. Mechanical joints and accessories shall conform to A.N.S.I./A.W.W.A. C111. The bolts and nuts shall be corrosion resistant high strength low alloy steel ("COR-TEN").

2. Push-on joints with rubber gaskets shall comply with A.N.S.I. A 21.11/ A.W.W.A. C111.

3. Connections between ductile iron and sewer pipe of other materials shall be made with special water-tight manufactured or fabricated adapters.

C. Fittings

1. Fittings shall comply with A.N.S.I/A.W.W.A. C110 for standard short bodied fittings. All fittings shall be ductile iron and gray iron shall not be permitted. The pressure rating shall be 350 p.s.i. in sizes four through twenty-four inches (4'- 24") and 250 p.s.i. in sizes thirty through fifty-four inches (30"-54") for ductile iron.

2. Line fittings with standard thickness cement mortar lining and bituminous seal coating on the inside in accordance with A.N.S.I./A.W.W.A. C104.

3. All fittings shall have an exterior one (1)-mil thick bituminous coating.

2.04 ACRYLONITRILE BUTADIENE STYRENE PLASTIC

A. Pipe

A.B.S. pipe in size six inch (6") and less shall be solid wall A.B.S. conforming to A.N.S.I. D2751 for DR 35. A.B.S. pipe in sizes eight inches through fifteen inches (8"-15") shall be A.B.S. composite pipe conforming to A.N.S.I./A.S.T.M. D2680. Standard maximum laying lengths shall be twelve foot-six inches (12' 6").

B. Joint

Joints for A.B.S. pipe and fittings shall conform to A.N.S.I. /A.S.T.M. 3212 for rubber gasketed joints and also conforming to A.N.S.I./A.S.T.M. D2680 type or joint and A.N.S.I./A.S.T.M. D2751 gasketed joint. Rubber gaskets shall conform to A.N.S.I./A.S.T.M. F 47.

C. Fittings

A.B.S. fittings shall be molded and comply with A.N.S.I./A.S.T.M. D2751. Fittings in sizes four inches (4") and larger shall be dimension ratio DR 35 (standard strength). Sewer sizes twelve inches (12") and larger shall use tapped saddle fittings with two (2) all stainless steel clamps and solvent cement complying with A.N.S.I./A.S.T.M. D2235.

2.05 POLYETHYLENE RIB-REINFORCED PIPING (P.E.)

A. Pipes

1. Pipe shall be polyethylene of the manufacturer's standard design with smooth interior wall and reinforced ribbed exterior in sizes eighteen through ninety-six inches (18"-96"). The material shall be high density, high molecular weight weather-resistant polyethylene with high environmental stress-crack resistance complying with A.N.S.I ./A.S.T. M. D 1248, Type III, Class C, Category 5, Grade P34. The manufacturer shall submit a five (5)-year guarantee bond of the maximum long-term ultimate design deflection based on strain limit and deflection limit test data. The class or ring stiffness constant of the pipe shall be sufficient to provide a Pipe Stiffness measured at five percent (5%) deflection datum of not less than ten (10) p.s.i. as determined by A.N.S.I./A.S.T.M. D2412. Manufacturers are Gulf Spiral Engineered Systems and any others that may exist and meet these requirements or equal.

2. Maximum laying lengths shall be thirteen feet (13'), unless the Engineer gives special approval of twenty feet (20').

B. Joint

C. Fitting

Fittings shall be fabricated to comply with the pipe requirements.

2.06 FIBERGLASS REINFORCED PLASTIC SEWER PIPING

A. Pipes

1. Pipe shall be of the manufacturers standard design in sizes eighteen inches through one hundred forty-four inches (18"-144"). The manufacturer shall submit a five (5)-year

guarantee bond of the maximum long-term ultimate design deflection based on strain limit test data. Pipe shall conform to the appropriate following standard except that the type, grade and class shall be appropriate for the application and design conditions as determined by the Engineer and the minimum Pipe Stiffness shall be not less than ten (10) p.s.i.:

ASTM D2996, Filament Wound Reinforced Thermosetting Resin Pipe, or ANSI/ASTM D3262, Reinforced Plastic Mortar Sewer Pipe Manufacturers are A.0. Smith-Inland, ArmcoCorban, Clow, Ciba-Geigy, Johns Manville, Owens-Corning, or equal.

2. Nominal laying lengths **shall be** thirteen feet (13') preferred and twenty-feet (20') maximum.

B. Joints

Joints shall be integral bell and spigot gasketed type of manufacturer's standard complying with ANSI/ASTM D3212. Gaskets shall comply with ANSI/ASTM F477.

C. Fittings

Fittings to be manufactured by the pipe manufacturer to strength and other applicable requirements for the pipe.

PART 3 - EXECUTION

3.01 GENERAL

Pipe shall be protected during handling against impact shocks and free fall and the pipe interior shall be free of extraneous material.

When work is not in progress, open ends of pipe and fittings shall be securely closed so that no water, earth or other substances will enter the pipe. Any section of pipe found to be defective before or after laying shall be replaced with new pipe by and at the expense of the Contractor.

Where applicable, appropriate plugs shall be installed on new sewer lines to prevent sewer gases from entering the work area and to prevent drainage from the new system entering the existing sewer lines.

3.02 INSTALLATION

A. Sewer Mains

Pipe shall be laid accurately to the line and grade as shown on the Drawings.

Pipe laying shall proceed upgrade with spigot ends of bell-and-spigot-pipe and tongue ends of tongue-and-groove pipe painting in the direction of flow. Pipe shall be laid and centered so that the sewer has a uniform invert.

The bottom of the trench shall be accurately graded to provide uniform bearing and support for the full bottom segment of the pipe for its entire length. Bell or coupling holes shall be carefully excavated at proper intervals so that no part of the load is supported by bells or coupling.

Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed or of the factory-made jointing material shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined, and adjusted in such a workmanlike manner as to obtain the degree of water-tightness required.

At any stage of construction of a straight segment between consecutive manholes the downstream end of the pipe shall be clearly visible when looking through the pipe form the upstream end, with full cross-section of the interior of the pipe in clear view.

As soon as each length of pipe has been properly placed and jointed, the spaces between the pipe and sides of the trench shall be carefully backfilled and compacted. Each joint shall be checked for line and grade before the next succeeding joint is placed.

Walking or working on the completed sewer pipe, except as may be necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a height of at least one foot (1') above the top of the pipe.

Under no conditions shall sewer pipe be laid against the wall of the trench. The minimum distance from the exterior of pipe to trench wall shall be six inches (6"). Extra precaution shall be taken to prevent hard clay lumps, shoring, rocks or other large objects from lodging against the pipe during backfill.

B. Service Laterals

The installation of service lines shall follow directly behind the backfilling operation and in no event shall the completion of service lines be more than five hundred feet (500') behind the laying of the main sewer line to which it connects. All service line trenches shall be backfilled at the end of each day's work.

Service lines shall be laid with a minimum slope of 0.60 percent (0.60%).

C. Wye Branches or Tees

Wye branches or tees are to be furnished with connections of the sizes specified, securely and permanently fastened to the barrel of the pipe in the process of manufacture. All wye branches and tees shall conform to the Specifications and test standards of the pipe it is to be installed on. Wyes and tees shall be given an inclination above a horizontal line and shall be properly bedded. Field cut-in wyes or tees will not be permitted, except where specifically specified or recommended by the manufacturer. Necessary bends of the same size and material specified for pipe shall be furnished and installed in service lines to maintain a true line and continuous fall from property line to sewer.

D. Risers

Where the sewer lines are laid in deep cut, in excess of eight and one-half feet (8½'), the connections for side service sewers shall be extended vertically by the use of risers. The risers shall be constructed in accordance with the typical details shown on the Construction Drawings.

E. Manholes

Manholes shall be installed in accordance with Section 02536.

F. Connection to Existing Manholes

Where possible, connections to existing manholes shall be made above the existing manhole base. After cutting a hole in an existing manhole wall, the space between the new sewer pipe and the wall of the manhole shall be completely filled with nonshrinking grout. Inverts shall be shaped from the new pipe to the flow channel.

Where the connection has to be made at the same elevation as the existing pipe, the base shall be broken in the area where the connection is to be made and the new base and invert shall conform to the requirements of Section 02536.

Where connections are made to existing pipe stub-outs in existing manholes, the necessary joint or adapter shall be used to make a watertight connection. No special payment will be made for such a connection.

G. Wall Sleeves

Where pipe passes through the walls of tanks that contain water on one (1) or both sides, wall sleeves shall be installed. The sleeve shall have no coating on the outside so that concrete bonding is enhanced. All necessary precautions shall be taken to prevent displacement during placement of concrete.

Floor and ceiling plates of substantial construction and securely fastened shall be furnished and installed wherever pipes pass through the floors. Where openings are left in floors, they shall be closed and neatly finished to conform to existing masonry surfaces after installation of the pipe and before placing plates.

3.05 TESTING

A. Low Pressure Air Testing

Low pressure air testing shall be performed by the Contractor. Internal cleaning and CCTV inspection of the pipe immediately prior to the testing is required. All test plugs, air compressor, test equipment (including gages, stopwatch, personnel, etc.) For conducting the test shall be furnished by the Contractor.

Immediately following the pipe cleaning and CCTV inspection, the pipe installation shall be tested with low pressure air. Air shall be slowly supplied to the plugged pipe installation until pressure reaches 4.0 psig. At least two (2) minutes shall be allowed for temperature stabilization.

The rate of air loss shall then be determined by measuring the time interval required for pressure to decrease from 3.5 to 2.5 psig.

The requirements of this Specification shall be considered satisfied if the time required for the pressure to decrease from 3.5 to 2.5 psig is not less than shown I the “Allowable Time Table” below.

At the Engineer's option, when the ground water level is above the sewer main, the system shall be tested by slowly increasing the pressure to 4.5 psig, stabilizing for two (2) minutes, and measuring the time interval required for the pressure to decrease from 4.0 to 3.0 psig using the same "Allowable Time Table".

ALLOWABLE TIME TABLE

PIPE SIZE	TIME MIN.	SEC.	PIPE SIZE	TIME MIN.	SEC.
6"	2	15	36"	17	00
7"	3	18	42"	19	50
8"	3	57	48"	22	40
10"	4	43	54"	25	30
12"	5	40	60"	28	20
15"	7	5	66"	31	10
18"	8	30	72"	34	00
21"	9	50	84"	39	40
24"	11	20	96"	47	00
27"	12	45	108"	51	00
30"	12	10			

B. Infiltration Test

At the option of the Engineer, an infiltration test may be conducted in addition to the above described test. The sewer pipe leakage (infiltration), including manholes, shall not exceed the following rates based on 100 gpd per inch of diameter per mile of pipe:

6" pipe - 0.47 gph/100'
8" pipe - 0.63 gph/100'
10" pipe - 0.79 gph/100'
12" pipe - 0.95 gph/100'
15" pipe - 1.18 gph/100'
18" pipe - 1.42 gph/100'
21" pipe - 1.66 gph/100'
24" pipe - 1.89 gph/100'

Manholes shall be tested in accordance with Section 02536.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02760 - TRAFFIC SIGNING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. This work consists of furnishing and installing traffic signs with accessories and parts of specified materials, sizes, shapes, weights, and designs.

PART 2 - PRODUCTS

2.01 GENERAL

A. Materials for temporary signs, barricades, barriers and related devices shall comply with Section 713 of the Louisiana Department of Transportation and Developments' 2016 edition of the Louisiana Standard Specifications for Roads and Bridges.

PART 3 - EXECUTION

3.01 GENERAL

A. In general, the work and materials shall conform to Section 713 the Louisiana Standard Specifications for Roads and Bridges, 2012 Edition, and the Manual on Uniform Traffic Control Devices.

B. The location of all signs shall generally be as shown on the plans or as directed by the Project Engineer.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02820 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SCOPE OF WORK

The work covered by this section shall consist of furnishing all labor, materials, equipment and appurtenances to properly install chain link fencing as indicated on the Drawings.

1.02 RELATED SECTIONS

A. Section 03300 - Cast-in-Place Concrete

PART 2 - PRODUCTS

2.01 MATERIALS

A. Galvanized Wire Fabric

Steel wire fabric shall conform to ASTM A 116 and be Chain Link No. 9 Gauge woven in a two inch (2") diamond mesh, top and bottom salvage to have a twisted and barbed finish. Steel wire shall be hot dip galvanized.

B. Line Posts

Line posts shall conform to ASTM A702 and be two and one-half inch (2½") O.D. steel pipe weighing 3.65 pounds per foot or H column weighing 4.1 pounds per foot. Posts shall be hot dip galvanized. The use of 2.25 x 1.70 roll-formed C-sections shall also be acceptable.

C. Top Rail

Top rail shall conform to ASTM A702 and be one and five-eighths inch (1⅝") O.D. steel pipe and weighing 2.27 pounds per foot provided with seven inch (7") couplings every twenty feet (20'). The use of a 1.625 x 1.25 roll-framed C-section shall also be acceptable.

D. Braces

Braces shall conform to ASTM A702 and be one and five-eighths inch (1⅝") O.D. steel pipe weighing 2.27 pounds per foot to be installed midway between the top rail and the ground.

E. Terminal Posts

All end, corner, and pull posts shall conform to ASTM A702 and be three inch (3") O.D. steel pipe weighing 5.79 pounds per foot.

F. Fittings

All fittings used in fence assembly shall be malleable cast iron or pressed steel.

G. Post Tops

All posts shall be equipped with tops designed to hold the top rail and to exclude moisture.

SECTION 02820 - CHAIN LINK FENCES AND GATES

H. Extension Arm

Extension arms to hold the barbed wire shall extend at a 45◦ angle with lock wire for securely fastening the barbed wire equally spaced with the top strand located twelve inches (12") above the fabric and twelve inches (12") out from the fence line.

I. Barbed Wire

Barbed wire shall conform to ASTM A121 and be of the four (4) point pattern composed of two (2) strands of twelve and one-half inch (12½") gauge line steel wires with a minimum aluminum coating of 0.30 ounce per square foot of wire surface.

J. Wire Fabric Connections

The fabric shall be attached to the posts with approved type fasteners standard with the manufacturer. Galvanized coating shall not be less than 0.20 ounce per square foot when tested in accordance with ASTM A90.

K. Coatings

All steel materials to be hot dip galvanized in accordance with ASTM A123.

L. Gates

1. General

Gates shall be the standard swing type as indicated on the Drawings. Gate frames shall be made of two inch (2") O.D. pipe weighing 2.27 pounds per foot with heavy malleable iron or pressed steel corner by means of tension bar and hook bolts. Each frame shall be equipped with three-eighths inch (⅜") diameter adjustable turn rods.

Bottom hinges shall be ball and socket type designed to carry the weight of the gate on the post footing.

Upper hinges shall be wrap-around adjustable type. Each gate shall be equipped with a positive type latching device with provisions for padlocking.

Drive through gates shall be equipped with a center plunger rod catch and semi-automatic outer catches to secure gates in open position. Concrete catch blocks shall be installed for all plunger rods.

2. Special Gates

Refer to Plan Drawings for gate details.

M. Ground Rod Assemblies

Ground rods shall be five-eighths inch (⅝") diameter by eight feet (8') long copper weld steel rod. Ground wire shall be an AWG No. 6 solid copper conductor. Mechanical connectors shall be solid copper alloy UL approved. Coated steel will not be permitted.

SECTION 02820 - CHAIN LINK FENCES AND GATES

PART 3 - EXECUTION

3.01 ERECTION

A. General

Finished fencing shall be in proper alignment with posts plumb and all wire work taut. Care shall be exercised to equalize the tension or pull on each side of the posts. All corner, end, angle, pull, and gate posts shall be braced. All hardware shall be thoroughly secured, properly adjusted and left in perfect working order.

B. Concrete Bases

Concrete bases for metal posts shall conform to the applicable requirements of Division 3 - "Concrete" of these Specifications.

C. Posts

Post spacing shall be maximum of ten feet (10') on centers. Line posts shall be set in concrete 3'4" x 12" diameter to a depth of three feet (3') below finished grade. Terminal and gate posts shall be set in concrete 3'4" x 18" diameter to a depth of three feet (3') below finished grade. Top of concrete base to carry one inch (1") cone. Fencing shall not be applied to posts until the concrete base is at least seven (7) days old.

D. Fabric

Chain link fabric shall be stretched taut and clipped to line posts with wire ties on approximately twelve inch (12") centers. Fabric salvage shall be attached to the top rail with tie clips at intervals not exceeding two feet (2').

E. Barbed Wire

Each strand shall be pulled taut and securely fastened to the extension arms by pins, ties, or other approved mechanical means.

F. Grading

Ground surface along the fence line shall be graded as necessary to maintain adequate clearance, but to eliminate openings.

G. Ground Rods

Ground rods shall be installed along each segment of new or rebuilt fence at maximum five hundred foot (500') intervals. Ground roads and connections shall conform to Plan details.

H. Utilization of Existing Fence Materials

The Contractor may not utilize any existing fence fabric and gates which are to be removed during the course of construction unless otherwise directed by the Engineer. Where these materials are to be reused, new fence posts, fittings, braces barbed wire, and connections shall be provided.

END OF SECTION

SECTION 02920 - SEEDING, FERTILIZING AND AGRICULTURAL LIME

PART 1 - GENERAL

1.01 DESCRIPTION

This work consists of preparing seed beds, furnishing and sowing grass seed, and furnishing and applying commercial fertilizer and agricultural lime on the areas designated on the Plans as directed in accordance with these Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Seed

Seed shall conform to Subsection 1018.18 of the LA DOTD Standard Specifications for Roads and Bridges, 1992 Edition. The Contractor shall furnish the Engineer with a copy of the laboratory test report as described in Subsection 1018.18 (b) of said DOTD Standard Specifications.

B. Water

Water may be obtained from any source, except brackish or oily water shall not be used.

C. Commercial Fertilizer

Fertilizer shall be an approved brand conforming to requirements of the LA Department of Agriculture. Fertilizer shall be either 8-8-8, 12-12-12, 13-13-13, or 16-16-16, and shall conform to Subsection 1018.16 of said DOTD Standard Specifications.

D. Agricultural Lime

Agricultural lime shall conform to Subsection 1018.17 of said DOTD Standard Specifications. The material shall be delivered either in sacks or bulk.

PART 3 - EXECUTION

3.01 APPLICATION

A. Preparation of Seed Bed

1. Seed beds shall be prepared by disking, harrowing, or other approved methods.

2. Soil shall be thoroughly pulverized to a minimum depth of three inches (3") and leveled as directed.

3. Hardpan areas shall be rototilled if necessary to insure that soil is in condition to receive and sprout seed.

4. If the Contract requires topsoil, fertilizer, or agricultural lime, they shall be incorporated at this time. Slopes shall be smoothed to grade and rolled prior to seeding.

B. Commercial Fertilizer

Fertilizer shall be uniformly broadcast over area to be fertilized by either hand or machine methods. The approximate rate of fertilizer application shall be as follows:

TYPE	POUNDS PER ACRE
8-8-8	1000
12-12-12	667
13-13-13	615
16-16-16	500

The rate per acre shall be increased or decreased as directed.

