

PROJECT MANUAL

FOR

**I-49 N SERVICE ROAD
WATERLINE EXTENSION
MGA PROJECT W321**

FOR THE

**CITY OF OPELOUSAS
P.O. BOX 1879
OPELOUSAS, LOUISIANA 70571-1879
PWS ID NO. 1097010**

PREPARED BY:

**MORGAN GOUDEAU & ASSOCIATES, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
1703 WEST LANDRY STREET
OPELOUSAS, LA 70570
PHONE: (337) 948-4222**

SEPTEMBER 2025

MGA



LDH TRACKING ID. 60006370

**I-49 N. SERVICE ROAD
WATERLINE EXTENSION**

**CITY OF OPELOUSAS
P.O. BOX 1879
OPELOUSAS, LOUISIANA 70571-1879
MGA PROJECT W321**

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.



**KENNETH BOAGNI, III, P.E., P.L.S.
LICENSE NO. 31312
September 25, 2025**



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ADVERTISEMENT FOR BIDS

Sealed bids will be received by the City of Opelousas, up to the hour of 10:00 o'clock a.m. CDST 105 N. Main Street Opelousas, Louisiana, 70570 on

TUESDAY, OCTOBER 28, 2025

and shall at that time and place publicly open the bids and read them aloud, for 8" waterline extension on I-49 N Service Road including all necessary labor, materials, equipment, tools, etc., required as set forth in the Bid Documents of Morgan Goudeau & Associates, Inc. for I-49 N. Service Road Waterline Extension 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.eauctionservices.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 **One Hundred (\$100.00)** dollars for each set of documents. Copies of Bid Documents can be provided in electronic format (PDF) at no cost. 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 **One Hundred (\$100.00)** 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.eauctionservices.com/>. 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. A \$300.00 Electronic Platform Fee will be payable upon award by the awarded vendor whether having submitted a bid by sealed envelope or electronically. Classification of Contractor's License - **Municipal and Public Works**.

Bids shall be enclosed in a sealed envelope addressed to Julius Alsandor, Mayor, City of Opelousas, Opelousas, Louisiana and plainly marked on the outside, "Bid for **I-49 N. Service Road Waterline Extension**, MGA Project **W321** and must include Contractor's License Number on the bid envelope. The Attention of Bidders is called particularly to the Instructions to Bidder's in the Project Manual regarding specific requirements for submitting a bid for the project and bids submitted must conform to all requirements of Public Bid Law. Bids must be accompanied by a certified check or bid bond in the amount equal to 5% of the bid, made payable to the City of Opelousas, 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.

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.

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 25th day of September 2025.

Julius Alsandor
Mayor

Attest: Leisa Anderson
City Clerk

ADVERTISE: **OCTOBER 1, 8, 15, 2025 (3)**

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

INSTRUCTIONS TO BIDDERS

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 the Low Bidder's qualifications to perform the Work, after submitting its Bid and within Ten (10) days of Owner's request, the Low Bidder must submit the following information:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. Subcontractor and Supplier qualification information. A Bidder's failure to submit required qualification information within the time indicated may disqualify Bidder from receiving an award of the Contract.
- 3.02 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

INSTRUCTIONS TO BIDDERS

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.
4. *Geotechnical Baseline Report/Geotechnical Data Report:* The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).
 - a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.
 - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
 - c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

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- d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.
 - 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 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 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. Bidders visiting the Site are required to arrange their own transportation to the Site.
 - C. Bidder must conduct the required Site visit during normal working hours.
 - D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - E. 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, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
 - F. 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

INSTRUCTIONS TO BIDDERS

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.

- G. 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.

5.05 *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 Kenneth Boagni, III, P.E., P.L.S., Morgan Goudeau & Associates, Inc., 1703 West Landry Street, Opelousas, LA 70570, Phone: 337-948-4222, Fax: 337-942-1208, Email: kenny@morgangoudeau.com.**

- 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

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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), or in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions and in conformance with LA R.S. 38§2218.C as follows: "If bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A-rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents." 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.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 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

INSTRUCTIONS TO BIDDERS

equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum in accordance with LA R.S. 38§2295 as follows:

- 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.
 - B. When in specifications or contract documents a particular brand, make of material, device, or equipment or specified, such brand, make of material, device, or equipment shall be regarded merely as a standard.
 - C. When in specifications or contract documents an architect or 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.
 - D. 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 working days prior to the opening of bids. Within three days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted.
- 10.02 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 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.
- 10.03 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. **None**

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- 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.
- 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.

INSTRUCTIONS TO BIDDERS

- 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 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.

INSTRUCTIONS TO BIDDERS

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.

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.~~ **DELETED**

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

INSTRUCTIONS TO BIDDERS

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 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

INSTRUCTIONS TO BIDDERS

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.
- 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".

**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: I-49 N. SERVICE ROAD WATERLINE EXTENSION
MGA PROJECT W321
(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: September, 2025**
(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 part 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: I-49 N. SERVICE ROAD WATERLINE EXTENSION
 MGA PROJECT W321
 (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 :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Project Mobilization		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
1	1	L.S.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 10" PE 3408 (DR-11) waterline		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
2	440	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 8" PVC (C-900, DR-25) waterline		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
3	2,660	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Directional bore 10" waterline		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
4	440	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Jack or bore 8" waterline		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
5	540	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 12" x 8" tapping sleeve and valve		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
6	1	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: I-49 N. SERVICE ROAD WATERLINE EXTENSION
 MGA PROJECT W321
 (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 stated in figures and only in figures.