Fertilizer applied after surface dressing shall be thoroughly incorporated in the soil by light disking or harrowing. Fertilizer may be applied before final disking or harrowing during surface dressing or if dressed by hand, it may be applied before packing or leveling.

C. Agricultural Lime

Agricultural lime shall be spread uniformly at the rate of two (2) tons per acre with a spreader. Lime must be applied prior to seeding, and may be applied in conjunction with fertilizer. Several passes may be required to obtain the desired application rate.

After application, the areas shall be disked, harrowed, or rototilled to incorporate lime or lime-fertilizer and the top three to six inches (3" - 6") of soil.

D. Seeding

Seed shall be planted within the dates shown in the following table, unless otherwise permitted in writing:

MIXTURES	SEED MIXTURE	POUNDS PER ACRE	PLANTING DATES
A	Kentucky 31 Fescue Crimson Clover (1)	30 10	September thru February
B	Hulled Bermuda	30	March thru September
C	Kentucky 31 Fescue	40	September thru February
D	Crimson Clover (1)	40	September thru February

NOTE: (1) Inoculated prior to planting with proper bacterial culture.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02955 - SUMMARY OF SEWER REHABILITATION SERVICES

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The proposed sewer rehabilitation services presented on the Drawings are shown to give the Contractor an indication of the areas where the work will be performed. The actual repair work may include some locations not listed on the Drawings and may or may not include those repairs indicated on the Drawings. The repair work to be performed on this Project will be performed through work order assignments issued by the Engineer during the term of the Contract. Work orders will be issued from the defect database compiled from prior inspection data and inspections and testing performed during this contract. No work will be performed on this project without a work order issued by the Engineer.

B. It is the intent of these Specifications that the Contractor be paid according to the unit prices for those items actually completed. The Contractor will be due no profit or any other compensation for work not done.

The Contractor may be paid additional compensation for mobilization of work crews and equipment on all work orders issued which are for a total dollar amount less that $10,000.00, provided that the Contractor is not already working in another area of the City at such time the work order is issued.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02956 - SEWER LINE CLEANING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall provide all labor, materials, equipment and incidentals necessary to perform the cleaning of sanitary and storm sewer lines as specified in this Section. Sewer line cleaning shall include preparatory cleaning prior to television inspection and heavy cleaning.

B. The work shall consist of cleaning sanitary sewer lines of all excess sand, debris and grease so that further work can be performed.

C. Preparatory cleaning shall be performed at the Contractor's discretion prior to sewer lining or robotics point repairs. No separate payment shall be made for preparatory cleaning. Internal inspection reports which may be available and which were made prior to the Contract will be available to the Contractor upon request to the Engineer.

D. Heavy cleaning of sanitary sewers shall be conducted on lines at the direction of the Engineer. Heavy cleaning shall be conducted using bucket machines and mechanical cleaning equipment as specified herein.

E. Heavy cleaning shall remove all foreign materials from the lines. The Contractor shall not be responsible for removing mortar or other similar material which is permanently attached to the pipe walls.

1.02 ACCEPTABLE METHODS

Sewer line cleaning shall be performed by hydraulically propelled or mechanically operated cleaning equipment as described in Part 3 of this Section. Selection of equipment shall be made by the Contractor with the concurrence of the Engineer and shall be based on field conditions such as availability of access to manholes, type of debris to be removed, and depth of sewer flow.

1.03 LIMITATIONS

Satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by improper use of the cleaning equipment. Whenever hydraulically propelled cleaning tools, which depend upon water pressure to provide their cleaning force, or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water does not cause damage or flooding to public or private property being served by the sewer line section involved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SEWER CLEANING

A. Sanitary sewer line sections shall be cleaned using mechanically powered, hydraulically propelled or high velocity sewer cleaning equipment. Selection of the equipment used shall be based on the conditions of the lines at the time the work commences. The equipment and methods selected shall be satisfactory to the Engineer. The equipment selected for cleaning

shall be capable of removing dirt, grease, rocks, sand, and other deleterious materials and obstructions from the sewer lines and manholes. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be re-setup at the manhole on the opposite end of the pipe segment being cleaned and cleaning shall be re-attempted.

B. Water for sewer cleaning shall be purchased by the Contractor and obtained at locations in accordance with the utility owners' direction. If the water is obtained from the potable supply, adequate backflow prevention devices shall be provided to protect the potable system from cross connections and contamination.

3.02 CLEANING EQUIPMENT

A. Hydraulic Cleaning Equipment

The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to allow the sewer flow past the cleaning head to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure total removal of grease. If cleaning balls or other such equipment which cannot be collapsed instantly are used, special precautions against flooding of the sewers and causing damage to public or private property shall be taken.

B. High Velocity Jet (Hydro-Cleaning) Equipment

All high velocity sewer cleaning equipment shall be designed for ease and safety of operation. The equipment shall have a selection of two (2) or more high velocity nozzles. The nozzles shall be capable of producing a scouring action from fifteen degrees (15°) to forty-five degrees (45°) in all size lines designated to be cleaned. Cleaning shall be accomplished by using a pump capable of delivering water at 800 to 1000 psi to the self-propelled nozzles. Equipment shall also include a high velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel. All controls shall be located so that the equipment can be operated above ground.

C. Mechanical Cleaning (Heavy Cleaning Equipment)

Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. Power rodding machines shall be either sectional or continuos type capable of holding a minimum of seven hundred fifty feet (750') of rod. The rod shall be heat-treated steel. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety throw-out clutch or relief valve.

3.03 MATERIAL REMOVAL

A. All sanitary sewers to be cleaned shall be plugged at the discharge end prior to cleaning.

B. All sludge, dirt, sand, rocks, grease, and other solid or semi-solid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing material from one sewer line section to another sewer line section, or from manhole section to manhole section, shall not be permitted.

C. All roots shall be removed prior to sewer line robotics repair. All roots shall be removed prior to sewer liner pipe installation.

3.04 DISPOSAL OF MATERIAL

A. All solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed of at a site provided by the Owner. All materials shall be removed from the site no less often than at the end of each workday. Under no circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work beyond the stated time, except in totally enclosed containers and as approved by the Engineer.

B. Materials removed may be brought to an authorized landfill for disposal. Materials shall be dewatered prior to transporting to the landfill, no liquids will be accepted. All tipping fees shall be paid for by the Contractor.

3.05 CLEANING PRECAUTIONS

During all sewer cleaning operations, satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools or tools which retard the flow in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the sewer line section. The flow of sewage in the sewer lines shall be utilized to provide necessary pressures for hydraulic cleaning devices whenever possible. When additional water from fire hydrants is necessary to avoid delay in normal working procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant nor shall a hydrant be used for the purpose described unless a backflow preventer is provided.

3.06 INSPECTION

Inspection of all cleaning operations will be made on a daily basis by the Engineer.

3.07 ACCEPTANCE

All sewer cleaning shall be performed to the satisfaction of the Engineer. In areas where television inspection is not performed, a double squeegee, with each squeegee the same size as the sewer, shall be pulled through each sewer line section as evidence of being adequately cleaned. If inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to reclean and reinspect the sewer line section until the cleaning is acceptable to the Engineer.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02-SITE CONSTRUCTION

SECTION 02957 - SMOKE TESTING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Sanitary sewer line sections, at locations designated by the Owner or his authorized representative, shall be smoke tested to locate significant defects which are causing or could cause infiltration/inflow, soil erosion and degradation to the existing sanitary sewer system or other underground utilities and surface structures.

B. The Owner will field determine which pipe segments are to be smoke tested.

PART 2 - PRODUCTS

2.01 PRODUCTS

A. Nontoxic, odorless, nonhazardous and non-staining smoke generators (bombs) shall be used to produce smoke used for testing. Smoke generators shall be capable of producing 25,000 cubic feet of smoke in three (3) minutes.

B. Smoke shall be blown by a gasoline powered "squirrel cage" or other approved blower located on top of a central manhole. Blower pressure should be adequate to force smoke throughout the isolated line section and to the ground surface through cracks, channels, improper jointing, etc. Minimum blower free fan delivery is 1,500 cfm.

C. Sand bags and/or plugs shall be placed at each end of the test section to prevent smoke from escaping through the manholes and adjacent sewer pipes.

D. Digital photographs shall be taken of all test sections where smoke is observed coming out. The camera shall be equipped with a date and time generator which can record this data directly onto the photo. The photographs will provide permanent documentation of the infiltration/inflow sources and will be used to locate the leak for further evaluation.

E. All data pertinent to the smoke testing shall be recorded on an adequate smoke testing log form as supplied by the Contractor and approved by the Engineer. This form shall be turned over to and remain in the possession of the Engineer after a section of line has been tested.

PART 3 - EXECUTION

3.01 METHODS

A. Only pipe segments on either side of the blower shall be tested on a single set-up.

B. Smoke shall be introduced into a manhole and then blown into the connecting sewer lines.

C. All visible leaks including those from collection lines, service laterals and manholes shall be recorded on the smoke testing log form. The information listed below shall be included on the log form:

1. Upstream and downstream manhole number
2. Manhole depths

3. Direction of flows
4. Location of sandbags and plugs
5. For I/I defects on private property, sketch showing leak location and minimum of three (3) measurements to stationary objects. For mainline defects, measurements will be made from the upstream manhole to the defect.
6. Street address nearest the detected leak
7. Leak type which clearly describes the leak (i.e. yard drain, roof connection, cross-connection with storm drain, drainage channel, soil fissure, etc.)
8. Smoke quantification (i.e. light, medium, heavy)
9. Surface cover (i.e. concrete pavement, drive, grass, etc.)
10. Properly identified digital photograph of inflow source shall be included with the reporting form.

D. Public notification and coordination with the City's Public Works, Police and Fire Departments shall be accomplished according to the following:

1. Provide written notice announcing and describing the smoke testing program to all area residences or other buildings that will be affected by the smoke testing twenty-four (24) hours prior to proposed smoke testing.

2. Contractor shall notify the appropriate authorities prior to the beginning of any smoke testing and shall be responsible for maintaining close coordination with the local Fire and Police Departments regarding the smoke tests.

E. Smoke tests shall not be performed when the smoke coming out of the ground may be blown away so quickly as to escape visual detection.

F. The Contractor shall be totally responsible and held liable for the adequacy of the testing program, public notification and coordination with the City’s Public Works, Police and Fire Departments.

3.02 INSPECTION

The Engineer or his duly authorized representative shall witness all smoke testing, and smoke testing log forms shall be submitted to the Engineer within 7 days following the performance of the test.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02958 - TELEVISION INSPECTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. It shall be the responsibility of the Contractor to supply all labor, materials, equipment and supervision required for each sewer line section to be television inspected.

B. In conjunction with robotics repair, the purpose of television inspection will be to verify whether the defect is completely sealed and is acceptable to the Engineer, and to document any change of conditions resulting from defect sealing. If broken pipe, crushed pipe or other major deficiencies are discovered, the Engineer will be notified immediately so that he can direct the Contractor according to all the information available to him.

C. At the Contractors discretion, sewer line robotics repair may be preceded by television inspection.

D. For purposes of cross-connection leak identification, television inspection may be used.

PART 2 - PRODUCTS

2.01 TELEVISION CAMERA

A. The television camera used for inspection shall be specifically designed and constructed for such inspection. The system shall have the capability of displaying on the DVD written information identifying each pipe segment inspected and a metering device measuring distance to the nearest whole foot. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The camera shall be equipped with a rotating head to reveal the condition of the lateral lines connected to the sewer line being televised. The camera shall be operative in one hundred percent (100%) humidity conditions. The camera, television monitor and other components of the video system shall be capable of producing a minimum 240-line resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer. If unsatisfactory, equipment shall be removed and no payment made for unsatisfactory inspection.

B. A recorder which records in digital format shall be used to record the video and audio, picture and sound, during the television inspection. Each digital file shall have labels to identify the time and date the specific line was inspected.

PART 3 - EXECUTION

3.01 OPERATION PROCEDURES

A. The camera shall be moved through the line in either direction at a uniform rate, stopping when necessary to insure proper documentation of the sewer's condition. The television camera shall not be pulled at a speed greater than thirty feet (30') per minute. Manual winches, power winches, TV cable, powered rewinds, and crawler devices or other devices that do not obstruct the camera view and do not interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line. If, during the inspection operation the television camera will not pass through the entire sewer line section, the Contractor shall reposition his equipment so that the inspection can be performed from the manhole on the

opposite end of the pipe segment being viewed.

B. Whenever non-remote powered and controlled or manually operated winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two (2) manholes of the section being inspected to ensure good communications between members of the crew.

C. The accuracy of measurements is imperative. Measurement for location of defects shall be above ground by means of a metering device. Marking on cable, or similar procedure, which would require interpolation for depth of manhole, will not be allowed. Metering equipment will be accurate over the length of the sewer line section being inspected. Accuracy of the meters shall be checked daily by use of a walking meter, roll-a-tape or other suitable device.

3.02 DOCUMENTATION OF THE TELEVISION RESULTS

A. Television inspection logs shall be provided in digital format with location records that shall clearly show the location, in relation to adjacent manholes, of each infiltration point discovered by the television inspection. In addition, other points of significance such as locations of sewer services connections, joints, unusual conditions, roots, storm sewer connections, collapsed sections, presence of scale and corrosion and other discernible features shall be recorded and a copy of such records shall be supplied to the Engineer.

B. Recording shall be made by the Contractor of each pipe segment in digital format. The digital information shall provide a complete color video and audio record of the inspection.

3.03 INSPECTION

The log and digital version of all television inspections of sewer lines shall be kept by the Contractor and submitted to the Engineer no less often than thirty (30) calendar day intervals between the date of the inspection and the date of submittal. All inspection logs shall be submitted on a standard log form which has been reviewed and approved by the Engineer and shall be legibly written.

The inspection data shall be submitted on a flash drive along with a log sheet identifying the date, time and pipe segments televised. The submitted data shall become the property of the Owner.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02959 - SEWER FLOW CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. When sewer line depth of flow at the upstream manhole for any pipe segment is above the maximum allowable for television inspection or joint sealing, the flow shall be reduced to the level shown below by plugging or blocking of the flow as specified. Flows above the maximum shall be by-pass pumped in accordance with the requirements contained herein.

B. Depth of flow shall not exceed that shown below for the respective pipe sizes as measured in the manhole:

1. Maximum Depth of Flow for Television Inspection

6" - 10" Pipe ..... 20% of pipe diameter
12" - 24" Pipe ..... 25% of pipe diameter
>24" Pipe ..... 30% of pipe diameter

2. Maximum Depth of Flow for Joint Sealing

6" - 12" Pipe ..... 40% of pipe diameter
15" - 24" Pipe ..... 45% of pipe diameter
>24" Pipe ..... 50% of pipe diameter

C. As specified in Section 01150, no separate payment shall be made for sewer flow control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PLUGGING OR BLOCKING

A sewer line plug shall be inserted into the line upstream of the pipe segment being inspected or repaired. Where necessary plugs shall also be installed into the storm sewer pipe. Plugs shall be so designed that all or any portion of the flow can be released. During TV inspection and sealing operations, flow shall be reduced to within the limits specified above. After the Work has been completed, flow shall be restored to normal.

3.02 FLOW ELIMINATION

A. The sewer flow shall be completely eliminated when required for such operations as pipe replacement repairs, structural concrete repairs to deteriorated manholes and sewers, or installation and curing of pipe liners or sliplining pipe.

B. Flow elimination shall be by temporary shut-down at pump stations where possible, or by plugging upstream sewers and pumping of flows if required.

C. All requests of the Owner to eliminate or adjust the flow of sewage within the system shall be made in writing to the Engineer. Owner and Contractor recognize and acknowledge that the elimination and/or adjustment of the flow is a cooperative effort and that the time and effort required to achieve the desired flow varies. Owner and Contractor declare and agree that Contractor shall not be allowed, due or paid any additional compensation, whatsoever, for Contractor's work, effort, time, material, labor, rentals, equipment, expenses, etc., during, as

a result of or arising from the elimination or adjustment of the flow.

3.03 PUMPING AND BYPASSING

A. By-pass pumping shall be required whenever pump stations are shut down or flow in gravity sewer lines is restricted or blocked. The Contractor shall supply the necessary pumps, conduits, and other equipment to divert the flow of wastewater around the pump station, restriction, blockage, or other structure in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flows plus additional flow that may occur during periods of a rainstorm. Bypass pumping required for the installation of sewer liner pipe or point repairs required to perform the Work and the cost of said bypass pumping shall be paid for at the unit price bid for by-pass pumping.

B. The Contractor shall be responsible for furnishing the necessary equipment, power, labor, and supervision to set up and operate the pumping and bypassing system. If pumping is required on a 24-hour basis, all equipment shall be operated in a manner to keep the pump noise at a minimum.

C. Bypassing of wastewater to storm drainage systems shall not be allowed.

3.04 FLOW CONTROL PRECAUTIONS

Whenever flows in a sewer line are blocked, plugged, or bypassed, sufficient precautions shall be taken to protect the sewer lines from damage that might be inflicted by excessive sewer surcharging. Further, precautions shall be taken to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

END OF SECTION

SECTION 02960 - SEWER LINE ROBOTICS REPAIR

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. It shall be the responsibility of the Contractor to provide all labor, materials, equipment and supervision necessary to accomplish the cleaning and sealing of all sewer line joints and cracks designated by the Engineer in Section 02955 and the Drawings.

B. It is the intent of this portion of the work to provide for the sealing of sewer line joints and cracks utilizing the internal defect sealing method as specified. It is the intent of these Specifications that the remote robotics repair method may be used as an alternate to pipe replacement on those sewer pipe defects identified for repair or replacement in Section 02955 and the Drawings.

C. Cleaning and television inspection as specified in Section 02956 and Section 02958 may be performed by the Contractor to facilitate his evaluation of his ability to perform sewer line robotics repair.

PART 2 - PRODUCTS

2.01 CHEMICAL SEALING MATERIALS

The Contractor shall use chemical sealing materials as specified in Section 02963.

2.02 PATCHING MATERIALS

The Contractor may use custom cut stainless steel sheathing patches for specific defect repairs which, in the opinion of the Contractor, are too large to be repaired with only chemical sealing materials. The stainless steel sheathing shall be of a size sufficiently large to cover the defect without restricting sewer flow.

2.03 EQUIPMENT

The basic equipment shall consist of a closed circuit television system as described in Section 02958, necessary chemical sealant containers, pumps, regulators, valves, hoses, etc. and a modular, self propelled robotics train of the proper size for the various existing sewer pipe diameters specified in the Bid Form. The robotics train device shall be constructed in such a manner as to allow a restricted amount of sewerage to flow at all times. The equipment shall be capable of performing the specified operations.

PART 3 - EXECUTION

3.01 JOINT AND CRACK SEALING PROCEDURE

A. At the direction of the Engineer, sewer line joints and cracks shall be sealed at the locations indicated in Section 02955 and the Drawings as specified herein. In addition, actively infiltrating leaks, identified by the Contractor's inspection, shall be sealed.

B. Joint sealing shall be accomplished by positioning the robotics equipment at the defect location by means of a metering device and a close circuit television camera in the sewer line. It is important that the procedure used by the Contractor for positioning the robotics

equipment be accurate to effectively seal the intended defect. The robotics equipment shall mill and rout joints and cracks to one-half inch (½") wide by three-eighths inch (3/8") depth or greater using a diamond edged drill. This procedure shall result in a dense, sound substrate for subsequent adhesion of the epoxy sealant at the point of infiltration in the pipe. Jetting or driving pipes from the surface that could damage or cause undermining of the pipe lines shall not be allowed.

C. Chemical sealant materials shall be mixed then applied to the point of injection at controlled pressures along the entire groove until the entire routed joint or crack is sealed. A robotics convex base shall be used to trowel excess epoxy into or along the repair.

D. When the pipe is crushed or has large pieces missing, the Contractor shall mill the defective pipe surface area to the maximum possible diameter. The Contractor shall then furnish and internally install an epoxy impregnated stainless steel sheathing up to eighteen inches (18") in length to properly patch the damaged area and seal the pipe defect.

3.02 RESIDUAL SEALING MATERIAL

All residual sealing materials that extend into the pipe, reduce the pipe diameter, or restrict the flow shall be removed from the repaired area. The sealed joints and cracks shall be left smooth and "flush" with the existing pipe surface. This shall be accomplished by allowing the chemical sealing materials to harden for at least eight (8) hours after installation in the pipe, and then reinserting the robotics train with a buffing attachment to sand, mill and buff the hardened chemical sealant.

3.03 JOINT SEALING VERIFICATION

Upon completing the sealing of each point repair, the television camera shall be moved to a position where the repaired defect can be reinspected. Should the defect show evidence of continued leakage, the Contractor shall repeat the sealing procedure and reinspect the joint until a complete seal has been accomplished. No payment will be made until the joint is completely sealed, and is acceptable to the Engineer.

3.04 RECORDS

Complete records shall be kept of all robotics repairs performed in each sewer line section. The records will document the location of the sewer line section in which the robotics repair was done, the location of each defect sealed, the amount of material used to seal the defect, the number of attempts required to seal the defect and the television video tape of the completed repairs.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02961 - ROOT REMOVAL

PART 1 - GENERAL

1.01 GENERAL

This item shall govern for removal of roots from pipe joints at locations selected by the Owner and/or as shown on the Plans and in these Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 METHODS

Special precautions should be exercised to assure removal of visible roots from the joint area which could prevent the sealing of a grouting packer or could effect other rehabilitation of the pipe. The use of mechanical devices such as rodding machines, expanding root cutters and porcupines, and hydraulic procedures such as high pressure jet cleaners shall be used, if required. When roots are encountered in a pipe, the Contractor shall notify the Owner before proceeding with root removal. All roots removed from the joint area shall be removed from the downstream manhole of the line section containing the roots.

The work shall be performed in a manner which will not damage the pipe, manholes or access points and the working area. The Contractor shall repair any damage and restore the working area at his expense.

Once all the roots have been cut and removed from downstream manhole, Contractor shall provide pipe cleaning for entire length of pipe (manhole to manhole), followed by applying a chemical root killer such as copper sulfate or foaming agent. The costs for this work shall be included in the root removal item. All root debris shall be collected and removed from the downstream manhole. The contractor shall dispose of root or other objects collected at his expense.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 – SITE CONSTRUCTION

SECTION 02962 – MANHOLE REHABILITATION

Part 1 – General

1.01 Scope

A. A manufacturer certified Applicator shall provide all labor, materials, equipment, incidentals, and quality requirements for concrete for surface preparation, repair or resurfacing, and ultra-high build, Structural Epoxy lining work to the entire interior surfaces of the structures as shown on drawings and specified herein.

B. This Section's intent is to provide minimum requirements of an installation of an ultra-high build, high strength, structural epoxy system; and the lining of newly installed, existing, and/or defective specified concrete/masonry structures and surfaces exposed to municipal sanitary sewage by an applied and bonded application of high performance, 100% solids, ultra-high build, structural grade, applied fiber-reinforced-polymer (FRP) epoxy coating/lining system (Structural Epoxy).

C. Coordination:

1. Coordinate surface preparation of substrates to avoid later difficulty or delay in performing the Work of this Section.

2. Review installation procedures under other Sections and coordinate the installation of items that must be installed prior to application of the Structural Epoxy lining

3. The Contractor shall coordinate with Engineer regarding the availability of work areas, completion times, safety, access, and other factors which can impact plant operations.

1.02 REFERENCES STANDARDS

The latest edition of the publications listed below form a part of these:

A. ACI 301 – Specifications for Structural Concrete

B. ASTM C 868 – Standard Test Method for Chemical Resistance of Protective Linings

C. ASTM C 1583/1583M – Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

D. ASTM D 4060 – Standard Test Method for Abrasion Resistance of Organic Linings by the Taber Abraser

E. ASTM D 4285 – Standard Test Method for Indicating Water or Oil in Compressed Air

F. ASTM D 4414 – Standard Practice for Measurement of Wet Film Thickness by Notch Gages

G. ASTM D 7682 – Standard Test Method for Replication and Measurement of Concrete Surface Profiles Using Replica Putty

H. ASTM F 2414 – Standard Practice for Sealing Sewer Manholes Using Chemical Grouting

I. ASTM C 1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill

J. International Concrete Repair Institute, (ICRI) Guideline No. 310.1R – Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion

K. International Concrete Repair Institute, (ICRI) Guideline No. 310.2 – Selecting and Specifying Concrete Surface Preparation for Sealer, Linings, and Polymer Overlays

L. NACE SP0188 – Standard Practice for Discontinuity (Holiday) Testing of Protective Linings

M. NACE No. 6/SSPC-SP13 – Surface Preparation of Concrete

N. OSHA Safety and Health Standards (29 CFR 1910/1926)

O. SSPC-SP13/NACE No. 6 – Surface Preparation of Concrete

P. SSPC-Guide 12 – Guide for Illumination of Industrial Painting Projects

1.03 SUBMITTALS

A. In accordance with the procedures and requirements set forth in the General Conditions and Section 01300 entitled “Submittals”, the Contractor shall submit all required information as specified herein.

B. Shop Drawings: Submit the following for approval prior to commencing any Work:

1. Manufacturer’s project reference lists with coating systems specified herein, stating project location, Owner contact information, Engineer contact information, Installer contact information, containing a minimum of 10 projects of similar capacity with a minimum of 5 years of satisfactory service.

2. Product Data Sheets: Copies of current technical data for each component specified and applied as outlined in this Section.

3. Safety Data Sheets: Copies of current SDS for any materials brought on-site including all clean-up solvents, repair or resurfacing mortars and lining materials.

4. Qualification Data: Approved Installer Certification from manufacturer.

5. Performance Testing Reports: Copies of test data for the entire physical, chemical, and permeation properties listed herein and as outlined within this Section.

6. Installation Instructions: Manufacturer's written installation instructions for the materials specified in this Section.

C. Jobsite Reports: Submit the completion of Work

1. Daily Reports: Include surface preparation, substrate conditions, ambient conditions application procedures, lining materials applied, material quantities, material batch number(s), description of work completed and location thereof.

2. Quality Control Reports: Include all quality control testing and physical specimens.

3. Contractor shall maintain a copy of records until the expiration of the specified warranty period.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Contractor shall be a certified Applicator by the Structural Epoxy manufacturer prior to bid date. Submit proof of Applicator certification by manufacturer to Engineer.

2. Installation equipment shall be acceptable to the Structural Epoxy manufacturer. If spraying Structural Epoxy, Applicator must utilize equipment approved by Structural Epoxy manufacturer.

3. Applicator shall establish quality control procedures and practices to monitor phases of surface preparation, storage, mixing, application, and inspection throughout the duration of the project. Contractor to provide a fulltime, on-site person whose dedicated responsibilities will include quality control of the Structural Epoxy linings and completed manufacturing certification training.

4. Applicator's quality control procedures and practices must include the following items:

a. Training of personnel in the proper surface preparation requirements.

b. Training of personnel in the proper storing, mixing, and application and quality control testing of the Structural Epoxy linings.

c. If spraying, training of personnel with the spray equipment to ensure proper film build, film quality, and ratio control.

SECTION 02962 – MANHOLE REHABILITATION

B. Mock-Ups:

1. Prior to the installation of the Structural Epoxy lining and auxiliary system components, but after Engineer's approval of the Samples and Shop Drawings, install 150 square foot (14 square meters) stepped-back mock-ups of the systems showing surface preparation and each system component in an area selected by Engineer to show representative installation of the Work.

2. Engineer shall approve the mock-up before the start of Work.

3. Retain and protect mock-ups during construction as one standard for judging completed corrosion protection lining Work. Do not alter mock-ups after approval by Engineer.

4. Contractor shall build as many mock-ups as required to achieve Engineer's acceptance of the corrosion protection lining.

5. The approved mock-up shall be considered the acceptable minimum standard of quality.

6. Any corrosion protection lining Work that proceeds without approved mock-ups will not be accepted by the Engineer and removed at no cost to the Owner.

C. Pre-Installation Conference:

1. Before erecting mock-ups Contractor, Installer and technical representative of the corrosion protection lining manufacturer shall meet on-site with Engineer to discuss approved products and workmanship to ensure proper application of the corrosion protection lining components and substrate preparation requirements.

2. Review foreseeable methods and procedures related to the Structural Epoxy lining of coating Work including but not necessarily limited to the following:

    a. Review Project requirements and the Contract Documents.
    b. Review required submittals, both completed and yet to be completed.
    c. Review status of substrate Work, including approval of surface preparations and similar considerations.
    d. Review requirements of on-Site quality control testing and requirements for preparing Site Quality Control Report as specified herein.
    e. Review availability of materials, tradesmen, equipment and facilities needed to make progress and avoid delays.
    f. Review required inspection and testing.
    g. Review environmental conditions, other Project conditions, and procedures for coping with unfavorable conditions.
    h. Review regulations concerning code compliance, environmental protection, health, safety, fire and similar considerations.
    i. Review procedures required for the protection of the Structural Epoxy lining during the remainder of the construction period.

3. Record the discussions of the Pre-Installation Conference and the decisions and agreements or disagreements reached and furnish a copy of the minutes to each party attending. Record any revision or changes agreed upon, reasons therefore, and parties agreeing or disagreeing with them.

4. Reconvene the conference at the earliest opportunity if additional information must be developed in order to conclude the subjects under consideration.

D. Performance Criteria: Structural Epoxy lining shall be capable of withstanding under constant exposure to raw wastewater, permeation from hydrogen sulfide and other sewer gases, and attack from organic acids generated by microbial sources with no adverse effects; cured film at specified thickness must withstand negative side film forces from inflow and infiltration. Products must have sufficient field history and accelerated laboratory testing to substantiate product viability for these exposures.

E. Source Quality Control: Provide each component of Structural Epoxy lining produced by a single manufacturer, including recommended repair mortar, repair overlay (resurfacer), joint sealant, lining (coating) materials.

F. Reference Standards: Comply with applicable provisions and recommendations of all standards listed in Section 1.2 except as otherwise shown or specified.

1.05 PRODUCT DELIVERY, STORAGE, AND HADNLING

A. Delivery of Materials:

1. Deliver material in manufacturer’s original, unopened and undamaged packages.

2. Clearly identify manufacturer’s, brand name, contents, color, batch number, and any personal safety hazards associated with the use of or exposure to the materials on each package.

3. Packages showing indications of damage that may affect condition of contents are not acceptable.

B. Storage of Materials:

1. Materials shall be stored in accordance with manufacturer's recommendations in enclosed structures and shall be protected from weather and adverse temperature conditions. Flammable materials shall be stored in accordance with state and local codes. Materials exceeding storage life as defined by the manufacturer shall be removed promptly from the site. Store all materials only in area or areas designated by the Engineer solely for this purpose.

2. Store in original packaging under protective cover and protect from damage.

3. Stack containers in accordance with manufacturer's recommendations.

C. Handling of Materials: Handle materials in such a manner as to prevent damage to products or finishes.

1.06 JOB CONDITIONS

A. Environmental Requirements:
   1. Proceed with Work only when temperature and moisture conditions of substrates, air temperature, relative humidity, dew point and other conditions comply with the Structural Epoxy lining manufacturer's written recommendations and when no damaging environmental conditions are forecasted for the time when the material will be vulnerable to such environmental damage. Record all such conditions and include in final Site Quality Control Report.

   2. Maintain substrate temperature and ambient temperature before, during and after installation above 45°F (8°C) and rising in accordance with Structural Epoxy lining material manufacturer's instructions.

   3. Provide adequate ventilation during instillation and full curing periods of the Structural Epoxy lining.

   4. Structural Epoxy lining shall not be applied when ambient air temperature is within 5°F (3°C) of the dew point.

   5. Structural Epoxy lining shall not be applied when relative humidity is outside of material manufacturer's recommendations. Do not prepare surfaces or apply materials in rain, snow, fog, mist, or otherwise inclement weather as per material manufacturer's instructions.

B. Dust and Contaminants: Protect work and adjacent areas from excessive dust and airborne contaminates during Structural Epoxy lining application and curing. Schedule Work to avoid excessive dust and airborne contaminants.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Products and Manufacturer:
   1. Materials specified are those that have been evaluated for the specific service. Products of Epoxytec LLC (a Tnemec company, www.tnemec.com , +1-800-863-6321) www.epoxytec.com are specified as a standard of quality and basis of design. The specified basis of design is intended to provide the longest service life possible, lowest life cycle cost, and most sustainable solution.

2. Bidders, desiring to use coatings other than those specified, shall submit their proposal in writing to the engineer a minimum of 7 days prior to bid date. Substitutions, which decrease the film thickness, the number of coats applied, change the generic type of coating or fail to performance of the specified materials will not be approved for the project.

B. Contractor shall provide all accessory components, as specified or recommended by the manufacturer for optimal application of the Structural Epoxy lining system's adhesion to substrate and long-term service performance.

C. Hydraulic Water Plug:

1. Active leak control materials are to be utilized for I&I abatement, to stop leaks, running water, infiltration, and other water stop needs. Material must be a quick setting, hydraulic cement compound designed for minor patching, and as a leak stopper and water plug which stops running water and/or seepage through concrete. Materials must be designed to set rapidly, in dry powder form, with no prior mixing of water needed (if necessary), to apply directly to active leaks under hydrostatic pressure in manholes or related structures, in accordance with the manufacturer's recommendations.

D. Chemical Grout:

1. Sanitary sewer grade chemical grouts shall be urethane-based, and formulated specifically for use in grouting pre-cast barrel joints, brick and CMU structures, and/or pipe penetrations and pinholes to stop aggressive flowing leaks.

2. Chemical grout shall be Deneef Flex LV, Avanti AV-254 Gelseal or prior approved equal

E. Cementitious Repair Mortar:

1. Rapid-setting, cementitious repair mortar when concrete is deteriorated greater than a depth of 1/2-inch (12.7 mm) and when recommended by the Manufacturer to rehabilitate and restore concrete and provide level substrate for application of the protective lining. Cementitious repair mortar shall be a rapid-setting, non-shrinking resurfacing material capable of spray-transfer. Material shall have similar CLTE properties as concrete.

2. Cementitious Repair Mortar shall be Tnemec Series 217 Mortarcrete, Epoxytec MortarTec Ceramico or prior approved equal.

F. Epoxy Cementitious Resurfacer:

1. Epoxy cementitious resurfacer shall be an epoxy-modified, aggregate reinforced material with for surfacing, patching and filling voids and bugholes in concrete. The material shall be suitable for the application down to 1/16 inch (1.6 mm) thickness and be capable of spray-transfer.

2. Epoxy cementitious resurfacer shall exhibiting high bond strength and high mechanical strengths. Initial set time occurs early (4 hours @ 77F) to allow for Structural Epoxy coating. The Epoxy cementitious resurfacer shall not require for any further preparation or conditioning within 36 hours (at 77F) to accept epoxy top coats.

3. Epoxy cementitious resurfacer be Tnemec Series N218 Mortarclad or prior approved equal.

G. Structural Epoxy Lining:
   1. Structural Epoxy shall be available in both trowel-version and spray-version to assist with various application needs or applications in limited access areas or perform any touch-ups.

   2. Structural Epoxy shall be 100% solids, highly thixotropic microfiber-reinforced, applied epoxy polycyclic polymer protective barrier material specifically designed to protect concrete and masonry surfaces in severe wastewater environments, including H2S attack, while sealing inflow and infiltration (I&I).

   3. Structural Epoxy is to provide protection from H2S corrosion and seal from I&I with applied and bonded high build Structural Epoxy; Structural Epoxy film thickness specified herein is designed and intended for applied and bonded coating, delivering barrier protection lining with high mechanical strength and a reinforced film to bridge and seal against moisture vapor transmission (MVT), hydrostatic head pressure, fine root intrusion, and seal inflow and infiltration (I&I).

   4. Structural Epoxy lining must be a verified technology of US Environmental Protection Agency's, Environmental Technology Verification Program for Infrastructure Rehabilitation Technologies (EPA ETV).

   5. Structural Epoxy lining must be self-priming, able to be applied direct-to-concrete (DTC), requiring no primer.

   6. Structural Epoxy lining must be able to bond to saturated-surface-dry (SSD) concrete, with moisture and relative humidity tolerances up 85% and capable to fully cure underwater.

   7. Materials shall meet the following requirements:

      a. CIGMAT CT-2 (ASTM D 7234 Pull-Off Method—Wet/Dry)
      Requirements Exceeds the cohesive strength of the wet and dry concrete block substrates. Wet concrete blocks immersed 7 days in tap water and removed for 1 hour to achieve a saturated surface dry (SSD) condition prior to topcoating

      b. ASTM C 579 Compressive Strength
      Requirement: Minimum 10,800 psi

      c. ASTM D 790 Flexural Strength
      Requirement: Minimum 7600 psi

d. ASTM D 790 Modulus of Elasticity

   Requirement: Minimum 610,000psi

e. ASTM D 2240 Shore D
   Requirement: No less than 76

f. ASTM D 638 Tensile Strength
   Requirement: No less than 4400 tensile and 2% elongation at break

8. Epoxy lining shall be Tnemec/ Epoxytec CPP Sprayliner, Epoxytec CPP Trowel-Liner epoxy lining or prior approved equal.

PART 3 – EXECUTION

3.01 GENERAL

A. All work shall be in strict accordance with the specifications and recommendations including mixing, handling, storage, and application of all products as required and in accordance with manufacturer's published technical instructions, safety data sheets, including manufacturer's published PDS, design guidelines, and/or other written specifications.

B. Contractor shall provide, erect, and maintain all required hoists, scaffolding, staging and planking, and perform all access related hoisting work required to complete the Work of this Section as specified.