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 8" x 8" tapping sleeve and valve		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
7	1	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 8" insertion valve and sleeve		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
8	1	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 8" valve and box		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
9	4	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 6" 3-way fire hydrant assembly w/ 6" valve and box, per detail		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
10	3	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Ductile iron fittings		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
11	1.25	Ton		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Transfer existing 3/4" water service to new 8" PVC waterline		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
12	6	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: I-49 N. SERVICE ROAD WATERLINE EXTENSION
MGA PROJECT W321
(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 stated in figures and only in figures.

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Install new 3/4" water service and meter (to be provided by City)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
13	1	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 3/4" PE 3408 (DR-9) water service line		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
14	420	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Jack or bore 3/4" service line		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
15	240	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install 3/4" lockable meter curb stop		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
16	7	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Plug and abandon existing 2" waterline, inclusive of all fittings, labor and equipment		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
17	1	Each		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Limestone for bedding and maintenance		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
18	10	Ton		

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: I-49 N. SERVICE ROAD WATERLINE EXTENSION
MGA PROJECT W321
(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 stated in figures and only in figures.

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Fillcrete backfill		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
19	10	C.Y.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ P.C. Concrete pavement restoration (5" min)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
20	10	S.Y.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Asphaltic concrete pavement restoration		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
21	10	Ton		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Sawcut existing pavement (full depth)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
22	100	L.F.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Temporary signs and barricades (Traffic Control)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
23	1	L.S.		

DESCRIPTION :		<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt. # ____ Furnish and install fiberglass water valve marker		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>
24	10	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.

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 Name: [Full formal name of Bidder] Address <i>(principal place of business)</i> : [Address of Bidder's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: City of Opelousas Address <i>(principal place of business)</i> : P.O. Box 1879 Opelousas, LA 70571-1879	Bid Project <i>(name and location)</i> : I-49 N. SERVICE ROAD WATERLINE EXTENSION MGA PROJECT W321 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
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>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.</i>	

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.

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
OWNER**

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **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:

Installation of approximately 3,100 feet of waterline within DOTD right-of-way at 1-49 N. Service Road along with fire hydrants, valves, fittings and service lines.

ARTICLE 2—THE PROJECT

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

**I-49 N. SERVICE ROAD WATERLINE EXTENSION
MGA PROJECT W321**

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 75 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 120 calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the 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 \$250.00 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 \$250.00 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.

4.04 *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.

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. Contractor's Applications for Payment inclusive of request for materials stored on site shall require invoices for the material, stored on site and confirmed by the Engineer.
 - 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. Ninety (90%) percent of the value of the Work completed (with the balance being retainage).
 - b. Ninety (90%) 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 Ninety (90%) percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less one hundred (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 eight (8%) percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 - 1. This Agreement.
 - 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 10 sheets with each sheet bearing the following general title: **I-49 N. SERVICE ROAD WATERLINE EXTENSION**
 - 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.
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.
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.
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, (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.

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

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

Owner:

CITY OF OPELOUSAS

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

JULIUS ALSANDOR

(typed or printed)

Title:

MAYOR

(typed or printed)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

CITY OF OPELOUSAS

P.O. BOX 1879

OPELOUSAS, LA 70571-1879

Designated Representative:

Name:

JULIUS ALSANDOR

(typed or printed)

Title:

MAYOR

(typed or printed)

Address:

CITY OF OPELOUSAS

P.O. BOX 1879

OPELOUSAS, LA 70571-1879

Phone:

337-948-2520

Email:

MAYORALSANDOR@CITYOFOPELOUSAS.COM

(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.)

Contractor:

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

(If **[Type of Entity]** is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

License No.:

(where applicable)

State:

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, _____, (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:

**I-49 N. SERVICE ROAD WATERLINE EXTENSION
MGA PROJECT W321**

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 its 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.

CONTRACTOR

WITNESS DATE

WITNESS DATE

Sworn to and subscribed before me on this ____ day of _____, 20__

Notary Public

CITY OF OPELOUSAS

OWNER

WITNESS DATE

WITNESS DATE

Sworn to and subscribed before me on this ____ day of _____, 20__

Notary Public

**DOCUMENTS
TO BE COMPLETED BY
SUCCESSFUL BIDDER**

NOTICE OF AWARD

Date of Issuance:

Owner: CITY OF OPELOUSAS Owner's Project No.: W321
Engineer: MORGAN GOUDEAU & ASSOCIATES, INC. Engineer's Project W321
Project: I-49 N. SERVICE ROAD WATERLINE EXTENSION
Contract Name: I-49 N. SERVICE ROAD WATERLINE EXTENSION
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:

Installation of approximately 3,100 feet of waterline within DOTD right-of-way at 1-49 N. Service Road along with fire hydrants, valves, fittings and service lines.

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.

TWO (2) 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 **TWO (2)** 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

ACCEPTANCE OF NOTICE

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

BY: _____
TITLE: MAYOR

this the _____ day of _____ 2025.