C. Contractor shall cover or otherwise protect finish work or other surfaces not being coated within the scope of this Section. Contractor shall erect and maintain protective tarps, enclosures and/or masking to contain debris, including dust or other airborne particles from surface preparation or application activities. This may include the use of dust or debris collection apparatus as required at no additional cost to Owner.

3.02 EXAMINATION

A. Contractor shall examine the areas and conditions under which the Structural Epoxy coating Work is to be performed in accordance with SSPC-SP13/NACE No. 6, and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work.

B. Commencement of the Work of this Section shall indicate that the substrate and other conditions of installation are acceptable to the Contractor and his Applicator and will produce a finished product meeting the requirements of the Specifications. All defects resulting from accepted conditions shall be corrected by Contractor at his own expense.

C. Stopping Active Leaks: After surface cleaning, any visible leaks or other water ingress shall be reported to the Engineer. Any water infiltration through minor leaks must be stopped using specified hydraulic cement water stop; should flows be aggressive, a chemical grout method shall be used in accordance with Section 03640. Surface and grouting material may require additional surface preparation prior to application of Structural Epoxy lining.

D. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, coating installation should be scheduled when the temperatures are falling versus rising.

3.03 PREPARATION

A. Allow cast-in-place concrete to cure for a minimum of 28 days at 75°F (24°C) and with adequate air movement before installing the corrosion protection lining system.

B. Surface preparation procedures shall be in accordance with NACE No. 6/SSPC-SP13 and ICRI Guideline No. 310.2.

C. High-pressure water blast all surfaces with minimum 5000 psi and rotary nozzle and appropriate degreasers to remove all soluble surfaces contaminants.

D. Remove all loose and poorly bonded concrete and mortar.

E. Remove all existing coatings by whatever means necessary.

F. Level or grind concrete substrates to produce a uniform and smooth surface, including removal of all sharp edges, ridges, form fins, and other concrete protrusions.

G. Abrasive blast all surfaces to remove all insoluble surface contaminants, existing coatings and to achieve a surface profile equivalent to ICRI CSP 4 for surfaces to receive epoxy based materials and ICRI CSP 6 for surfaces to receive cementitious materials. ABRASIVE BLASTING IS REQUIRED FOR THE PROJECT.

H. Surface preparation of the substrate must be achieved immediately prior to utilizing any repair material and/or coating/lining material that will require bond to the substrate, re-inspection and/or subsequent surface preparation may need to be repeated should conditions change after initial preparation.

I. Metal Application: Remove all visible contaminants per SSPC-SP1. Prepare the surfaces in accordance with SSPC SP10 Near White Metal Blast Cleaning and to achieve a minimum 3.0 mil angular surface profile.

J. Chimney detail: Saw cut a ¼" x ¼" groove at the concrete metal casting interface. Fill to Flush with Structural Epoxy and carry the structural epoxy to completely coat the metal casting.

3.04 APPLICATION

A. General:

1. Structural Epoxy lining systems shall be installed when ambient air and surface temperature is above 45°F. Condition the material between 70-80°F for 24 hours prior to

use. Application when temperatures outside of this range will require written instruction from the Manufacturer and approval of the Engineer.

2. Application in direct sunlight and/or with rising surface temperatures is not advised, as this may result in blistering of the materials due to expansion of entrapped air or moisture in the concrete (induced outgassing). In such cases, it will be necessary to postpone the application until later in the day when the temperature of the substrate is falling or take precautionary steps as recommended by the Manufacturer. Concrete surfaces that have been in direct sunlight should be shaded for at least 24 hours prior to application. Consult the Manufacturer for application schedule guidelines specific to temperature conditions and possible sealer application recommendations to reduce outgassing.

B. Leak Sealing:

1. Hydraulic Water Plug: Install Hydraulic cement water plug for low pressure active leaks and to repair all missing concrete and mortar at joints and other locations as necessary.

2. Chemical Grout: Install chemical grouts to stop aggressive flowing leaks.

a. Cure – Mixing and handling of all the chemical grout materials shall be in accordance with chemical grout manufacturer's recommendations. Application of materials shall be by injection method according to chemical grout manufacturer recommendation and industry defined standard ASTM F 2414, using appropriate pressure to ensure no damage to the structure.

b. Re-Blast - All excess chemical grout must be removed from the surface by mechanical means

C. Brick Manholes:

1. Apply Tnemec Series 217 cementitious repair mortar to all brick manholes at a minimum of 3/8" thickness and to achieve a smooth uniform finish.

2. Reprepare all surfaces in accordance with manufacturer's instructions.

3. Apply Tnemec Epoxytec CPP Sprayliner or Epoxytec CPP Trowel-Liner epoxy lining at a thickness of 125 dry mils to all interior surfaces of manholes. Materials shall be applied in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.

D. Precast Concrete Manholes: Apply Epoxytec CPP Sprayliner or Epoxytec CPP Trowel-Liner epoxy lining at 150 dry mils to all interior joints and a minimum of nine inches below and above each joint including the joint at the wall to invert interface. Materials shall be applied in accordance with Manufacturer's written instructions as outlined in the product data sheet and application guide.

3.05 FIELD QUALITY CONTROL, INSPRECTION AND TESTING

A. Contractor to perform the quality control procedures listed below in conjunction with the requirements of this Section.

B. Inspect all materials upon receipt to ensure that all are supplied by the approved Manufacturer.

C. Surface pH Testing: The pH of substrate will be measured using pH indicating paper or pH meter. Acceptable pH values shall be a minimum 9.0 as measured using color indicating pH paper with readable color calibrations and a scale at whole numbers or pH meter.

D. Surface Profile: Inspect and record substrate profile (anchor pattern) at least once every 5 vertical feet or every 100 square feet (9.3 square meters). If applying Structural Epoxy direct-to-concrete (DTC), surfaces shall be profiled equal to the CSP 4 amplitude as recommended by the coating manufacturer in accordance with ICRI Guideline 310.2 and SSPC-SP13/NACE No. 6; for Cementitious Repair Mortar work, surfaces shall be profiled equal to the CSP 6.

E. Provide verification of correct mixing of coating materials in accordance with the Manufacturer’s instructions.

F. Inspect and record that the "pot life" of coating materials is not exceeded during installation.

G. Verify curing of the coating materials in accordance with the Manufacturer's instructions.

H. Dry-Film Thickness:

1. Wet-Film Thickness shall be taken every two vertical feet (2 vf) or every 25 square feet (2.3 square meters) in accordance with ASTM D 4414 and recorded.

2. The Dry-Film Thickness can be determined using a surface area calculation for material consumption.

I. High-Voltage Holiday (Spark) Testing: Upon full cure, the installed lining system shall be checked by high voltage spark detection in accordance with NACE SP0188 and the Manufacturer’s printed application guide to verify a pinhole-free surface. Areas which do not pass the spark detection test shall be corrected at no cost to the Owner.

J. Contractor is responsible for keeping the Engineer informed of all progress so that Engineer may provide additional quality control at his discretion.

K. Inspection by the Engineer or others does not absolve the Contractor from his responsibilities for quality control inspection and testing as specified herein or as required by the Manufacturer's instructions.

SECTION 02962 – MANHOLE REHABILITATION

3.06 ACCEPTANCE CRITERIA

A. All surfaces shall be prepared, applied, and tested in accordance with the specification and referenced standards herein.

B. Where specified if the entire manhole including invert and pipe penetrations is rehabilitated monolithically then a Vacuum Test may be performed according ASTM F 1244. If vacuum test fails then the contractor shall spray entire manhole with a soap solution and retest to determine where air is entering the manhole. Inspector shall determine if failure was due to improper rehabilitation or poor pipe condition or improperly seated plugs. If inspector determines that the

failure is due to improper rehabilitation then the Contractor shall repair manhole according to manufacturer recommendations and retest until a successful vacuum test is achieved. If inspector determines that the failure was due to poor condition of the pipes, or annular space between the pipe and its liner, or the inability to seat the plugs properly and that there are no visible defects in the applied product then it will be determined that the manhole has passed.

3.07 ADJUSTMENTS AND CLEANING

A. At the completion of the Work, Contractor shall remove all materials and debris associated with the Work of this Section.

B. Clean all surfaces not designated to receive Structural Epoxy coating. Restore all other work in a manner acceptable to Engineer.

C. All finished Structural Epoxy coating shall be protected from damage until Final Acceptance of the Work. Structural Epoxy coating damaged in any manner shall be repaired or replaced at the discretion of Engineer, at no additional cost to Owner.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02964 - REMOVAL AND REPLACEMENT OF SANITARY SEWER PIPE

PART 1 - GENERAL

1.01 SCOPE OF WORK

The work covered by this Section consists of furnishing all labor, supervision, equipment, appliances, materials, and performing all operations in connection with the removal and replacement of sanitary sewer lines. This may be accomplished by building a new sewer parallel to the existing one, diverting flow into it and abandoning the existing sewer, or by actually removing the existing pipe and installing new pipe in that same trench.

1.02 QUALITY ASSURANCE

A. All pipe and material to be installed under this Contract shall be inspected and tested at the place of manufacture by the manufacturers whose products have been in satisfactory and acceptable use by the industry in a similar service for not less than five (5) years.

B. Contractor shall have at least three (3) years of installation experience on projects with sewage collection line similar to that required for this project. Installers shall use an adequate number of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods as outlined by the material manufacturers for the proper installation of products in this Section.

C. Each length of pipe shall be subject to inspection, approval, and acceptance at the factory, point of delivery, and site of work. At the discretion of the Engineer, a sample of pipe to be tested shall be delivered by the Contractor to the testing laboratory approved by the Owner.

1. When the specimens tested conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameters measured. Copies of test reports shall be submitted to the Engineer before the pipe is installed in the project.

2. In the event that any of the test specimens fail to meet the applicable standards, all pipe represented by such tests shall be subject to rejection. The Contractor may furnish two (2) additional test specimens from the same shipment or delivery for each specimen that failed and the pipe will be considered acceptable if all of these additional specimens meet the requirements of the applicable standards.

3. Pipe which has been rejected by the Engineer shall be removed from the site of the work by the Contractor and replaced with pipe which meets these specifications.

1.03 SUBMITTALS

A. All products and/or materials to be used in this project shall be submitted to the Engineer in accordance with Section 01340 of Division 1 - General Requirements.

B. Manufacturers shall submit with his shop drawings any recommended installation procedures which when approved by the Engineer shall become the basis for inspecting, accepting, and/or rejecting actual installation, procedures used on this project.

C. The manufacturers shall submit in writing a certification that the product meets these specifications. Certification shall be in the format similar to the certification form shown at the end of Section 01340.

D. Mill certificates shall be furnished upon request of the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Polyvinyl Chloride (PVC) Sewer Piping

1. Pipe

Polyvinyl chloride (PVC) gravity sewer pipe four inches (4") through fifteen inches (15") diameter shall conform to the following table:

Line Depth	Specification
0' - 10'	ASTM D3034, DR35
10' - 15'	ASTM D3034, SDR26
over 15'	ASTM D2241, SDR21

Polyvinyl chloride (PVC) gravity sewer pipe eighteen inches (18") through twenty-seven inches (27") diameter shall conform to ASTM F679, (PVC) Large-Diameter Gravity Sewer Pipe and Fittings, T-1 wall.

2. Joints

Joints for PVC pipes and fittings shall be gasketed and comply with ASTM D3212. Rubber gaskets shall conform to ASTM F477.

3. Fittings

Fittings shall comply with the same requirements as pipe.

B. Ductile Iron (DI) Sewer Piping

1. Pipe

Pipe sized four inches (4") through fifty-four inches (54") shall conform to ANSI 21.51/AWWA C 151. The pipe thickness shall be designed in accordance with ANSI 21.50/AWWA C 150, as modified hereinbefore, except with an additional increment of Class thickness (approximately 0.30") on sizes four inches (4") through ten inches (10") for corrosion protection in addition to the basic design corrosion allowance of 0.080". Unless designated otherwise on the Drawings or in the proposal based on E' = 200 p.s.i., and trench depths to twenty-two feet (22'), the minimum Class thickness shall be as follows:

Nominal Size, Inches	Thickness Class
4	(51 + 1)52
6	(50 + 1)51
8-10	(51 + 1)52
12	52
14-16	53
18	54

Nominal Size, Inches	Thickness Class
20	55
24-54	56

Ductile iron pipe in sizes four inches (4") through ten inches (10") shall have cement mortar lining and bituminous seal coating on the inside in accordance with ANSI/AWWA C 104. Sizes twelve inches (12") through fifty-four inches (54") shall be lined with polyethylene or epoxy, as follows. A bonded polyethylene lining thickness shall be forty (40) mils nominal and twenty-five (25) mils minimum in pipe tapering to ten (10) mils minimum at joints. Epoxy lining shall be two (2)-coat high-build catalyzed epoxy with thickness range of eight (8) to sixteen (16) mils dry film thickness. Test lines for repair as necessary at manufacture.

Coat pipe exteriors with one (1)-mil thickness of asphalt varnish for buried service or one (1) coat of paint primer for exposed service and subsequent field painting.

Nominal maximum laying lengths shall be eighteen feet (18') or twenty feet (20').

2. Joint Materials

Mechanical joints and accessories shall conform to ANSI/AWWA C 111. The bolts and nuts shall be corrosion resistant high strength low alloy steel ("COR-TEN").

Push-on joints with rubber gaskets shall comply with ANSI A 21.11/AWWA C 111.

Connections between ductile iron and sewer pipe of other materials shall be made with special water-tight manufactured or fabricated adapters.

3. Fittings

Fittings shall comply with ANSI/AWWA C 110 for standard short bodied fittings. All fittings shall be ductile iron and gray iron shall not be permitted. The pressure rating shall be three hundred fifty (350) p.s.i. in sizes four inches (4") through twenty-four inches (24") and two hundred fifty (250) p.s.i. in sizes thirty inches (30") through fifty-four inches (54") for ductile iron.

Line fittings with standard thickness cement mortar lining and bituminous seal coating on the inside in accordance with ANSI/AWWA C 104.

All fittings shall have an exterior one (1)-mil thick bituminous coating.

C. Joining Pipe of Different Material

The joining of pipes of different materials shall be accomplished with adapters manufactured for this purpose or devices manufactured by Fernco Systems, or approved equal, with one-half inch (½") bands of 316 stainless steel. Adapters shall be Fernco Strong Back RC 1000 Series Couplings or Approved Equal.

SECTION 02964 - REMOVAL AND REPLACEMENT OF SANITARY SEWER PIPE

PART 3 - EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Notification of Utility Companies

Contractor is responsible for notifying all utility companies (prior to excavation) of work on sewer lines so that all above and underground utilities can be protected at locations identified.

B. Photographs

Contractor shall take digital photographs of the areas to be disturbed prior to beginning excavation.

3.02 INSTALLATION

A. Carefully remove or protect surface features in project area (fences, signs, shrubs, etc.) and excavate to completely expose the existing pipe.

B. Isolate the sewer line segment to be replaced and set up by-pass pumping in accordance with Section 02959 (if necessary).

C. Remove and dispose of the existing pipe.

D. Reshape the trench bottom to accommodate the new pipe and embedment called for and detailed on the Plans. Place and shape embedment material so as to form uniform support for the pipe barrel. Bell holes to be excavated so that after installation only the pipe barrel shall bear upon the trench bottom.

E. Lay the new sewer pipe on straight alignment and uniform grade beginning at its lowest point and proceeding upstream, with the bell ends facing upstream toward the direction of flow.

F. Make connections to existing manholes, cleanouts, or existing pipe remaining in place (as applicable). Install wyes or tees, with branches temporarily plugged, to make reconnections to existing lateral services, if any.

G. Perform smoke testing of new line segment in accordance with Section 02957.

H. Complete placement and compaction of backfill in accordance with Section 02315.

I. Restore surface features to at least as good condition as existed before construction began.

3.03 CONNECTIONS WITH EXISTING FACILITIES

A. Connections to existing manholes shall be in accordance with Section 02537.

B. Connections to new manholes shall be in accordance with Section 02536.

C. Connections to existing lines shall be accomplished with adapters manufactured for this purpose. (Fernco Strong Back RC 1000 series or approved equal)

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02965 - POINT REPAIRS TO SANITARY SEWER LINES

PART 1 - GENERAL

1.01 SCOPE OF WORK

This Section consists of the repairing of existing sanitary sewer lines necessitated by a structural or hydraulic defect in pipe material, alignment or grade which cannot be corrected by any means other than excavation and repair and/or replacement of a section of sewer.

1.02 DEFINITIONS

A. Classify point repairs by inside diameter of pipe, trench depth, trench length, and trench condition (wet or dry).

1. Trench Depth: Defined as distance or depth from flow line (invert or pipe) to natural ground directly above pipe.

2. Trench Length: Defined as distance in feet of excavated trench measure at pipe grade and along centerline of pipe.

3. Trench Condition: Defined as two types, either wet or dry. Wet trench defined as a trench in which well points are required to keep excavation dry in order to make repairs. Dry trench defined as a trench in which no well pointing is necessary for performing repair. Trench which fills with rain water is not a wet trench. Trench condition determined by Owner's representative.

1.03 QUALITY ASSURANCE

A. All pipe and material to be installed under this Contract shall be inspected and tested at the place of manufacture by the manufacturers whose products have been in satisfactory and acceptable use by the industry in a similar service for not less than five (5) years.

B. Contractor shall have at least three (3) years of installation experience on projects with sewage collection line similar to that required for this project. Installers shall use an adequate number of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods as outlined by the material manufacturers for the proper installation of products in this Section.

C. Each length of pipe shall be subject to inspection, approval, and acceptance at the factory, point of delivery, and site of work. At the discretion of the Engineer, a sample of pipe to be tested shall be delivered by the Contractor to the testing laboratory approved by the Owner.

1. When the specimens tested conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameters measured. Copies of test reports shall be submitted to the Engineer before the pipe is installed in the project.

2. In the event that any of the test specimens fail to meet the applicable standards, all pipe represented by such tests shall be subject to rejection. The Contractor may furnish two (2) additional test specimens from the same shipment or delivery for each specimen that failed and the pipe will be considered acceptable if all of these additional specimens meet the requirements of the applicable standards.

3. Pipe which has been rejected by the Engineer shall be removed from the site of the work by the Contractor and replaced with pipe which meets these Specifications.

1.04 SUBMITTALS

A. All products and/or materials to be used in this project shall be submitted to the Engineer in accordance with Section 01340 of Division 1 - General Requirements.

B. Manufacturers shall submit with his shop drawings any recommended installation procedures which when approved by the Engineer shall become the basis for inspecting, accepting, and/or rejecting actual installation, procedures used on this project.

C. The manufacturers shall submit in writing a certification that the product meets these Specifications. Certification shall be in the format similar to the certification form shown at the end of Section 01340.

D. Mill certificates shall be furnished upon request of the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Polyvinyl Chloride (PVC) Sewer Piping

1. Pipe

Polyvinyl chloride (PVC) gravity sewer pipe four inches (4") through fifteen inches (15") diameter shall conform to the following table:

Line Depth	Specification
0' - 10'	ASTM D3034, DR35
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over 15'	ASTM D2241, SDR21

Polyvinyl chloride (PVC) gravity sewer pipe eighteen inches (18") through twenty-seven inches (27") diameter shall conform to ASTM F679, (PVC) Large-Diameter Gravity Sewer Pipe and Fittings, T-1 wall.

2. Joints

Joints for PVC pipes and fittings shall be gasketed and comply with ASTM D3212. Rubber gaskets shall conform to ASTM F477.

3. Fittings

Fittings shall comply with the same requirements as pipe.

B. Ductile Iron (DI) Sewer Piping

1. Pipe

Pipe sized four inches (4") through fifty-four inches (54") shall conform to ANSI 21.51/AWWA C 151. The pipe thickness shall be designed in accordance with ANSI 21.50/AWWA C 150, as modified hereinbefore, except with an additional increment of Class thickness (approximately 0.30") on sizes four inches (4") through ten inches (10") for corrosion protection in addition to the basic design corrosion allowance of 0.080". Unless designated otherwise on the Drawings or in the proposal based on E' = 200 p.s.i., and trench depths to twenty-two feet (22'), the minimum Class thickness shall be as follows:

Nominal Size, Inches	Thickness Class
4	(51 + 1)52
6	(50 + 1)51
8-10	(51 + 1)52
12	52
14-16	53
18	54
20	55
24-54	56

Ductile iron pipe in sizes four inches (4") through ten inches (10") shall have cement mortar lining and bituminous seal coating on the inside in accordance with ANSI/AWWA C 104. Sizes twelve inches (12") through fifty-four inches (54") shall be lined with polyethylene or epoxy, as follows. A bonded polyethylene lining thickness shall be forty (40) mils nominal and twenty-five (25) mils minimum in pipe tapering to ten (10) mils minimum at joints. Epoxy lining shall be two (2)-coat high-build catalyzed epoxy with thickness range of eight (8) to sixteen (16) mils dry film thickness. Test lines for repair as necessary at manufacture.

Coat pipe exteriors with one (1)-mil thickness of asphalt varnish for buried service or one (1) coat of paint primer for exposed service and subsequent field painting.

Nominal maximum laying lengths shall be eighteen feet (18') or twenty feet (20').

2. Joint Materials

Mechanical joints and accessories shall conform to ANSI/AWWA C 111. The bolts and nuts shall be corrosion resistant high strength low alloy steel ("COR-TEN").

Push-on joints with rubber gaskets shall comply with ANSI A 21.11/AWWA C 111.

Connections between ductile iron and sewer pipe of other materials shall be made with special water-tight manufactured or fabricated adapters.

3. Fittings

Fittings shall comply with ANSI/AWWA C 110 for standard short bodied fittings. All fittings shall be ductile iron and gray iron shall not be permitted. The pressure rating shall be three hundred fifty (350) p.s.i. in sizes four inches (4") through twenty-four inches (24") and

two hundred fifty (250) p.s.i. in sizes thirty inches (30") through fifty-four inches (54") for ductile iron.

Line fittings with standard thickness cement mortar lining and bituminous seal coating on the inside in accordance with ANSI/AWWA C 104.

All fittings shall have an exterior one (1)-mil thick bituminous coating.

C. Joining Pipe of Different Material

The joining of pipes of different materials shall be accomplished with adapters manufactured for this purpose or devices manufactured by Fernco Systems, or approved equal, with one-half inch (½") bands of 316 stainless steel. Adapters shall be Strong Back RC 1000 Series Couplings by Fernco Systems, Inc. or approved equal.

PART 3 - EXECUTION

3.01 DETERMINATION OF NEED FOR A POINT REPAIR

A. Line Segment Schedules for Lining

Lining contractor shall be responsible for identifying and determining the locations of any conditions on the interior of the pipe which may prevent the proper installation of the liner. Contractor's determination of the need for a point repair shall be based on the following:

1. Digital Television inspection reports.

2. Inability to traverse entire sewer line segment during cleaning operations in accordance with Section 02956.

3. Inability to complete installation of liner due to structural defects in existing sanitary sewer pipe.

Point repair permitted only after cleaning operations, performed in accordance with these Specifications from both ends of pipe, have been unsuccessful. Concurrence of Owner or Owner's Representative is required prior to proceeding with repairs.

Do not construe schedule of point repairs shown on Plans as approval for a point repair. Schedule of point repairs shown is based on a sewer system evaluation survey and is not considered to have complete accurate point repair information due to smoke testing inaccuracies. Schedule is used to approximate quantities only and to give a representative sample as to field conditions for point repairs. Point repairs shall be performed in accordance with a specific work order issued by the Engineer.

B. Line Segments Scheduled for Point Repairs Only

Locations where point repairs are to be made are designated in the work orders to be issued or indicated on the work sketches, and are based on previously performed smoke tests and/or television inspection. It is understood by the Contractor that the exact location of pipe leaks and failures cannot always be determined before the pipe is exposed because the smoke injected into the existing pipe to detect their presence can migrate through passages in the earth, overburden, and may not emerge directly over the leak or failure.

It is also understood that the previously performed smoke testing and/or closed circuit television inspection cannot always determine the precise cause of leakage or failure. The pipe must be exposed and the source located, examined and evaluated before repairs are made. Additional smoke shall be introduced into the pipe by the Contractor prior to excavation to aid in the final evaluation and determination of required work.

3.02 PREPARATION

A. Notification of Utility Companies

Contractor is responsible for notifying all utility companies (prior to excavation) of work on sewer lines so that all above and underground utilities can be protected at locations identified.

B. Photographs

Contractor shall take digital photographs of the areas to be disturbed prior to beginning excavation.

3.03 INSTALLATION

A. Method and Procedure for Dry Point Repairs

1. Carefully remove or protest surface features in project area (fences, signs, shrubs, etc.) and excavate to completely expose the existing pipe.

2. Isolate the sewer line segment to be repaired and setup by-pass pumping in accordance with Section 02959 (if necessary).

3. Excavate and uncover fifteen (15) linear feet of sewer line measured along top of pipe, and expose damaged or defective sections.

4. Locate the leak to be repaired.

5. If the leak cannot be located after making the initial excavation of up to fifteen feet (15') in length, the Owner or Owner's Representative may order that additional sections of pipe be exposed. The Contractor shall not uncover additional pipe without the Owner or Owner's Representative's approval. The Contractor shall keep careful record of the work done at each location and shall obtain the Owner or Owner's Representative's signature of approval for each.

6. After the leak or failure is located and exposed, the Owner or Owner's Representative shall make an on-site decision as to the method and extent of rehabilitation. One (1) or a combination of the following methods shall be used:

   a. For sealing or closing an opening in the pipe or fitting to remain in place: Install sleeves or couplings recommended by the pipe manufacturer and approved by the Engineer. All metallic sleeves must be protected against corrosion in an approved manner.

   b. Remove and replace section(s) of pipe or fitting: Remove section(s) of defective pipe and/or fitting by cutting on each side along lines perpendicular to the longitudinal axis of the pipe so as to leave "spigot ends" to be connected to

replacement pipe. Cut or fabricate replacement section including replacement of any stacks encountered. Make connections using flexible couplings or adapters, or couplings with compression joints in accordance with ASTM C425. All bands shall be 316 Stainless Steel. Minimum length of pipe to be replaced shall be fifteen feet (15') or as directed by the Engineer. Bedding or embedment shall be placed and compacted to the pipe spring line, as described in Section 02315. Reconnect to lateral service line or private service line if required.

Where double wyes are encountered in lateral service line repairs and require a new wye and repair to the service line off the wye within the right-of-way or easement, the excavation and backfill and repair to the service line off the wye necessary for reconnection shall be considered to be a portion of the initial point repair and excavation and backfill [up to sixteen feet (16') in length]. Where the distance required to be excavated and backfilled exceeds sixteen feet (16') in length, the Contractor shall be due compensation for one additional excavation and backfill and for one (1) additional lateral service line point repair.

c. Pipe to Manhole Connections: When a sound pipe stub-out exists from a manhole to which connection is to be made, a pipe-to-pipe connection shall be made as described above. If one is not present or is faulty, an opening shall be cut in the manhole wall and the connection, consisting of a pipe stub-out with elastomeric waterstop grouted into the opening with non-shrink grout, and a flexible banded coupling as shown on the details for new manholes, shall be made. The invert or floor inside the manhole shall be cut and reshaped as necessary.

7. Test repairs by smoke testing (prior to backfilling) in accordance with Section 02957.

8. Complete placement and compaction of backfill in accordance with Section 02315.

9. Restore surface features to at least as good condition as existed before construction began.

B. Method and Procedure for Wet Point Repair

1. Carefully remove or protect surface features in project area (fences, signs, shrubs, etc.) and begin excavation.

2. Dewater trench as necessary to provide a safe and suitable working condition.

3. Sheet, shore, and brace trench as deemed necessary to protect adjacent property and/or utilities, to prevent slides, cave-ins, settlement, or movement of banks and to maintain excavation clear of obstructions which would hinder or delay progress of work.

4. Excavate and uncover twelve (12) linear feet of sewer line measured along top of pipe, and expose damaged or defective sections.

5. Locate leak to be repaired.

6. Repair leak and test in accordance with procedures outlined in Paragraphs 3.03.A.5 through A.9.

C. Abandonment of Point Repairs

1. If a field decision is made by Engineer that point repairs to an existing sewer will not sufficiently correct problems, or if Contractor excavates at approved location and does not find source of problem; then, after verification by Engineer abandon point repair and backfill excavation in accordance with Section 02315.

2. When point repair has been declared abandoned, Owner's representative to determine how to proceed or whether to re-classify line for further investigation.

D. Excavation by Hand Digging

1. There may be situations where point repairs will be repaired to be performed on mains and/or lateral services in back lot easements. These locations may be inaccessible for normal excavator operations or other digging equipment. Where it is required to perform point repairs in such locations, the Contractor shall excavate and backfill by hand. This item is only to be utilized for back lot easements where equipment cannot be accommodated and is not to be used for hand digging necessary to protect existing utilities and/or structures during typical point repairs.

E. Miscellaneous Repairs

1. Plugging Service Lines

When a service line is to be abandoned (as indicated on a work order issued by the Engineer), the line shall be exposed by excavation within the easement or right-of-way near the right-of-way or easement line. Install water-tight plug or cap to prohibit water of any type from entering the end of the service line and passing on into the main. The service line being abandoned shall be removed as necessary so as not to protrude onto private property, and its end closed by placing approximately one (1) cubic foot of 2500 psi concrete in it.

2. Replacement or Installation of Cleanouts

Cleanouts are of two (2) types namely: (1) those on sewer mains and situated on public property, and (2) those on service lines and normally on private property. The work required is also of two (2) categories and is applicable to both types of cleanouts. The first category is the replacement of cleanout plugs which are missing or are faulty with new plugs of the size and type indicated, and requiring no appreciable excavation. The other is the rehabilitation of cleanout risers in which they are exposed by excavation and, after examination by the Resident Project Representative, repaired or replaced as directed by him.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02966 - CURED-IN-PLACE PIPE (CIPP) SERVICE LATERAL CONNECTION - RECONSTRUCTION FROM MAINLINE PIPE

PART I - GENERAL

1.01 SCOPE OF WORK

A. It shall be the responsibility of the Contractor to provide labor, materials, equipment and supervision necessary to accomplish the CIPP service lateral connection of all sewer service lateral connections designated by the Engineer.

B. It is the intent of this section to provide for the rehabilitation of service lateral connection of sanitary sewer lines, normally without excavation, by the installation of a resin-impregnated, flexible, felt tube inverted into the existing service lateral utilizing a pressure apparatus positioned in the mainline pipe. Curing shall be accomplished by either circulating hot water or other approved method to cure the resin into a hard impermeable pipe-within-a-pipe. When cured, the cured-in-place pipe (CIPP) lateral connection repair should extend a length of 0 (zero) to 5 (five) feet in length from the mainline in a continuous tight fitting, watertight pipe-within-a-pipe to effect a water seal with the rehabilitated mainline pipe.

Materials shall be governed by the requirements of Section 02967 - “Cured-In-Place Pipe”. Pre-approved CIPP manufacturers are Insituform Technologies, Inc. Inliner U.S.A. and National Liner. All other products must be pre-approved by the Engineer.

1.02 REFERENCED DOCUMENTS AND SUBMITTALS

A. This Specification references American Society for Testing and Materials (ASTM) F1216 and National Association of Sewer Service Companies (NASSCO) standards which are made part hereof by such reference, and shall be the latest edition and revision thereof. If there is a conflict between these standards and this Specification, this Specification will govern.

B. The Contractor shall submit to the Engineer within thirty (30) days after the date of Notice to Proceed a list of materials to be furnished, the names of the supplier and the date of delivery of materials to the site.

1.03 PRE-QUALIFICATION

A. No product will be allowed to be bid or installed without submittal of test data supporting the following product performance requirements. Test samples shall be prepared so as to simulate installation methods and trauma of the product.

1. Chemical Resistance - The CIPP shall meet the minimum chemical resistance requirements listed below. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.

2. Chemical resistance tests should be completed in accordance with ASTM D543 with the chemical solutions shown in Table 02966-1. Exposure should be for a minimum of one (1) month at 73.4°F (23°C). During this period, the CIPP test specimens should lose no more than twenty percent (20%) of their initial flexural strength and flexural modules when tested in accordance with Section VIII.

SECTION 02966 - CURED-IN-PLACE PIPE (CIPP) SERVICE LATERAL CONNECTION - RECONSTRUCTION FROM MAINLINE PIPE

TABLE 02966-1

MINIMUM CHEMICAL RESISTANCE REQUIREMENTS FOR DOMESTIC SANITARY SEWER APPLICATIONS	
Chemical Solution	**Concentration %**
Nitric Acid	5
Tap Water (pH 6-9)	100
Phosphoric Acid	10
Sulfuric Acid	10
Gasoline	100
Vegetable Oil	100
Detergent	0.1
Soap	0.1

3. Long-Term Properties - Third party testing of a 10,000 hour external loading test, conducted in a wet environment to simulate field conditions shall be used to verify long-term design values. A minimum of eighteen (18) restrained pipe samples shall be tested, with the results extrapolated to provide fifty (50) - year data.

4. Flow Characteristics - The in-service product shall provide full flow capacity equal to at least one hundred percent (100%) of the host pipe's original capacity. Installer shall provide at least one (1) in-ground flow test, verified by a third party, which measures flow characteristics of the product in uncleaned, in-service sewers.

5. Strain-Corrosion Testing - Glass fiber reinforced products shall submit strain corrosion test data performed in accordance with ASTM D3681 without failure in eighteen (18) samples when exposed to 1.0N sulfuric acid at the following strain levels for the time periods shown:

HOURS	# OF SAMPLES	MIN. STRAIN %
10	4	0.72
100	5	0.69
1,000	5	0.67
10,000	4	0.64

6. External Hydrostatic Pressure Testing - Third party testing of external hydrostatic loading capacity of at least ten (10) restrained pipe samples shall be conducted to verify the design enhancement factor, K.

7. Soil loading - Third party soil cell testing of the product shall be provided to demonstrate structural capacity and verify design techniques.

D. The design method used for the product must be submitted for review and approval. Physical properties used in design equations must be validated by independent testing of product samples from ten (10) previous projects. Physical values derived from laboratory samples will not be allowed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The tube shall consist of one (1) or more layers of absorbent fabric capable of carrying resin, and capable of withstanding installation pressures and curing temperatures. The tube shall be compatible with the resin system used. The tube material shall be able to stretch to fit irregular pipe sections and negotiate bends. The outside layer of the tube shall be plastic coated with a material that is compatible with the resin system used. The tube should be fabricated to a size that will fit the internal circumference and the length of the existing pipe when installed. Allowance should be made for circumferential stretch during installation.

B. The minimum length shall be that deemed necessary by the Installer to effectively span the distance from the lateral connection at the main to the desired termination location, as far as practical, up to 5 feet in the service lateral pipe. The Installer shall verify the lengths in the field before the tube resin impregnation begins.

C. One end of the tube shall include a flexible, felt brim similar to the projectory edge of a top hat. This shall be a minimum 2 inches wide and shall be of the general size and angle of the service connection.

D. Tube material shall be in accordance with ASTM F1216, latest revision.

E. The resin used shall be a thermoset resin system that is compatible with the cured-in-place pipe installation. The resin shall be able to cure in the presence of water and the initiation temperature for cure shall be no more than 180°F.

F. The CIPP system felt and resin composite shall have the minimum physical properties given below when tested in accordance with ASTM F1216 by an independent laboratory:

PROPERTY	MIN. VALUE
Flexural Strength:	4,500 psi
Short Term Flexural Modules:	250,000 psi
Reduction Factor:	50%
Long Term Flexural Modules:	125,000 psi
k Enhancement Factor:	7

G. The wall color of the interior pipe surface of the CIPP after installation shall not be of a dark or nonreflective nature that could inhibit proper closed circuit television inspection.

H. The bond between all CIPP layers shall be strong and uniform. All layers, after cure, shall be completely saturated with resin.

2.02 DESIGN PARAMETERS

A. The required structural CIPP wall thickness shall be based on the minimum physical properties in Section 2.01 in accordance with the guidelines in the appendix of ASTM F1216, with the following design parameters:

Design Life:	50 years
Pipe Diameters:	Per drawings
Ovality:	2%
Pipe Condition:	Partially deteriorated
External Water:	1 foot from the ground surface
Soil Modules:	1,000 psi
Soil Density:	120 pcf
Highway Live Load:	16,000 lbs
Safety Factor:	2

B. All CIPP wall thickness (SDR's) by diameters and depth ranges must be submitted to the Engineer for approval prior to installation.

C. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the required design structural CIPP wall thickness.

PART 3 - EXECUTION

3.01 CLEANING AND INSPECTION

A. All loose internal debris should be removed from the original pipeline. Gravity pipes should be cleaned with hydraulically powered equipment, high-velocity jet cleaners, or mechanically powered equipment (Refer to Section 02956).

B. Closed Circuit Television Inspection (CCTV) of pipelines will be performed by experienced personnel trained in locating breaks, obstacles, and service connections by CCTV (see Section 02958). The interior of the pipeline should be carefully inspected to determine the location of any conditions that may prevent proper installation of the impregnated tube, such as protruding service taps, collapsed or crushed pipe, and reductions in the cross-sectional pipe area of more than forty percent (40%). The Contractor will notify the Engineer immediately if the inspection reveals an obstruction which cannot be removed by conventional sewer cleaning equipment.

3.02 FLOW CONTROL

A. Sewer flow control shall be performed as required in Section 02966 and in accordance with Section 02959.

B. The Contractor will be required to notify all parties whose service laterals will be out of service to relinquish using his services until the service line is back in service.

3.03 OBSTRUCTIONS

If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, then the Installer shall notify the Owner to request a point repair excavation to uncover and remove or repair the obstruction.

3.04 INSTALLATION

A. The Installer shall resin vacuum impregnate the felt tube prior to installation. The Installer shall allow the Owner to inspect the material and resin impregnation procedure. A catalyst system compatible with the resin and felt tube shall be used.