By: _____
Title: _____

PERFORMANCE BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: CITY OF OPELOUSAS Mailing address <i>(principal place of business)</i> : P.O. BOX 1879 OPELOUSAS, LA 70571-1879	Contract Description <i>(name and location)</i> : I-49 N. SERVICE ROAD WATERLINE EXTENSION MGA PROJECT W321 Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> 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
<i>(Full formal name of Contractor)</i> <hr/>	<i>(Full formal name of Surety) (corporate seal)</i> <hr/>
By: <hr/> <div style="text-align: center;"><i>(Signature)</i></div>	By: <hr/> <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: <hr/> <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: <hr/> <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: <hr/>	Title: <hr/>
Attest: <hr/> <div style="text-align: center;"><i>(Signature)</i></div>	Attest: <hr/> <div style="text-align: center;"><i>(Signature)</i></div>
Name: <hr/> <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: <hr/> <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: <hr/>	Title: <hr/>
<i>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.</i>	

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:

- 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

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”]**

PAYMENT BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: CITY OF OPELOUSAS Mailing address <i>(principal place of business)</i> : P.O. BOX 1879 OPELOUSAS, LA 70571-1879	Contract Description <i>(name and location)</i> : I-49 N. SERVICE ROAD WATERLINE EXTENSION MGA PROJECT W321 Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> 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
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>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.</i>	

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.

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;

- 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"]**

**DOCUMENTS
TO BE UTILIZED DURING
CONSTRUCTION**

NOTICE TO PROCEED

Owner: CITY OF OPELOUSAS Owner's Project No.: W321
Engineer: MORGAN GOUDEAU & ASSOC, INC. Engineer's Project No.: W321
Contractor: _____ Contractor's Project No.: _____
Project: I-49 N. SERVICE ROAD WATERLINE EXTENSION
Contract Name: I-49 N. SERVICE ROAD WATERLINE EXTENSION
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: **[Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]**

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** calendar days 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 **[number of days, from Agreement]** calendar days 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 \$_____ per day in accordance with Article 4.03 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 _____, 2025

By: _____

Title: _____



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

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:

I-49 N. SERVICE ROAD WATERLINE EXTENSION, MGA PROJECT W321

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.

Contractor's Application for Payment

Owner: <u>CITY OF OPELOUSAS</u>	Owner's Project No.: <u>W321</u>
Engineer: <u>MORGAN GOUDEAU & ASSOC, INC.</u>	Engineer's Project No.: <u>W321</u>
Contractor: _____	Contractor's Project No.: _____
Project: <u>I-49 N. SERVICE ROAD WATERLINE EXTENSION</u>	
Contract: <u>I-49 N. SERVICE ROAD WATERLINE EXTENSION</u>	
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 G Lump Sum Total and Column J Unit Price Total)	\$ -
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: _____	Title: _____
Date: _____	Date: _____
Approved by Funding Agency	
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

Contractor's Application for Payment

Owner's Project No.:	W321
Engineer's Project No.:	W321
Contractor's Project No.:	

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Contractor's Application for Payment

Owner's Project No.:	W321
Engineer's Project No.:	W321
Contractor's Project No.:	

Application No.: _____ Application Period: From _____ to _____ Application Date: _____

Original Contract and Change Orders									
Project Totals	\$	-		\$	-	\$	-	\$	-

CHANGE ORDER NO.: [Number of Change Order]

Owner: CITY OF OPELOUSAS Owner's Project No.: W321
Engineer: MORGAN GOUDEAU & ASSOCIATES, INC. Engineer's Project No.: W321
Contractor: Contractor's Project No.:
Project: I-49 N. SERVICE ROAD WATERLINE EXTENSION
Contract Name: I-49 N. SERVICE ROAD WATERLINE EXTENSION
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: _____	_____
Date: _____	_____
Authorized by Owner _____	_____
By: _____	_____
Title: _____	_____
Date: _____	_____

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: CITY OF OPELOUSAS Owner's Project No.: W321
Engineer: MORGAN GOUDEAU & ASSOC, INC. Engineer's Project No.: W321
Contractor: Contractor's Project No.:
Project: I-49 N. SERVICE ROAD WATERLINE EXTENSION
Contract Name: I-49 N. SERVICE ROAD WATERLINE EXTENSION

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

PUNCH LIST

Project I-49 N. SERVICE ROAD WATERLINE EXTENSION No. W321

Location OPELOUSAS, LOUISIANA Date _____

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

REPRESENTATION

CONTRACTOR-OWNER

Contractor:	
Owner:	CITY OF OPELOUSAS

ENGINEER-ARCHITECT

Firm:	MORGAN GOUDEAU & ASSOC., INC.
Project Engineer:	KENNETH BOAGNI, III, P.E., PLS
Construction Inspector:	

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

[illegible]

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

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

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.

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.

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.

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.

- 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

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.

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

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.

- 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

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.

- 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.

- 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

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.

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

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;

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

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

- 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

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

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

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.

- 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);

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

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.

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.

- 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;

- 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.

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.

- 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.

- 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.

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.

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.

- 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.

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

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.

- 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

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.

- 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.

- 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.

- 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.

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.

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.

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.

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.

- 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:

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.

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

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

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

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

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.

- 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, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. 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

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

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.

- 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,

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,

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

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.

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;

- 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

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

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.

- 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,

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.

- 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,

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

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.

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.

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	None	N/A

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to

the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None	None	N/A

5.06 Hazardous Environmental Conditions

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

- 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	None	N/A

- 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	None	N/A

ARTICLE 6—BONDS AND INSURANCE

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

- 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.

6.03 Contractor's Insurance

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

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

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.

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	

Automobile Liability	Policy limits of not less than:
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000.00

- 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, 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	\$
General Aggregate	\$

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A 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 an 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 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

10.03 Resident Project Representative

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*
 - 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.