B. The resin-impregnated tube shall be loaded inside the pressure apparatus above ground. This devise, together with a television camera, will be used to position the pressure apparatus' inversion elbow at the service connection opening. Air pressure, or other suitable fluid, shall be used to invert the resin-impregnated tube through the lateral pipe. Sufficient pressure shall be used to cause the impregnated tube to invert completely in the lateral pipe and hold the tube tight to the pipe wall, effectively seating the brim portion of the tube tightly against the service connection.

C. The use of a lubricant during inversion is recommended to reduce friction. This lubricant should be poured into the water in the downtube or applied directly to the tube or inflation bladder. The lubricant used should be a nontoxic, oil-based product that has no detrimental effects on the tube or heat source and pump system, will not support the growth of bacteria, and will not adversely affect the fluid to be transported. Lubricant shall not be used in processes with permeable coatings.

3.05 CURING

A. After installation is completed, a suitable heat source and water recirculation equipment are required to circulate heated water throughout the pipe. The equipment should be capable of delivering hot water throughout the section to uniformly raise the water temperature above the temperature required to effect a cure of the resin. Water temperature in the line during the cure period should be as recommended by the resin and tube manufacturers.

1. The heat source should be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. Another such gauge should be placed between the impregnated tube and the pipe invert at the lining termination point to monitor the temperatures during cure.

2. Initial cure will occur during temperature heat-up and is completed when exposed portions of the new pipe appear to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to realize an exotherm or cure in the resin. After initial cure is reached, the temperature should be raised to the post-cure temperature recommended by the resin manufacturer. The post-cure temperature should be held for

a period as recommended by the resin manufacturer, during which time the recirculation of the water and cycling of the heat source to maintain the temperature continues. The curing of the CIPP must take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of soil).

3.06 COOL-DOWN

A. The Installer shall cool the hardened CIPP to a temperature below 100°F before relieving the pressure in the pressure apparatus. Cool-down may be accomplished by the introduction of cool air or water into the pressure apparatus. Care shall be taken to maintain proper pressure throughout the cure and cool-down period.

3.07 WORKMANSHIP

A. The finished CIPP shall be continuous over the entire length of an inversion run and be as free as commercially practical of defects. The lateral CIPP shall not inhibit the closed circuit television post video inspection of the mainline or service lateral pipes.

3.08 WARRANTY

During the one-year warranty period, any defects which will affect the integrity or strength of the CIPP shall be repaired at the Installer's expense in a manner mutually agreed upon by the Owner and the Installer.

After the work is completed, the Installer will provide the Engineer with a VHS format videotape showing the completed work including the restored conditions.

3.09 CLEAN-UP

Upon acceptance of the installation, the Contractor shall reinstate, to original conditions, the project area affected by his operations. The Contractor shall clean the pipe in accordance with Section 02956.

3.10 PATENTS

The Contractor shall warrant and hold harmless the Owner and Engineer against all claims of patent infringement and any loss thereof for liner pipe process used in the work.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02967 - CURED-IN-PLACE-PIPE (CIPP)

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. It shall be the responsibility of the Contractor to provide labor, materials, equipment and supervision necessary to accomplish the CIPP liner of all sewer pipe designated by the Engineer.

B. It is the intent of this Section to provide for the reconstruction of existing sewer pipe conduits by the installation of cured-in-place pipe (CIPP). A CIPP is formed by the insertion of a resin-impregnated flexible felt tube into the existing pipe. It is the intent of this Specification to provide for the reconstruction of existing pipelines and an inversion process to fit against the original conduit, and then heated to cure the resin. The finished product is a jointless, structural pipe that is formed to the existing pipe. Pre-approved CIPP manufacturers are Insituform Technologies, Inc. and INLINER U.S.A. All other products must be pre-approved by the Engineer.

1.02 REFERENCED DOCUMENTS AND SUBMITTALS

A. This Specification references American Society for Testing and Materials (ASTM) F1216 and National Association of Sewer Service Companies (NASSCO) standards which are made part hereof by such reference, and shall be the latest edition and revision thereof. If there is a conflict between these standards and this Specification, this Specification will govern.

B. The Contractor shall submit to the Engineer within thirty (30) days after the date of Notice to Proceed a list of materials to be furnished, the names of the supplier and the date of delivery of materials to the site.

1.03 PRE-QUALIFICATION

A. Pre-approved products and installers shall be classified as Commercially Acceptable.

B. To be considered Commercially Acceptable, the product and installer must demonstrate full compliance with the requirements. Products and installers deemed Commercially Acceptable will be allowed to bid as specified.

1. For a product to be considered Commercially Acceptable, a minimum of 250,000 feet or 1,000 line sections of successful wastewater collection system installations in the U.S. must be documented to assure commercial viability. In addition, the product shall have been successful in service within the wastewater collection system of the Owner (or some other city, town or parish within the State of Louisiana, Texas, or Mississippi) for a minimum of three (3) years.

2. For an installer to be considered as Commercially Acceptable, the installer must satisfy all insurance, financial, and bonding requirements of the Owner, and must have had at least three (3) years active experience in the commercial installation of the product. In addition, the installer must have successfully installed at least 250,000 feet of the product in wastewater collection systems in the United States. These installations must have had a combined minimum total of 1,000 successful internally reinstated lateral connections.

C. No product will be allowed to be bid or installed without submittal of test data supporting the following product performance requirements. Test samples shall be prepared so as to simulate installation methods and trauma of the product.

1. Chemical Resistance - The CIPP shall meet the minimum chemical resistance requirements listed below. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.

2. Chemical resistance tests should be completed in accordance with ASTM D543 with the chemical solutions shown in Table 02967-1. Exposure should be for a minimum of one (1) month at 73.4°F (23°C). During this period, the CIPP test specimens should lose no more than twenty percent (20%) of their initial flexural strength and flexural modules when tested in accordance with Section VIII.

TABLE 02967-1

MINIMUM CHEMICAL RESISTANCE REQUIREMENTS FOR DOMESTIC SANITARY SEWER APPLICATIONS	
Chemical Solution	**Concentration %**
Nitric Acid	5
Tap Water (pH 6-9)	100
Phosphoric Acid	10
Sulfuric Acid	10
Gasoline	100
Vegetable Oil	100
Detergent	0.1
Soap	0.1

3. Long-Term Properties - Third party testing of a 10,000 hour external loading test, conducted in a wet environment to simulate field conditions shall be used to verify long-term design values. A minimum of eighteen (18) restrained pipe samples shall be tested, with the results extrapolated to provide fifty (50)-year data.

4. Flow Characteristics - The in-service product shall provide full flow capacity equal to at least one hundred percent (100%) of the host pipe's original capacity. Installer shall provide at least one (1) in-ground flow test, verified by a third party, which measures flow characteristics of the product in uncleaned, in-service sewers.

5. Strain-Corrosion Testing - Glass fiber reinforced products shall submit strain corrosion test data performed in accordance with ASTM D3681 without failure in eighteen (18) samples when exposed to 1.0N sulfuric acid at the following strain levels for the time periods shown:

HOURS	# OF SAMPLES	MIN. STRAIN %
10	4	0.72
100	5	0.69
1,000	5	0.67
10,000	4	0.64

6. External Hydrostatic Pressure Testing - Third party testing of external hydrostatic loading capacity of at least ten (10) restrained pipe samples shall be conducted to verify the design enhancement factor, K.

7. Soil Loading - Third party soil cell testing of the product shall be provided to demonstrate structural capacity and verify design techniques.

D. The design method used for the product must be submitted for review and approval. Physical properties used in design equations must be validated by independent testing of product samples from ten (10) previous projects. Physical values derived from laboratory samples will not be allowed.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The tube shall consist of one (1) or more layers of absorbent fabric capable of carrying resin, and capable of withstanding installation pressures and curing temperatures. The tube shall be compatible with the resin system used. The tube material shall be able to stretch to fit irregular pipe sections and negotiate bends. The outside layer of the tube shall be plastic coated with a material that is compatible with the resin system used. The tube should be fabricated to a size that will fit the internal circumference and the length of the existing pipe when installed. Allowance should be made for circumferential stretch during installation. The outside of the tube shall be marked along its full length at regular intervals not to exceed five feet (5').

B. Tube material shall be in accordance with ASTM F1216, latest revision.

C. The resin used shall be a thermoset resin system that is compatible with the cured-in-place pipe installation. The resin shall be able to cure in the presence of water and the initiation temperature for cure shall be no more than 180°F.

D. The CIPP system felt and resin composite shall have the minimum physical properties given below when tested in accordance with ASTM F1216 by an independent laboratory:

PROPERTY	MIN. VALUE
Flexural Strength:	4,500 psi
Short Term Flexural Modules:	250,000 psi
Reduction Factor:	50%
Long Term Flexural Modules:	125,000 psi
k Enhancement Factor:	7

E. The wall color of the interior pipe surface of the CIPP after installation shall not be of a dark or nonreflective nature that could inhibit proper closed circuit television inspection.

F. The bond between all CIPP layers shall be strong and uniform. All layers, after cure, shall be completely saturated with resin.

2.02 DESIGN PARAMETERS

A. The required structural CIPP wall thickness shall be based on the minimum physical properties in Section 2.01 in accordance with the guidelines in the appendix of ASTM F1216, with the following design parameters:

Design Life:	50 years
Pipe Diameters:	Per drawings
Ovality:	2%
Pipe Condition:	Partially deteriorated
External Water:	1 foot from the ground surface
Soil Modules:	1,000 psi
Soil Density:	120 pcf
Highway Live Load:	16,000 lbs
Safety Factor:	2

B. All CIPP wall thicknesses (SDR's) by diameters and depth ranges must be submitted to the Engineer for approval prior to installation.

C. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the required design structural CIPP wall thickness.

PART 3 - EXECUTION

3.01 CLEANING AND INSPECTION

A. All loose internal debris should be removed from the original pipeline. Gravity pipes should be cleaned with hydraulically powered equipment, high-velocity jet cleaners, or mechanically powered equipment (Refer to Section 02956).

B. Closed Circuit Television Inspection (CCTV) of pipelines will be performed by experienced personnel trained in locating breaks, obstacles, and service connections by CCTV (see Section 02958). The interior of the pipeline should be carefully inspected to determine the location of any conditions that may prevent proper installation of the impregnated tube, such as protruding service taps, collapsed or crushed pipe, and reductions in the cross-sectional pipe area of more than forty percent (40%). The Contractor will notify the Engineer immediately if the inspection reveals an obstruction which cannot be removed by conventional sewer cleaning equipment.

3.02 FLOW CONTROL

A. Sewer flow control shall be performed as required in Section 02966 and in accordance with Section 02959.

B. The Contractor will be required to notify all parties whose service laterals will be out of service and to advise against water usage until the mainline is back in service.

3.03 RESIN IMPREGNATION

A. The tube shall be vacuum-impregnated with resin (wet out) under controlled conditions. The volume of resin used should be sufficient to fill all voids in the tube material at nominal thickness and diameter. The volume should be adjusted by adding excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints in the original pipe. A roller system shall be used to uniformly distribute the resin throughout the tube.

B. The Contractor shall designate a location where the CIPP will be vacuum impregnated prior to installation. The Contractor shall allow the Engineer to inspect the materials and procedures used to vacuum impregnate the tube.

3.04 INSTALLATION OF CIPP

A. The wet out tube shall be inserted through an existing manhole or approved access point by means of an inversion process and the application of a hydrostatic head sufficient to extend it to the next designated manhole or termination point. Alternately, the tube can be pulled into place and expanded by a water inversion process with an inflation bladder.

B. The inversion pressures necessary for proper installation shall be provided by the manufacturer prior to installation. Tube installation forces or pressures shall be limited so as not to stretch the tube longitudinally by more than five percent (5%) of the original length.

C. Before the installation begins, the tube manufacturer shall provide the minimum pressure required to hold the tube tight against the existing conduit, and the maximum allowable pressure so as not to damage the tube. Once the installation has started, the pressure shall be maintained between the minimum and maximum pressures until the installation has been completed.

D. The existing conduit shall be dewatered for any CIPP installation that does not use an inversion method to expand the tube against the pipe wall.

3.05 USE OF LUBRICANT

The use of a lubricant during inversion is recommended to reduce friction. This lubricant should be poured into the water in the downtube or applied directly to the tube or inflation bladder. The lubricant used should be a nontoxic, oil-based product that has no detrimental effects on the tube or heat source and pump system, will not support the growth of bacteria, and will not adversely affect the fluid to be transported. Lubricant shall not be used in processes with permeable coatings.

3.06 CURING

A. After installation is completed, a suitable heat source and water recirculation equipment are required to circulate heated water throughout the pipe. The equipment should be capable of delivering hot water throughout the section to uniformly raise the water temperature above the temperature required to effect a cure of the resin. Water temperature in the line during the cure period should be as recommended by the resin and tube manufacturers.

1. The heat source should be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. Another such gauge should be placed between the impregnated tube and the pipe invert at the lining termination point to monitor the temperatures during cure.

2. Initial cure will occur during temperature heat-up and is completed when exposed portions of the new pipe appear to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to realize an exotherm or cure in the resin. After initial cure is reached, the temperature should be raised to the post-cure temperature recommended by the resin manufacturer. The post-cure temperature should be held for a period as recommended by the resin manufacturer, during which time the recirculation of the water and cycling of the heat source to maintain the temperature continues. The curing of the CIPP must take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of soil).

3.07 COOL-DOWN

The CIPP should be cooled to a temperature below 100°F (38°C) before relieving the hydrostatic head. Cool-down may be accomplished by the introduction of cool water into the CIPP to replace water being drained from the small hole made in the down-stream end. Care should be taken in the release of the static head so that a vacuum will not be developed that could damage the newly installed pipe.

3.08 INFLATION BLADDER REMOVAL

For pulled-in place installation techniques where the inflation bladder is designed to not bond to the CIPP, all portions of the bladder material must be removed from the CIPP.

3.09 WORKMANSHIP

The finished pipe should be continuous over the entire length of an installation run and be free of dry spots, lifts, and delaminations. If these conditions are present, remove and replace the CIPP in these defective areas at no additional cost to the Owner.

If the CIPP does not fit tightly against the original pipe at its termination point(s), the space between the pipes shall be sealed. Method of sealing shall be approved by the Owner.

3.10 SERVICE LINE CONNECTIONS RESTORATION

A. After the lining has properly cured, the service line connections shall be restored without excavation using an internal cutting device and a television camera.

B. The Contractor will only be paid for one (1) service line restoration for each service line restored regardless of the number of attempts required to cut the liner to at least ninety percent (90%) of the original open area.

C. After the liner has been cured in place, the Contractor shall reopen the existing active service connections as designated by the City. After the service is reopened it shall be brushed smooth, eliminating all burns and irregularities. This shall generally be performed without excavation, and in the case of non-man entry pipe, from the interior of the pipeline by means of a television camera and a cutting device that re-establishes the service connection to the full service connection opening width and capacity. Cutting devices that use high pressure water

shall not be used since these devices may cause damage to the lateral line. When fiberglass or other reinforcing fibers are added, that may cause wicking at lateral openings, the lateral edges must be sealed with a resin mixture compatible with the tube resin. The Project Engineer reserves the right to restore service connection by excavation at certain or all locations if the quality, workmanship, and approval rating for the remote cuts is poor and restoring/correcting, without delay, all missed or faulty reconnections, as well as for any damage caused to property owners for not reconnecting the services within a reasonable amount of time or for not giving notice to the owners.

3.11 INSPECTION AND TESTING

A. Prior to commencement of the work, the Contractor shall submit to the Engineer certifications as to the liner material composition and characteristics for review and approval. During the performance of work the Contractor shall, at the Engineers direction, cut and provide two (2) samples from coiled material, delivered for installation, for testing at the Owner's expense, to verify conformance with the original certification.

B. The watertightness of the CIPP shall be gauged by monitoring the water level in the inversion tube while curing. The water testing must be done directly on the finished product and not on an intermediary hose which is not part of the finished product. Additionally there shall be no visible evidence of infiltration at the termination point of the liner.

C. After this testing is completed, the Contractor shall provide the Engineer with a VHS format video tape showing the completed installation including restored service lines.

3.12 CLEAN-UP

Upon acceptance of the installation, the Contractor shall reinstate, to original conditions, the project area affected by his operations. The Contractor shall clean the pipe in accordance with Section 02956.

3.13 PATENTS

The Contractor shall warrant and hold harmless the Owner and Engineer against all claims of patent infringement and any loss thereof for liner pipe process used in the work.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02968 - PIPE BURSTING METHOD FOR SEWER REPLACEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

This specification shall cover the rehabilitation of existing sanitary sewers by pipe bursting, a system by which the pneumatic burster unit splits the existing pipe while simultaneously installing a new polyethylene pipe of the same size or larger size pipe where the old pipe existed, then reconnect existing sewer service connections, television inspection of the polyethylene pipe, and completion of the installation in accordance with the contract documents. Only pneumatically operated equipment with either front or rear expanders for the proper connection to the polyethylene pipe will be allowed for use. The pneumatic tool must be used in conjunction with a constant tension hydraulic twin capstain which of either 20, 10 or 5 tons. The size of the winch will depend upon the diameter of the pipe to be replaced. In no case is the constant tension on the winch to exceed 20 tons.

1.02 QUALITY ASSURANCE

A. The Contractor shall be certified by the particular Pipe Bursting System Manufacturer that the company is a fully trained user of the pipe bursting system.

B. Polyethylene pipe jointing shall be performed by personnel trained in the use of butt-fusion equipment and recommended methods for new pipe connections. Personnel directly involved with installing the new pipe shall receive training in the proper methods for handling and installing the polyethylene pipe. Training shall be performed by qualified representatives.

1.03 SUBMITTALS

A. The Contractor shall submit the following information:

1. Shop drawings, catalog data and manufacturer's technical data showing complete information on material composition, physical properties, and dimensions of new pipe and fittings. Include manufacturer's recommendations for handling, storage, and repair of pipe and fittings damaged.

2. The method of construction and restoration of existing sewer service connections shall include detail drawings and written descriptions of the entire construction procedure to install the pipe, the bypass sewage flow and reconnection of sewer service connections.

3. Certification of workmen trained for installing the pipe.

4. Television inspection reports and DVDs made after the new pipe installation.

1.04 DELIVERY, STORAGE AND HANDLING

A. Transport, handle and store the pipe and fittings as recommended by the manufacturer.

B. If the new pipe and fittings become damaged before or during installation, it shall be repaired as recommended by the manufacturer or replaced as required by the Contracting Officer at the Contractor's expense, before proceeding further.

C. Deliver, store and handle other materials as required to prevent damage.

SECTION 02968 - PIPE BURSTING METHOD FOR SEWER REPLACEMENT

PART 2 – PRODUCTS

2.01 PIPING MATERIALS

A. The Polyethylene Plastic Pipe shall be high density polyethylene plastic pipe and meet the applicable requirements of ASTM F714 Polyethylene (PE) Plastic Pipe (SDR-PR) IPS, ASTM D12481 ASTM D3550.