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

No Supplementary Conditions in this Article

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE 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—MISCELLANEOUS

No Supplementary Conditions in this Article.

DRAWINGS

<u>Sheet</u>	<u>Description</u>
1	Title Sheet
2	Vicinity Map
3	General Layout Map and Sheet Index
4-8	Waterline Plan
9	Pipeline Crossing Plan-Profile
10	Typical Details

DIVISION 1 - GENERAL REQUIREMENTS

TECHNICAL SPECIFICATIONS
DIVISION 01 - 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK

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	<u>11</u>	days	July	<u>6</u>	days
February	<u>10</u>	days	August	<u>5</u>	days
March	<u>8</u>	days	September	<u>4</u>	days
April	<u>7</u>	days	October	<u>3</u>	days
May	<u>5</u>	days	November	<u>5</u>	days
June	<u>6</u>	days	December	<u>8</u>	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 (WD) - 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 FURNISH AND INSTALL WATERLINE - (ITEMS 2, 3 and 14)

A. Measurement

The work will be measured by the actual length (linear foot) of waterline of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from center of fitting or appurtenance to center line of fitting or appurtenance.

B. Payment

All work performed and measured as provided in paragraph 1.02.A will be paid for as "Furnish and Install Waterline" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for furnishing and installing waterline as specified in Section 02510.

1.03 FURNISH AND INSTALL GATE VALVE AND BOX - (ITEM 9)

A. Measurement

The work will be measured by the actual number of valves and valve boxes of the size installed which are included on the Drawings or installed as directed by the Engineer, including any necessary joint adapters for installing the valves in the system.

B. Payment

All work performed and measured as provided in paragraph 1.03.A will be paid for as "Furnish and Install Gate Valve and Box" of the size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing gate valves and boxes as specified in Section 02512.

1.04 FURNISH AND INSTALL TAPPING SLEEVE AND VALVE OR TIE-IN TO EXISTING WATERLINE - (ITEMS 6 and 7)

A. Measurement

The work will be measured by the actual number of tapping sleeves and valves or tie-in to existing waterline of size installed which are included on the Drawings or installed as directed by the Engineer.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01025 (WD) - MEASUREMENT AND PAYMENT

B. Payment

All work performed and measured as provided in paragraph 1.04.A will be paid for as "Furnish and Install Tapping Sleeve and Valve" or "Tap and tie-in to existing waterline" of size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing tapping sleeves and valves as specified in Section 02510.

1.05 **FURNISH AND INSTALL FIRE HYDRANT - ASSEMBLY (ITEM 10)**

A. Measurement

The work will be measured by the actual number of fire hydrant assemblies of size installed which are included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.05.A will be paid for as "Furnish and Install Fire Hydrant Assembly" of size installed at the unit price bid per each, which said price shall be full compensation for furnishing and installing fire hydrant assembly (including valves, piping and fittings) as specified in Section 02513.

1.06 **FURNISH AND INSTALL DUCTILE IRON FITTINGS - (ITEM 11)**

A. Measurement

The work will be measured by the actual weight (per ton) of ductile iron fittings installed which are required for the waterline installation shown on the drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.06.A will be paid for as "Furnish and Install Ductile Iron Fittings" at the unit price bid per ton, which said price shall be full compensation for furnishing and installing ductile iron fittings as specified in Section 02510.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01025 (WD) - MEASUREMENT AND PAYMENT

1.07 JACK OR BORE FOR PVC WATERLINE - (ITEM 5)

A. Measurement

The work will be measured by the actual length (linear foot) of jack or bore of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from center of fitting or appurtenance to center line of fitting or appurtenance.

B. Payment

All work performed and measured as provided in paragraph 1.07.A will be paid for as "Jack or Bore for Waterline" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for jack or boring as specified in Section 02445.

1.08 DIRECTIONAL BORE FOR P.E. WATERLINE - (ITEMS 4 and 15)

A. Measurement

The work will be measured by the actual length (linear foot) of directional bore of the size and type installed which is included on the Drawings or installed as directed by the Engineer. The length shall be measured from center of fitting or appurtenance to center line of fitting or appurtenance.

B. Payment

All work performed and measured as provided in paragraph 1.08.A will be paid for as "Directional Bore for Waterline" of the pipe size and type at the unit price bid per linear foot, which said price shall be full compensation for directional bore as specified in Section 02510.

1.09 TRANSFER EXISTING SERVICE TO NEW WATERLINE - (ITEM 12)

A. Measurement

The work will be measured by the actual number of services transferred to the new waterline which are included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.09.A will be paid for as "Transfer Existing service to new waterline" at the unit price bid per each, which said price shall be full compensation for transferring existing services to new waterline as called for on the plans.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01025 (WD) - MEASUREMENT AND PAYMENT

1.10 PLUG AND ABANDON WATERLINE (ITEM 17)

A. Measurement

The work will be measured by the actual number of waterlines plugged and abandoned of size plugged which are included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.10.A will be paid for as "Plug and Abandon Waterlines" of size plugged at the unit price per each, which said price shall be full compensation for plugging and abandoning waterlines as called for in the plans.

1.11 ASPHALTIC CONCRETE PAVEMENT RESTORATION - (ITEM 21)

A. Measurement

The work will be measured by the actual area (square yard) of asphaltic concrete restoration installed which is included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.11.A will be paid for as "Asphaltic Concrete Pavement Restoration" at the unit price bid per square yard, which said price shall be full compensation for asphaltic concrete pavement restoration as specified in Section 02975.

1.12 CONCRETE DRIVEWAY RESTORATION (ITEM 20)

A. Measurement

The work will be measured by the actual area (square yard) of concrete driveway restoration installed which is included on the Drawings or installed as directed by the Engineer.

B. Payment

All work performed and measured as provided in paragraph 1.12.A will be paid for as "Concrete Driveway Restoration" at the unit price bid per square yard, which said price shall be full compensation for concrete driveway restoration as specified in Section 02980.

1.13 AGGREGATE FOR MAINTENANCE (ITEM 18)

A. Measurement

The work will be measured by the actual weight (per ton) of aggregate installed which is included on the Drawings or installed as directed by the Engineer. The weight shall be measured at an approved LADOTD scale and a weight ticket provided to the Engineer for each load of aggregate placed on the job-site.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01025 (WD) - MEASUREMENT AND PAYMENT

B. Payment

All work performed and measured as provided in paragraph 1.13.A will be paid for as "Aggregate for Maintenance" at the unit price bid per ton, which said price shall be full compensation for aggregate as specified in Section 02060 or 02065, as applicable.

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01035 - MODIFICATION PROCEDURES

- 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)

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- 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

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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

TECHNICAL SPECIFICATIONS
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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 telephone 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

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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

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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.

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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.

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01041 - PROJECT COORDINATION

- 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01046 - MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

- 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 ($\frac{1}{4}$ ") 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01048 - UTILITIES COORDINATION

- 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

B. The Contractor shall be responsible for securing all permits and licenses required and shall pay all fees required to complete the job.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01060 - REGULATORY REQUIREMENTS

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

ASTM	American Society for Testing & Materials 655 Fifteenth Street NW Washington, DC 20005 1916 Race Street Philadelphia, PA 19103	202/639-4025 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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	Alluminating 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 Research 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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)	

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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 O. 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)	

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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 Gaithersburg, MD 20899	(301) 975-4029

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01092 - ABBREVIATIONS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01100 - SPECIAL PROJECT PROCEDURES

- 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.

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- 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.

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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

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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

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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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.
 - 10. Site Conditions.
 - 11. Labor Requirements.

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SECTION 01200 - PROJECT MEETINGS

- 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

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

<u>ITEM</u>	<u>TIME</u>
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.

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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

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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

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SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES

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 conforms 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 reproductions for blueprinting purposes for all submittal data or Drawings on sheets larger than 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

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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

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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:

<u>No. Required</u>	<u>To Whom</u>	<u>For Use</u>
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 ($3\frac{1}{2}" \times 3\frac{1}{2}"$), located adjacent to the title block. The title block shall display the following:

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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:

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01340 - SHOP DRAWINGS, PROJECT DATA, AND SAMPLES

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01370 - SCHEDULE OF VALUES

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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 as specified herein (pre-construction).
- B. Provide two (2) photographs each month of each major portion of the work.
- C. Provide two (2) prints of each photograph.
- D. Negatives:
 - 1. Remain property of photographer.
 - 2. Maintain negatives for a period of two (2) years from date of Substantial Completion of entire Project.
 - 3. At the request of the Engineer, furnish additional prints at commercial rates applicable at time of purchase.
- E. As an alternative to hand held photos, color aerial photographs showing construction will be acceptable. Two (2) copies of each view will be submitted.
- 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 PRINTS

- A. Color:
 - 1. Paper: Single weight, white base.
 - 2. Finish: Smooth surface, glossy.
 - 3. Size: 4 in. x 6 in.
- B. Identify each print on back, listing:
 - 1. Name of Project.
 - 2. Facility Location.
 - 3. Orientation of view.
 - 4. Date and time of exposure.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

5. Identification of exposure.

2.02 VIDEO TAPE

- A. Specifications for Audio-Video Survey - Prior to the start of construction on the contract, the Contractor shall furnish to the Engineer, the video tapes of the construction areas. The tapes 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 taped 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 two (2) copies of the audio-video survey to the Engineer. One copy of the tapes will remain available for viewing by the Contractor and may be reviewed by him for any assistance that the tapes may provide in resolving disputes which arise with the property owners claiming improper restoration of their properties. That copy of the tapes 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. The remaining copy of the tapes will be delivered to the Owner's representative.
- 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.
- C. Recorder - The recorder shall be an industrial grade device and shall record the color signal with a minimum horizontal resolution of 240 lines. The recorder shall be of the 1/2-inch VHS format. Commercial grade recorders shall not be acceptable.
- D. Camera - When taping areas accessible to conventional wheeled vehicles, the color video camera shall have a horizontal resolution of 550 lines at center (e.g., Panasonic WV-V3 or equal). When taping areas not accessible to conventional vehicles, the color video camera shall have a horizontal resolution of at least 550 lines at center.
- E. Character Printout - All video recordings must, by electronic means, display continuously and simultaneously, generated digital information to include (1) the date of the recording, (2) the engineering stationing corresponding to the stationing on the plans, or as directed by the Engineer, (3) the name of the street, easement or building being documented, and (4) the direction of travel and the viewing side. The date shall appear linearly in the bottom left hand corner (e.g. 02-21-92). Plan stationing shall be expressed in engineering symbols and shall appear directly beneath the date information (e.g., 87+03). The remainder of the printed information shall appear at the bottom of the viewing screen (e.g., N on First St. V/E). To maximize viewing area no more than twenty-four (24) rasters shall be used to express the digital information.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