B. The sizes of the insertions to be used shall be such to renew the sewer to its original or greater than flow capacity.

C. All pipe shall be made of virgin material. No rework except that obtained from the manufacturer's own production of the same formulation shall be used.

D. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

E. Dimension Ratio: The minimum wall thickness of the polyethylene pipe shall be SDR 17. For depths over 12 feet, polyethylene pipe shall be SDR 13.5.

F. Tests for compliance with this specification shall be made as specific herein and in accordance with the applicable ASTM Specification. A certificate with this specification shall be furnished, upon request, by the manufacturer for all material furnished under this specification. Polyethylene plastic pipe and fittings may be rejected to meet any requirements of this specification.

PART 3 - EXECUTION

3.01 EQUIPMENT

A. The pipe bursting tool shall be designed and manufactured to force its way through existing pipe materials by fragmenting the pipe and compressing the old pipe sections into the surrounding soil as it progresses. The bursting unit shall be pneumatic and shall generate sufficient force to burst and compact the existing pipe.

B. The pipe bursting tool shall be pulled through the sewer by a winch. The bursting unit shall put the polyethylene pipe with it as it moves forward. The bursting head shall incorporate a shield/expander to prevent collapse of the hole ahead of the PE pipe insertion. The pipe bursting unit shall be remotely controlled.

C. The pipe bursting tools hall be pneumatic. The bursting action of the tool shall increase the external dimensions sufficiently, causing breakage of the pipe at the same time expanding the surrounding ground. This action shall not only break the pipe but also create the void into which the burster can be winched and enables forward progress to be made. At the same time the polyethylene pipe, directly attached to the sleeve on the rear of the burster, shall also move forward.

D. The burster shall have its own forward momentum while being assisted by winching. A hydraulic winch shall give the burster friction by which it can be moved forward. To form a complete operating system, the burster must be matched to a constant tension hydraulic winching system.

SECTION 02968 - PIPE BURSTING METHOD FOR SEWER REPLACEMENT

3.02 WINCH UNIT

A. A winch shall be attached to the front of the bursting unit. The winch must automatically maintain a constant tension at a set tonnage reading to the burster in order that it may operate in an efficient manner. The winch shall ensure directional stability in keeping the unit in line.

B. The winch shall be hydraulically operated providing a constant tension throughout the operation. The winch shall be of the constant tension type but shall be fitted with a direct reading load gauge to measure the winching load.

C. The constant tension which shall supply sufficient cable in one continuous length so that the pull may be continuous between approved winching points.

D. The winch cable and cable drum must be provided with safety cage and supports so that it may be operated safely without injury to persons or property.

E. The contractor shall provide a system of guide pulleys and bracing at each manhole to minimize cable contact with the existing sewer between manholes.

F. The supports to the trench shoring in the insertion pit shall remain completely separate from the winch boom support system and shall be so designed that neither the pipe nor the winch cable shall be in contact with them.

3.03 SEWER SERVICE CONNECTIONS

A. All sewer service connections shall be identified and located prior to the pipe insertion to expedite reconnection. Upon commencement, pipe insertion shall be continuous and without interruption from one manhole to another, except as approved by the Engineer, or his representative. Upon completion of insertion of the new pipe, the contractor shall expedite the reconnection of services so as to minimize any inconvenience to the customers.

B. Connection of the new service lateral to the main line shall be accomplished by means of a compression-fit service connection. The service connection shall be specifically designed for connection to the sewer main being installed, and shall be INSERTA TEE as manufactured by Fowler Manufacturing Co. Hillsboro, Oregon, (503) 357-2110; or approved equal. Install using procedures and equipment as referenced in manufacturer's written installation instructions.

3.04 BYPASSING SEWAGE

A. The Contractor, when and where required, shall provide the necessary pumping equipment to bypass any sewage for and during the pipe bursting/replacement process. The pumps and bypass lines shall be of adequate capacity and size to handle all flows.

B. The Contractor shall be responsible for continuity of sanitary sewer service to each facility connected to the section of sewer line during the execution of the work. If sewage backup occurs and enters buildings, the Contractor shall be responsible for clean-up, repair, property damage cost and any claims.

SECTION 02968 - PIPE BURSTING METHOD FOR SEWER REPLACEMENT

3.05 TELEVISION INSPECTION

A. A post construction DVD video inspection shall be furnished by the Contractor upon completion of the reconstruction or each reach of sewer line, with stationing of services indicated. Data and stationing to be on the DVD. The Contractor shall also provide a written log of the television inspection.

3.06 CONSTRUCTION METHOD

A. The equipment used to perform the work shall be located away from buildings so as to not create noise impact. A silent engine compartment shall be provided with the winch to reduce machine noise as required to meet local requirements.

B. The Contractor shall install all pulleys, rollers, bumpers, alignment control devices and other equipment required to protect existing manholes, and to protect the pipe from damage during installation. Lubrication may be used as recommended by the manufacturer. Under no circumstances will the pipe be stressed beyond its elastic limit. Winch line is to be centered in pipe to be burst with adjustable boom.

C. The installed pipe shall be allowed to cool and relax due to tensile stressing prior to any reconnection of service lines, sealing of the annulus or backfilling of the insertion pit. This shall be conducted per the manufacturer's recommended amount of time, but not less than four hours. Sufficient excess length of new pipe, but not less than four (4) inches, shall be allowed to protrude into the manhole to provide for occurrence.

D. Following the relaxation period, the annual space may be sealed at the manhole openings. The sealing shall be made with material approved by the Engineer or his representative and shall consist of a non-shrinking cement grout that will achieve a permanent, water-tight joint. A positive and uniform draining flowline shall be poured and formed of a concrete mixture that will allow no wastewater to stand in the manhole invert.

3.07 FIELD TESTING

A. After the existing sewer is completely replaced, internally inspect with television camera and DVD as required. The finished DVD shall be continuous over the entire length of the sewer between two manholes and the sewer line is to be free from visual defects.

B. Defects which may affect the integrity or strength of the pipe in the opinion of the Resident Engineer, Contracting Officer or his representative shall be repaired or the pipe replaced at the Contractor's expense.

3.08 PIPE JOINING

A. The polyethylene pipe shall be assembled and joined at the site using the butt-fusion method to provide a leak-proof joint. Threaded or solvent-cement joints and connections are not permitted. All equipment and procedures used shall be in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel certified as fusion technicians by a manufacturer of polyethylene pipe and/or fusing equipment.

B. The butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the

Resident Engineer, Contracting Officer and/or his representative prior to insertion. All defective joints shall be cut out and replaced at no cost to Owner. Any section of the pipe with a gash, blister, abrasion, nick, scar, or other deleterious fault greater in depth than ten percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with the procedures stated above. In addition, any section of the pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling as determined by the Resident Engineer, Contracting Officer and/or his representative shall be discarded and not used.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02970 - DYE-WATER FLOODING

PART 1 - GENERAL

1.01 DESCRIPTION

Sanitary sewer line sections, at locations designated by the Owner or his authorized representative, shall be dye-water flooded to trace and identify specific defects which are causing or could cause infiltration/inflow, soil erosion and degradation of the sewer system, or other underground utilities or surface structures.

PART 2 - PRODUCTS

2.01 DYE

A. Dye shall be nontoxic, odorless, non-hazardous, and non-staining and approved for use in the application.

B. Dye shall be florescent in color for ease of detection during testing.

PART 3 - EXECUTION

3.01 METHODS

Dye-water flooding is accomplished by flooding the ground surface or a storm drain line section with dyed-water to simulate a stormwater runoff condition. Dye-water flooding will often be accomplished in conjunction with TV inspection.

The results of dye-water flooding shall be recorded on a Dye-Water Flooding Test form. The form shall be approved by the Engineer prior to commencing work. The information recorded on this form shall include location of manhole or line flooded, lines plugged, location(s) flooded along this line, location(s) leaks were observed in sewer or drain pipe, and any other pertinent information regarding the test results which would effect a rehabilitation decision.

Photographs shall be taken of the dye-water flooding in progress and, when possible, photographs shall be made of the leaks located.

Collected data shall be entered into a data management system for use in preparation of the "Evaluation Reports" as described in these Specifications.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02975 - ASPHALT CONCRETE PATCHING AND JOINT REPAIR

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this Section consists of furnishing all labor, supervision, equipment, materials, and performing all operations in connection with the patching and joint repair of existing asphaltic concrete pavements.

B. Related Sections

1. 02740 Asphaltic Concrete Paving

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asphaltic Concrete for pavement patching shall be any type mixture listed in Section 02740 of these Specifications, except Type 5B.

B. Tack coat shall be cutback asphalt (Grade RC-70 or RC-250) or emulsified asphalt (Grade SS-1, SS-1h, CRS-2, CMS-2 or CSS-1h) conforming to Section 02740 of these Specifications.

2.02 EQUIPMENT

A. Equipment furnished shall meet the requirements of Section 02740 of these Specifications.

PART 3 - EXECUTION

3.01 GENERAL CONSTRUCTION REQUIREMENTS

A. Remove existing defective surfacing and base materials to a minimum depth of eight inches (8") or deeper until firm support is reached. Excavate as directed to form a regular rectangular shaped patch.

B. Patch shall be saw cut (full depth) and extend at least eight inches (8") into sound pavement outside the defective areas. The excavation shall have neat straight lines and clean vertical cut faces.

C. Position patch so that one (1) side of the patch [one (1) set of faces] is located at a right angle to the direction of traffic flow.

D. Bottom of patch shall be of a uniform grade and cleaned of all loose or surplus material.

E. For joint repair, contact surfaces of existing pavement shall be cleaned and a thin, uniform asphaltic tack coat applied prior to placing asphaltic mixture in the joint.

SECTION 02975 - ASPHALT CONCRETE PATCHING AND JOINT REPAIR

3.02 PATCHING AND JOINT REPAIR

A. Placement of asphaltic concrete shall conform to the requirements of Section 02740 of these Specifications, except that priming of the subgrade will not be required.

B. Contact surfaces of pavement shall be cleaned and an uniform coat of asphaltic tack coat applied prior to the placement of the asphaltic concrete against them.

C. Patches shall not be overlayed for a minimum of one (1) calendar day after installation.

D. Spreading, finishing and compaction shall leave the surface smooth and level with, or slightly above, the edge of existing pavement.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02980 - RIGID PAVEMENT PATCHING AND JOINT REPAIR

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work covered by this Section consists of furnishing all labor, supervision, equipment, materials, and performing all operations in connection with the patching and joint repair of Portland cement concrete pavements.

B. Related Sections

1. 03100 Concrete Forms and Accessories
2. 03200 Concrete Reinforcement
3. 03300 Cast-in-Place Concrete
4. 03390 Concrete Curing

1.02 SUBMITTALS

A. Mix design shall be submitted to Engineer for approval in accordance with the requirements of Division 1, Section 01340.

B. Concrete mix shall be designed in accordance with ACI 211.1 and meet the following requirements:

Design Compressive Strength: 3500 psi @ 48 hours (unless noted otherwise on Drawings)

C. Trial mixes will be required for the following:

1. Mix designs containing fly ash as partial replacement for cement.

D. Review and acceptance of mix design does not release the contractor from the responsibility of producing concrete which meets the minimum requirements of this Section.

1.03 DELIVERY, STORAGE AND HANDLING

A. Requirements of this Section shall conform to the requirements of Section 03300 of these Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials shall conform to the requirements of Section 03300 of these Specifications.

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

A. Patching with Portland Cement Concrete shall conform to Section 601 of the Louisiana Standard Specifications for Roads and Bridges, except that either machine or hand finishing

methods may be used.

B. When granular material subbase is specified, the granular material shall be placed in accordance with Section 723 of the Louisiana Standard Specifications for Roads and Bridges.

END OF SECTION

DIVISION 3 - CONCRETE

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03100 - CONCRETE FORMS AND ACCESSORIES

PART 1 - GENERAL

1.01 SCOPE

A. This Section covers the requirements for concrete forms and accessories to be used in the construction of cast-in-place concrete

1.02 APPLICABLE CODES

A. ACI-347 - "Recommended Practice for Concrete Formwork"

1.03 RELATED SECTIONS

A. Section 03300 - Cast-in-place concrete

PART 2 - PRODUCTS

2.01 MATERIALS

A. Forms

Forms shall be of wood, plywood, or steel.

PART 3 - EXECUTION

3.01 ERECTION and REMOVAL

A. General Requirements

Forms shall be suitable for the work and shall conform to the shape, lines and dimensions of the structures to be built so shown on the Drawings. The Contractor shall be responsible for the adequacy of the forms and form supports. Forms shall be cleaned and inspected immediately prior to placing concrete. Temporary openings shall be provided where necessary to facilitate cleaning and inspection just prior to placing concrete. All exposed joints, edges, and corners shall have a formed three-fourths inch (¾") chamfer unless otherwise indicated on the Drawings. Concrete for footings may be placed in excavations without forms.

B. Materials for Forms

1. Forms for concrete pavements, except on curves, shall be steel; on curves, flexible or curved forms of plywood or steel may be used.

2. Forms for surfaces exposed to view shall be of steel, metal surfaces on wood, or plywood. Forms shall be built so that when removed, the concrete will be left free from offsets, fins, ridges, or other unsightly defects.

3. Wooden forms for surfaces not exposed to view may be built of sound No. 1 yellow pine, Douglas fir, or equivalent acceptable lumber, dressed on all rides and neatly fitted.

4. Forms for surfaces requiring special finishes shall be plywood with a minimum thickness of five-eighths inch (_") for straight sections and three-eighths inch (_") for curved sections. Plywood shall be made with a waterproof glue and manufactured especially for concrete form work. Plywood shall be free of raised grain, torn surfaces, worn edges, patches, or other surface defects which would impair the texture of the concrete surface.

5. Forms for beams and girder soffits shall be constructed with nominal two inch (2") lumber, and all joints shall be tight and even. Beam and girder soffits shall be sufficiently braced, shored, and wedged to prevent deflection.

C. Coating

1. Before placing the concrete, the contact surfaces of forms shall be coated with a non-staining mineral oil or suitable non-staining form coating compound or shall be given two (2) coats of nitrocellulose lacquer, except as specified otherwise. Mineral oil shall not be used on forms for surfaces which are to be painted. For surfaces not exposed to view in finished structure and when temperature is above 40° F, forms may be wetted thoroughly with clean water. All excess coating shall be removed by wiping with cloths. Reused forms shall have the contact surfaces cleaned thoroughly; those which have been coated shall be given an additional application of the coating.

D. Form Ties, Hangers, and Clamps

1. Only form ties, hangers, and clamps approved by the Engineer shall be used, and they shall be of such type no metal will be closer than one-half inch (½") from the surface. Wire ties will not be permitted. Lugs, cones, washers, or other devices which leave holes or depressions at the surface of the concrete greater than seven-eighths inch (_") diameter shall not be fitted within the forms. The spacing of form ties, hangers, and clamps shall be strictly in accordance with manufacturer's directions.

E. Removal of Forms

1. In general, forms shall not be removed until the concrete has hardened sufficiently to support its own load safely plus and superimposed loads that might be placed thereon. In any event, forms shall be left in place at least the minimum required length of time specified below, after the date of placing concrete:

Columns	2 days
Side forms for girders and beams	2 days
Bottom forms of slabs	7 days
Bottom forms of beams and girders	7 days
Walls	3 days

The removable portion of form ties shall be withdrawn from the concrete immediately after taking down the forms. The holes left by such ties shall be filled with grout and the surface shall be finished with a steel spatula or rubbed with sack cloth.

Care shall be taken in removing forms, wales, shorings, supports, and the form ties to avoid spalling in marring the concrete. The required rubbed finish and such patching as may be necessary shall be started within one (1) day after removal of the forms.

SECTION 03100 - CONCRETE FORMS AND ACCESSORIES

F. Tolerances and Variations

The Contractor shall set and maintain concrete forms to ensure that, after removal of the forms and prior to patching and finishing, no portion of the concrete work will exceed any of the tolerances specified. Variations in floor levels shall be measured before removal of supporting shores. The Contractor shall be responsible for variations due to deflection, when such results in concrete quality other than that which has been specified. Except as otherwise specified herein, tolerances shall conform to ACI-347.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SCOPE

A. This Section covers the requirements for reinforcing steel to be used in the construction of cast-in-place concrete.

1.02 RELATED SECTIONS

A. Section 03300 - Cast-in-place Concrete
B. Division 1, Section 01340 - Shop Drawings, Project Data, and Samples

1.03 SUBMITTALS

A. Shop drawings shall be submitted in accordance with Division 1, Section 01340.

1.04 DELIVERY, STORAGE AND HANDLING

A. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Manual of Standard Practice of the Concrete Reinforcement Steel Institute (CRSI). The tags shall be made of durable material and marked in a legible manner with waterproof markings. There shall be at least one (1) tag per bundle attached by wire. The tags shall show producer's name, brand or trademark, size of reinforcing, number of pieces, grade, heat number, ASTM Designation, and weight of bundle.

B. Epoxy coated reinforcing steel shall be handled in a manner to avoid damage to the coating. Bundling bands shall be padded. Bundles shall be lifted with multiple supports or strongbacks to prevent abrasion to the coating due to sag.

Patching material used by the applicator and the Contractor shall be the same as the prequalified patching material. Repairs shall be made in accordance with the patching material manufacturer's recommendations.

Repairs to the coating will be required on all damaged areas larger than one-fourth inch (¼") square. The total bar surface area covered by patching material shall not exceed two percent (2%).

Ends of coated bars cut during field fabrication shall also be coated with the patching material before rusting appears; however, the coated ends are not to be included in the two percent (2%) maximum coverage of patching material. Hairline cracks without bond loss or other minor damage on fabrication bends need not be repaired.

C. Reinforcing steel shall be stored above ground on platforms, skids or other supports and shall be protected from damage.

The various sizes, grades, and lengths shall be plainly marked and tagged to facilitate inspection.

Epoxy coated steel bars shall be unloaded and stored on the project site in a manner to avoid damage or contamination.

SECTION 03200 - CONCRETE REINFORCEMENT

PART 2 - PRODUCTS

2.01 MATERIALS

A. Reinforcing Steel

1. Steel shall be deformed bars rolled from billet-steel or rail steel and conform to the requirements of ASTM A-615 - "Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" or ASTM A-616 - "Specifications for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement". Reinforcing shall be Grade 60.

B. Tie Bars

1. Tie bars shall conform to the requirements of ASTM A-615 - "Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" or ASTM A-616 - "Specifications for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement". Tie bars shall be Grade 60.

2.02 FABRICATION

A. Bent bar reinforcement shall be cold bent to the shapes shown on the Plans. Stirrups and ties shall be bent around a pin having a diameter as specified in Table 1 below.

Table 1
Pins for Bar Bends

Bar Size	Minimum Pin Diameter
Nos. 3 through 8	6 bar diameters
Nos. 9, 10, and 11	8 bar diameters
Nos. 14 and 18	10 bar diameters

PART 3 - EXECUTION

3.01 PREPARATION

A. Before placing the reinforcing steel in the concrete, it shall be thoroughly cleaned, and shall be kept clean until the concrete is placed. If not kept clean during and after placing as specified, the steel may be required to be removed from the form, cleaned, and replaced as directed.