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) tape number, (2) job title, (3) job location, (4) positional location at job start, (5) date and time, (6) weather and (7) any other notable conditions.
- 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01380 - CONSTRUCTION PHOTOGRAPHS

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 two (2) record copies to Engineer.
- B. Pre-construction photographs shall be delivered to the Engineer prior to the beginning of construction.
- C. Deliver progress prints 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. Tape Indexing - All video tapes and their storage cases shall be properly identified by video tape index number, project title and general project location. Displayed on the storage case of each video tape shall be a log of that tape's contents. That log shall describe 1) the various segments contained on that tape in terms of the names and the sides of the streets or easements, 2) coverage start, direction and endpoints, with corresponding video tape player counter numbers. A cumulative index correlating the various segments of coverage to their corresponding tapes shall be typed and supplied to the Owner.
- C. Unacceptable Documentation - The Owner shall have the authority to reject all or any portion of the video tape documentation not conforming to the specifications. Those rejected portions shall be retaped at no additional cost to the Owner.
- D. Specification Deviations - Any deviation from these specifications must have the written approval of the Owner/Engineer.
- 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01410 - TESTING LABORATORY SERVICES

- 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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01420 - INSPECTION SERVICES

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,

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01420 - INSPECTION SERVICES

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

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01505 - MOBILIZATION

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01510 - TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Furnish, install and maintain temporary utilities required for field offices and construction and remove on completion of the Work.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and local codes and regulations and with utility company requirements.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

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

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company and Owner to provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the Owner as stipulated by the Engineer.
- B. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

2.03 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work.
- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.
- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation and removal, and fuel consumed.
- E. Provide connections to existing facilities or extend and supplement the existing facilities with temporary units as required to comply with requirements. Pay all costs of installation, maintenance, operation and removal.

2.04 TEMPORARY TELEPHONE SERVICE

- A. Arrange with local telephone service company, provide direct line telephone service, as stipulated in Section 01590, including an external bell at the construction site for the use of personnel and employees.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01510 - TEMPORARY UTILITIES

B. Service required:

1. One direct line instrument in Field Office of Engineer for the Owner.
2. Other instruments at the option of the Contractor, or as required by regulations.

2.05 **TEMPORARY WATER**

- A. Provide and pay for all water required for construction and consumptive purposes.
- B. Install at each and every connection to the potable water supply a backflow preventer meeting the requirements of ASA A40.6, latest revision. Contractor shall be required to meter all water used.
- C. If potable water system is owned by the Owner, any water used for construction purposes will be provided by the Owner. Limited, reasonable, and un wasteful amounts of water will be provided for clearing, flushing, disinfecting, testing, and other minor construction purposes. Unreasonable or wasteful use amounts as determined by the Owner will be charged at prevailing rates. The hours and duration of water usage shall be determined by the Owner.

2.06 **TEMPORARY SANITARY FACILITIES**

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Comply with applicable requirements specified in Division 2 - Site Work, Division 15 - Mechanical, and Division 16 - Electrical.
- B. Maintain and operate systems to assure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 **REMOVAL**

- A. Completely remove temporary materials and equipment when their use is no longer required as determined by the Engineer.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01570 - TRAFFIC REGULATION

- 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 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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600 - MATERIAL AND EQUIPMENT

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600 - MATERIAL AND EQUIPMENT

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600 - MATERIAL AND EQUIPMENT

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:

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600 - MATERIAL AND EQUIPMENT

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01600 - MATERIAL AND EQUIPMENT

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.

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700 - CONTRACT CLOSEOUT

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700 - CONTRACT CLOSEOUT

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700 - CONTRACT CLOSEOUT

- 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

- 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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01700 - CONTRACT CLOSEOUT

- 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.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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:

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01730 - OPERATING AND MAINTENANCE DATA

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01730 - OPERATING AND MAINTENANCE DATA

3. Do not use Project Record Documents as maintenance drawings.
- 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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01730 - OPERATING AND MAINTENANCE DATA

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

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.

TECHNICAL SPECIFICATIONS
DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01740 - WARRANTIES AND BONDS

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>U.S. Sieve</u>	<u>SPR#3</u>	<u>Percent Passing</u> <u>2½ x 0 RBA</u>	<u>#610</u>	<u>#57</u>
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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

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 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

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

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

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 warning 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.

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PART 2 - PRODUCTS

2.01 SOIL

A. Definitions

1. Select Material - Select material shall conform to LA DOTD designation TR 423 Classes A-I-a, A-I-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 gradation 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.

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- 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 ($\frac{1}{2}$ ") diameter. Should it break before reaching one-eighth inch ($\frac{1}{8}$ ") 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

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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:

<u>Sieve Sizes</u>	<u>Percent Passing (By Weight)</u>	
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

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- b. Plasticity Index: When tested in accordance with ASTM D424, or AASHTO 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 AASHTO 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-I-a, A-I-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.

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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 pipes 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.

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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 as "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 as 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.

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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 or 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 ($\frac{1}{2}$) 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 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.

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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 caving 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

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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 top 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.

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- 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.

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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.

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- 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 ($\frac{1}{2}$ ") 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

- 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02315 -EXCAVATION, BACKFILLING, AND COMPACTION (STRUCTURES AND PIPELINES)

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. Sheet piling 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02445 - BORING OR JACKING CONDUITS

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 $\frac{1}{3}$ 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

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 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

PART 1 - GENERAL

1.01 SCOPE

- A. The work shall consists of construction of water distribution lines in reasonably close conformity to the lines and grades indicated on the Drawings or as established by the Engineer. The work includes the furnishing of all labor, materials, equipment and incidentals necessary to completely install, test and clean water distribution lines. Other miscellaneous appurtenances such as valves, hydrants, and water meters shall be covered in other Sections.
- B. Related Sections
 - 1. Division 1 - General Requirements
 - 2. Section 02315 - Excavation, Backfilling and Compaction
 - 3. Section 02445 - Boring or Jacking Conduits
 - 4. Section 02512 - Valves
 - 5. Section 02513 - Hydrants
 - 6. Section 02514 - Water Meters

1.02 REFERENCED STANDARDS/DOCUMENTS

The latest edition of the publications listed before form a part of these specifications to be extend referenced. The publication are referred to in test by the basic designation only.

- 1. ASTM D1784 "Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds"
- 2. ASTM D2241 "Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series)"
- 3. ASTM D2837 "Standard Test Method for obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials"
- 4. ASTM D3350 "Standard Specification for Polyethylene Plastics Pipe and Fittings Materials"
- 5. AWWA C104 "American National Standard for Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water"
- 6. AWWA C110 "American National Standard for Ductile-Iron and Gray-Iron Fittings, 3" through 48", for Water and Other Liquids"
- 7. AWWA C111 "American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings"
- 8. AWWA C150 "American National Standard for Thickness Design of Ductile-Iron Pipe"
- 9. AWWA C151 "American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water and Other Liquids"
- 10. AWWA C605 "American National Standard for Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings."

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

- 11. AWWA C900 "AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4" through 12", for Water Distribution"
- 12. AWWA C901 "AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2" through 3", for Water Service"
- 13. AWWA C906 "AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4" through 63", for Water Distribution"

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 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.

1.04 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 than five (5) years.
- B. Contractor shall have at least three (3) years of installation experience on projects with water lines 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 tests conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameter measured. Copies of tests 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.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

1.05 DELIVERY, STORAGE AND HANDLING

- A. Store in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Sizes and strength classification of water pipe to be used in all locations are indicated on the Drawings or on the bid form.
- 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 water distribution pipes as indicated on the Drawings.
 - 1. Polyvinyl Chloride Pipe (PVC)
 - 2. Ductile Iron (DI)
 - 3. Polyethylene (PE)
- D. All pipes and fittings shall conform to the reduced lead requirements of ACT 362 of 2011 (Louisiana Revised Statutes 40:1299.27.1 "Low Lead in Water Distribution Systems" and Louisiana House Bill 471 of the 2011 Regular Session). A copy of Lead Reduction Fact Sheet is provided at the end of this section.

2.02 MATERIALS

- A. Ductile Iron Pipe, Joints and Fittings
 - 1. Pipe
 - a. Pipe shall be designed and manufactured in accordance with ANSI Specifications A21.50 - 1976 (AWWA C150-76) and A21.51 - 1976 (AWWA C151-76), respectively.
 - b. Pipe shall be cement lined, standard thickness, and lining sealed with an approved bituminous seal coat in accordance with ANSI Specification A21.4 (AWWA C104), latest revision. Provisions of Section 4-12 relating to characteristics of bituminous seal coat as to deleterious effect upon the quality, color, taste or odor imparted to potable water shall be strictly observed. The outside of the pipe shall be standard bituminous coated.
 - c. The pressure rating, metal thickness class, net weight of pipe without lining, length of pipe, ductile iron, year of manufacture, and name of manufacturer shall be clearly marked on each length of pipe.

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SECTION 02510 - WATER DISTRIBUTION LINES

- d. Pipe shall be Thickness Class 50, adequate for the rated working pressure and maximum depth of cover shown in the following Table:

<u>SIZE</u>	<u>MINIMUM METAL THICKNESS, IN.</u>	<u>RATED WATER WORKING PRESSURE</u>	<u>MAXIMUM DEPTH OF COVER, FEET</u>
6"	0.25	350	IN
8"	0.27	350	ACCORDANCE
10"	0.29	350	WITH ANSI
12"	0.31	350	A 21.50
14"	0.33	350	(AWWA C-150)
16"	0.34	350	
18"	0.35	350	
20"	0.36	300	
24"	0.38	250	

2. Joints

- a. Joints shall be of the slip-on or mechanical joint type and shall conform to ANSI Specifications A21.11 (AWWA C111), latest revision. Gaskets, rings and lubricants shall be in accordance with the manufacturer's recommendations. Gaskets shall be of vulcanized material or synthetic rubber compound.

3. Fittings

- a. Fittings shall be ductile iron slip-on or mechanical joint fittings, conforming to ANSI Specifications A21.10 (AWWA C110), latest revision and A21.11 (AWWA C111), latest revision, but shall be of the shortbodied pattern. Fittings shall be cement lined standard thickness in accordance with ANSI Specifications A21.4 (AWWA C104), latest revision, and shall have standard bituminous outside coating.

B. Plastic Water Pipe

1. Plastic Water Pipe

- a. Plastic pipe shall be polyvinyl chloride (PVC) conforming to ASTM D-1784 and ASTM D-2241 or UNI-B-11-85 latest revisions with integral bell and rubber gasket joint. The PVC pipe shall be approved by the National Sanitation Foundation for potable water pipe and said stamp shall be inclusive on the pipe furnished along with nominal size O.D. base, material code designation, dimension ratio number, AWWA pressure class, AWWA designation number and the manufacturer's name or trademark.