B. All reinforcing steel shall be placed in conformance with the spacing, splices, and sizes shown on the Drawings or as directed by the Engineer. Steel shall be fastened in position so as to prevent its possible displacement during the placing of the forms and the pouring of the concrete. Where splices in bars are allowed, the splices shall be in accordance with ACI 318-77 Standards. Bars shall be securely fastened at crossings and splices and wherever practicable shall be supported and braced with acceptable steel chairs, steel spreaders and/or cement mortar blocks cast for this purpose. Sheets of mesh or bar mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The edge lap shall not be less than one (1) mesh in width. Before any concrete is placed, the Engineer shall have inspected and approved the placement of the steel reinforcing and given permission to place the concrete.

SECTION 03200 - CONCRETE REINFORCEMENT

C. Clear minimum coverage of concrete reinforcing bars shall be as follows:

Concrete Placed Against and Exposed to Earth	3"
Formed Concrete Against Earth	2"
Beams to Ties/Stirrups	1½"
Top and Bottom Slabs	¾"

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers the requirements for cast-in-place concrete.

1.02 RELATED SECTIONS

A. Section 03100 - Concrete Forms and Accessories
B. Section 03151 - Waterstops
C. Section 03200 - Concrete Reinforcements
D. Section 03356 - Concrete Finishing
E. Section 03390 - Concrete Curing
F. Section 03932 - Concrete Repair

1.03 SUBMITTALS

A. Mix design shall be submitted to Engineer for approval in accordance with the requirements of Division 1, Section 01340.

B. Concrete mix shall be designed in accordance with ACI 211.1 and meet the following requirements:

Design Compressive Strength - 3000 psi @ 28 days (unless noted otherwise on Plans)

C. Trial mixes will be required for the following:

1. Mix designs containing fly ash as partial replacement for cement.

D. Review and acceptance of mix design does not release the Contractor from the responsibility of producing concrete which meets the minimum requirements of this Section.

1.04 DELIVERY, STORAGE AND HANDLING

A. Cement and Fly Ash

1. Transport in watertight conveyances and store in silos or other approved facilities so that protection from dampness or water intrusion is maintained.

2. Cement or fly ash which becomes contaminated, partially set or contains lumps of caked material will be rejected.

3. When the use of bagged cement or fly ash is permitted, the handling and storage will be as directed.

4. Different brands or types or the same brand or type from different mills shall not be mixed or used alternately unless authorized by the Engineer. Exception to this requirement may be allowed in case of plant breakdown during production to allow concrete to be furnished from another plant to finish the placement in progress.

B. Aggregates

1. Equipment and methods for stockpiling aggregates shall be such that:

   a. No detrimental degradation or segregation of aggregate will result.

   b. No appreciable amount of foreign material will be incorporated into aggregate.

   c. There will be no intermingling of stockpiled materials.

C. Concrete

1. Provide sufficient plant capacity and transporting apparatus to ensure delivery at the required rate. Rate of delivery during concrete operations shall provide for proper handling, placing and finishing of concrete and maintaining a workable surface.

2. Methods of delivery and handling concrete shall facilitate placing with a minimum of rehandling and without damage to the structure or concrete.

3. Concrete shall not be placed after initial set has been reached when tested in accordance with ASTM C953.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Portland Cement

1. Cement shall be Type I, conforming to ASTM C150.

B. Portland - Pozzolan Cement

1. Portland - Pozzolan Cement shall conform to ASTM C595, Type IP and shall contain twenty percent (20%) plus or minus five percent (±5%) by weight fly ash.

2. Alkali content calculated as sodium oxide equivalent shall not exceed 0.60% by weight.

3. Fly ash shall conform to ASTM C618, Class C or F, except that loss of ignition shall not exceed six percent (6%) by weight.

C. Aggregates

1. Fine Aggregates

   a. Fine aggregates for concrete shall meet the requirements of ASTM C33, latest revision.

2. Course Aggregates

   a. Course aggregates for concrete shall meet the requirements of ASTM C33, latest revision. Maximum size shall be one inch (1").

The following maximum limitations shall apply:

Soft particles:	2.0%
Chert as soft impurity (defined in Table 3 of ASTM C33):	1.0%
Total of soft particles and chert as a soft impurity:	2.0%
Flat and elongated particles [long dimensions more than five (5) times short dimensions]:	15.0%

D. Admixtures

A retarding densifier, such as "Plasiment" by Sika Corporation or equal, conforming to ASTM C494 Type D shall be used in all concrete for liquid holding or conveying structures. The dosage shall be as recommended by the manufacturers representative, who shall supervise it as addition to the concrete mix.

Except as specified herein, admixtures will be permitted to be used in concrete only with written permission of the Engineer and subject to the following:

1. An admixture shall be shown capable of maintaining essentially the same composition and performance throughout the work.

2. Admixtures containing chloride ions shall not be used if their use will produce a deleterious concentration of chloride ion in the mixing water.

3. Air-entraining admixtures, retarding admixtures, accelerating admixtures, water-reducing and retarding admixtures, and water-reducing and accelerating admixtures shall conform to "Specification for Chemical Admixtures for Concrete," ASTM C494, latest revision.

E. Water

Water for use in concrete shall be reasonably clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. Water which is suitable for drinking or ordinary household uses may be accepted for use with the cement without being tested.

F. Expansion Joint Filler

Expansion joints shall be made using one-half inch (½") premolder joint filler conforming to ASTM D1751, latest edition. Joint filler shall be Sonoelastic SL1 as manufactured by Sonneborne or approved equal.

G. Cement Grout

Concrete material for grouting around pipes, repairing holes and grouting under machinery and equipment shall be a non-shrink, pre-mixed mortar. Grout shall conform to Corps of Engineers Specification CRD-C-588-78, latest revision. The mix shall attain a compressive strength of at least 7,500 psi after seven (7) days and 9,000 psi after twenty-eight (28) days. Grout shall be mixed as directed by the manufacturer.

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 3 - EXECUTION

3.01 MIX PROPORTIONING

A. Liquid Holding and Conveying Structures

Concrete shall be watertight and resistant to naturally occurring or commonly used chemicals. All material shall be so proportioned as to produce a well graded mixture of high density and maximum workability, with a specified twenty-eight (28) day compressive strength as required. The concrete shall be proportioned in accordance with ACI 211 Standards, latest revision, subject to the following special requirements:

1. Maximum aggregate size shall be one inch (1").

2. Minimum cement content shall be 564 lbs. per cubic yard of concrete.

3. Maximum water-cement ratio: 0.45. If a Pozzolan is used in the concrete the maximum water-cement plus Pozzolan ratio should be 0.45.

4. Air content (as determined in accordance with ASTM C231 or ASTM C173, latest revision) shall be plus or minus one percent (±1%).

5. Slump, as determined in accordance with ASTM C143, latest revision:

   -1 inch minimum

   -3 inch maximum for footings, caissons, substructure walls

   -4 inch maximum for slabs, beams, reinforced walls, columns

B. Other Structures

Mix proportioning for other structures shall be in accordance with Chapter 3 of ACI 301-72, latest revision.

3.02 MIXING AND BATCHING

Concrete shall be mixed only in quantities needed for current use. Concrete which shows evidence of partial set or which has been retempered or remixed shall not be used. Mixing shall be in accordance with ACI 301-72, latest revision.

A. Machine Mixing

If the concrete is to be mixed at the job site, an approved batch mixer shall be used, except when otherwise authorized by the Engineer. The mixer shall be capable of combining the aggregates, cement, and water within the specified time into a thoroughly mixed and uniform mass, and discharging the concrete without segregation. The mixer shall be equipped with an approved batch meter and timing device which will automatically lock the discharge lever during the time of mixing, and a means of accurately measuring the water, unless otherwise authorized. Before any mixing is begun, all equipment used in the mixing operation shall be thoroughly cleaned of all loose particles of old concrete, left over aggregates, ice, debris and other such foreign substances.

Each batch of concrete shall be mixed for one and one-half (1½) minutes after all the material composing the batch, including the water, have been deposited simultaneously in the mixture drum. The mixer shall be entirely emptied after each batch.

Hand mixing will not be permitted.

B. Ready Mixed Concrete

Ready mixed concrete shall include both central mixed and transit mixed concrete, and all the specification requirements covering materials, proportioning, and mixing, and batching, as set forth in the ASTM Standards for "Ready Mixed Concrete," C 94, latest revision, shall apply unless otherwise specified herein. The concrete shall be delivered and placed in the work no later than one hundred twenty (120) minutes after the water has been added, provided that mixing has been continuous in the truck agitator. When ready mixture concrete is used for a continuously poured concrete section, the elapsed time between batches shall be no more than twenty (20) minutes. Non-agitating type trucks shall not be used to haul ready mixed concrete under any circumstances.

1. Transit Mixed Concrete

When the concrete is transit mixed, the truck mixer shall be of an approved revolving drum or revolving blade type.

2. Central Mixed Concrete

When a central mixing plan is used the concrete shall be delivered in approved truck agitators or truck mixers.

C. Retempering

Retempering will not be permitted except in case of emergency and only then in accordance with special instructions of the Engineer. In general, all concrete or mortar which has partially hardened shall be wasted and not used in the work.

The Contractor shall provide sufficient and suitable equipment and labor to assure that the concrete when deposited in the forms shall have the quality and consistency specified regardless of the methods of transporting, handling, placing, and working.

1. Transporting and Placing Concrete:

Concrete shall be transported and placed by methods which will prevent segregation or loss of materials.

D. Joints

1. Expansion Joints

Expansion joints shall be made at intervals not exceeding thirty feet (30') and at all junctions of new concrete with existing curbs, buildings, structures, walks, and drives.

2. Construction Joints

When the placing of concrete is suspended, all necessary groves or construction joints for joining future work shall be made before the concrete has had time to set. All construction joints shall be made in accordance with ACI 301-72, latest revision.

a. Location

The location of construction joints other than those indicated on the Drawings shall be approved by the Engineer prior to commencing work on any structure. They shall be designed and located so as not to impair the strength and appearance of the structure. All joints shall be either horizontal or vertical, unless otherwise shown on the Drawings or approved by the Engineer.

b. Keys

Keys shall be provided in all construction joints. Unless otherwise stipulated, the width of the keys shall be approximately one-third (_) of the width of the section at that point and their depth one-third (_) of the width.

3. Dummy Construction Joints

Dummy construction joints shall be made at intervals of five feet (5') on sidewalks.

E. Bonding Concrete and Grouting Anchor Bolts and Dowels

High strength epoxy adhesive shall be used wherever it is necessary to:

1. Bond new concrete to old concrete or to dissimilar materials such as steel, wood, brick, and plastics.

2. Grout anchor bolts, rebars, and dowels in structures.

For steel surfaces, the Contractor shall remove all oil, dirt, and contaminants with degreaser solvents and detergent. The surface will then be sandblasted and all sand and dust removed from the surface.

For concrete surfaces, the Contractor shall remove all oil, dirt, and contaminants followed by sandblasting or mechanically removing laitance from the surface. Surface shall be free of dust and standing water.

Application methods and rates shall be as per the manufacturer's instructions.

F. Pipes, Castings, and Conduits Embedded in Concrete

The Contractor shall do everything possible to have all castings and inserts delivered to the work, so that they may be placed in the forms and concreted in place. In case any castings and inserts are not in the job, the Contractor shall build keyed forms for the openings into which he can later place such castings or inserts. After the concrete is placed around the form, the Contractor shall remove the forms from the openings and prepare the opening for placing of the casting or insert. After the casting or insert is placed, he will then build forms for concreting the opening around the casting; such forms shall be so constructed that the concrete or mortar in the highest point can be poured under a head of concrete or mortar of not less than six

inches (6") and shall in every way meet with the approval of the Engineer. Where basins holding water or other liquids are involved or where leakage through the concrete so placed may occur, the concrete shall contain a waterproofing agent approved by the Engineer. All such waterproofing agents shall be used in strict accordance with the manufacturer's instructions. The Contractor shall be responsible for the watertightness of the concrete work and shall remove the forms and finish the concrete in a thorough, competent, and workmanlike manner.

G. Cement Grout

Concrete material for grouting around pipes, repairing holes and grouting under machinery and equipment, shall be a non-shrink pre-mixed mortar approved by the Engineer. The non-shrink mortar shall be terminated one inch (1") below the finished surface and the final inch shall be a conventional mortar material applied in a workmanlike manner to provide a neat appearing finished surface.

Cracks and marred areas are to be repaired and grouted throughout the entire concrete structure.

3.04 TESTING

A. Slump Tests

Slump tests, if ordered by the Engineer, shall be made at frequent intervals on the concrete which is to be incorporated into the work.

Failure of the concrete to satisfy the slump test shall be sufficient reason for removal of the concrete and replacement with satisfactory concrete, if, in the opinion of the Engineer, such concrete is unfit for the purpose for which it was designed. The slump test shall be performed in accordance with ASTM C143, "Slump Test," latest revision.

B. Test Cylinders

One (1) set of test cylinders shall be obtained for each day's pour or one (1) set for each seventy-five (75) yards poured per day. Cylinders falling below the minimum compressive strength, as hereafter specified, will be sufficient reason for the removal of the concrete and replacement with satisfactory concrete, if, in the opinion of the Engineer, such concrete is unfit for the purpose for which it was designed.

One (1) set of test cylinders shall include four (4) test cylinders six inches (6") in diameter and twelve inches (12") high. Two (2) cylinders shall be tested at seven (7) days and two (2) cylinders shall be tested at twenty-eight (28) days. These cylinders shall be made and tested in accordance with ASTM C31 and ASTM C39, latest revisions.

The making, curing, and testing of selected concrete cylinders shall be performed by a certified, independent laboratory, selected by the Engineer and paid for by the Owner.

Should the concrete fail to meet the specified twenty-eight (28) day strength, the Engineer may order tests on the hardened concrete as described in Section 1704 of ACI 301-72. If the concrete is cored and the cores fail to meet the specified twenty-eight (28) day strength, corrective actions as determined by the Engineer, shall be required by the Contractor. All such costs for the additional testing required as well as the cost for the corrective actions necessary to meet this specification shall be borne by the Contractor.

END OF SECTION

SECTION 03356 - CONCRETE FINISHING

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers the requirements for finishing exposed exterior and interior concrete surfaces.

1.02 RELATED SECTIONS

A. Section 03100 - Concrete Forms and Accessories
B. Section 03300 - Cast-in-Place Concrete
C. Section 03390 - Concrete Curing

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 STRUCTURES AND WATER CARRYING CONDUITS

A. Where not otherwise indicated on the Drawings, the top and bottom slabs of all structures and water carrying conduits shall be finished as follows:

1. The top of the slab shall be:

a. Screeded to grade and cross section.

b. Lightly tamped as required to bring up a good bed of mortar for finishing and re-seeded as necessary.

c. Given a final wood and broom finish with a smooth surface which conforms with accuracy to required shape, slope, and grade.

2. No further finish beyond Paragraph 1(b) above will be required on top slabs, structures, or conduits which are to be buried.

3. Slabs shall be edged as appropriate.

B. Holes produced by form ties, any other holes, honeycomb spots, broken corners or edges, and other defects on all surfaces shall be thoroughly cleaned and, where necessary, cut back to homogenous concrete. These surfaces shall be saturated with water and carefully pointed and trued with mortar composed of one (1) part of Portland Cement and two (2) parts of sand so that a smooth, even surface of uniform color and texture results.

C. The exposed tops of walls of structures shall be brought to true level, floated to bring a workable grout to the surface, struck off and releveled where necessary with cement grout of the same proportions as the mortar of the concrete. The wall tops shall then be float finished and edged unless otherwise indicated on the Drawings. The edger used shall be of one-half inch (½") radius and shall have its flanges ground to a knife edge so as to have as little burr as possible.

SECTION 03356 - CONCRETE FINISHING

D. Rubbing and Grinding

1. In general, all concrete exposed permanently to view including the inside of basins constructed to hold water [to one foot six inches (1'6") below normal water level] shall be finished by wet rubbing. Where such wet rubbing is required, the forms shall be removed from the concrete as quickly as possible and the rubbing accomplished mechanically by a slow speed grinding wheel or manually with No. 20 carborundum stones. During the rubbing process, the concrete shall be kept thoroughly wetted and the rubbing continued until all form marks, fins, and other such irregularities have been removed and until the entire surface of the concrete is of smooth, even texture and is uniform in color. Where wet rubbing is accomplished manually, the final rubbing shall be accomplished with No. 40 carborundum stones.

2. After the concrete has hardened beyond the point where wet rubbing will be effective, it shall be accomplished mechanically with high speed grinding wheels or disks satisfactory for the purpose. Where air holes must be filled and the dry grinding is to effect the finished surface, the concrete shall first be painted with a coating of wet cement paste and then ground with a slower speed machine until the desired surface texture is obtained; additional cement paste and water shall be added as needed.

E. Building Floors

1. After the concrete has been placed, spread and compacted as specified, the floor shall be screened or struck off to the proper level. When the concrete has hardened to the point where it can no longer be dented with the finger or only a slight amount of moisture comes to the surface, it shall then be floated, mechanically with machines designed for this purpose or by hand with wooden floats. The floating shall be continued until all hollows have been filled and an even sandstone-like surface achieved.

2. A chemical hardener shall be applied to exposed interior floor of the buildings in accordance with the manufacturer's recommendations. The hardener shall be approved by the Engineer.

3. Finishes shall be as indicated below:

Area	Type Finish
Interior Floors	Light Broom
Sidewalks	Light Broom

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03390 - CURING

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers the requirements for the curing of cast-in-place concrete.

1.02 RELATED SECTIONS

A. Section 03300 - Cast-in-Place Cement
B. Section 03356 - Concrete Finishing

PART 2 - PRODUCTS

2.01 CURING COMPOUNDS

Curing compound shall:

A. Conform to ASTM C156, latest revision.

B. Be of a nature and composition not deleterious to concrete.

C. Be ready to use as shipped by the manufacturer.

D. Adhere to moist concrete and which will not disintegrate, crack, peel, nor show signs of such deterioration within thirty (30) days after application under weather and working conditions.

E. Be effective in limiting the water loss in the concrete to three and one-half percent (3½%) when applied at the rate of coverage recommended by the manufacturer.

PART 3 - EXECUTION

3.01 STRUCTURES AND WATER CARRYING CONDUITS

All concrete surfaces normally exposed to the atmosphere shall be protected against too rapid drying by curing for a minimum period of seven (7) days.

Concrete being cured shall be wet down as often as is necessary to keep it continually wet. Vertical surfaces shall be protected from too rapid drying by being covered with burlap or other suitable blanket material kept continuously wet for a period of seven (7) days.

3.02 BUILDING FLOORS

A. Membrane Curing

Membrane curing shall be accomplished by coating the entire exposed surface of the concrete with the liquid compound at the rate recommended by the manufacturer.

END OF SECTION