2. Plastic Pipe

- a. Plastic pipe shall meet one of the following specifications as designed on the plan drawing or the bid form.
1. A.W.W.A. C-900, a standard for Polyvinyl Chloride (PVC) pressure pipe for water and shall be furnished in Cast Iron equivalent outside diameter, Class 100, 150 or 200 whichever is designated on the Proposal Form and plan drawings. All Class 100 pipe shall meet the requirements of DR25, Class 150 pipe the requirements of DR18 and Class 200 the requirements of DR14.

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DIVISION 2 - SITE CONSTRUCTION

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2. Polyvinyl chloride (PVC) SDR 26 (Class 160) or SDR 21 (Class 200) in accordance with ASTM D-2241 or Cast Iron O.D. PVC Pipe DR 25 160 PSI pressure rating in accordance with UNI-B-11-85, whichever is designated on the bid form or plan drawings.

3. Fittings

- a. Fittings for plastic pipe 4 inches and larger shall be slip-on or mechanical joint ductile iron fittings, suitable for use with plastic pipe and manufactured in accordance with ASA Specification A21.10, and shall be furnished with a cement lining, manufactured in accordance with ASA Specification A21.4. Outside shall be standard bituminous coated.
- b. Fittings for plastic pipe smaller than 4 inches in size shall be type 1 PVC with slip-on type joint.
- c. Plastic or metal valves, fittings and hydrants, and pipe of materials other than plastic, whose joints are not suitable for direct connection to plastic pipe, shall be connected to plastic pipe by adapters, as recommended by the manufacturer.
- d. All plastic fittings shall be marked with the NSF seal of approval.

C. Polyethylene Water Pipe

1. General

- a. Polyethylene pipe shall conform to ASTM D3350 (and ASTM D2837 for 4" and larger) for the corresponding cell classification as follows:

<u>Standard PE Code</u>	<u>Cell Classification</u>
PE 2406	PE 213323C
PE 3405	PE 324433C
PE 3408	PE 334434C

- b. Polyethylene compounds shall be tested and certified as suitable, for use with potable water by an accredited testing agency acceptable to the owner. The polyethylene pipe shall be approved by the National Sanitation Foundation for potable water pipe and said stamp shall be inclusive on the pipe furnished along with nominal size O.D., standard PE code designation, dimension ratio number, AWWA pressure class, AWWA designation number, and manufacturer's name or trademark.

2. Pipe

- a. Polyethylene pipe shall meet the following specifications as designated on the plan drawings or the bid form.
 1. Polyethylene pipe three (3) inches and smaller shall be Plexco Bluestripe-FM as manufactured by Chevron Chemical Company or approved equal and as a minimum shall meet or exceed the requirements of AWWA C901, latest edition. Pipe shall be PE 3408, pressure class 160 (DR 11) as designated on the plans or bid form.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

2. Polyethylene pipe four (4) inches and larger shall be Plexco Bluestripe-FM as manufactured by Chevron Chemical Company or approved equal and as a minimum shall meet or exceed the requirements of AWWA C906, latest edition. Pipe shall be PE 3408, pressure class 200 (DR-9.0) as designated on the plans or bid form.
3. Joining Methods
 - a. Polyethylene piping may be joined by thermal butt-fusion, flange assemblies, or mechanical methods as may be recommended by the pipe supplier. Polyethylene piping shall not be joined by solvent cements, adhesives (such as epoxies), or threaded-type connections. All joining methods shall be capable of conveying water at not less than the design pressure of the piping system and shall be recommended for use by the pipe manufacturer.
 - b. Joining methods shall meet or exceed the requirements of AWWA C906, latest edition for pipe four (4) inches and larger and the requirements of C901, latest edition for pipe three (3) inches and smaller.
- D. Plastic Service Pipe and Fittings
 1. Piping
 - a. Piping shall be PE 3408, 160 P.S.I., 3/4", 1", 1 1/2" or 2" polyethylene pipe as designated on plan drawings or the bid form.
 2. Fittings
 - a. All fittings on service lines shall be brass compression fittings. Inserts shall be provided in all fittings unless special fittings not requiring inserts are approved.
- E. Tracer Wire
 1. Contractor shall install a 12 gauge solid copper tracer wire over the center of all plastic or non-conductive piping. The tracer wire shall be connected to each valve box and fire hydrant such that a locator may be attached to the tracer wire. The cost of furnishing and installing the tracer wire shall be included in the unit bid price for the water line.

When splicing of tracer wire is required, the wire shall be spliced with an approved direct bury splice (3M or equal). The wire shall be spliced using an approved electrical spring connector. The splice shall be inserted into a gel-filled insulator tube in accordance with manufacturer's recommendations at no direct pay.

PART 3 - EXECUTION

3.01 GENERAL

- A. Pipe shall be protected during handling against impact shocks and free fall and the pipe interior shall be free of extraneous material.
- B. 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 sections of pipe found to be defective

TECHNICAL SPECIFICATIONS
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SECTION 02510 - WATER DISTRIBUTION LINES

before or after laying shall be replaced with new pipe by and at the expense of the Contractor.

3.02 INSTALLATION

A. Pipe

1. Pipe shall be laid to and maintained at required lines and grades as shown on the Drawings, and in accordance with AWWA C605.
2. 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.
3. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be joined 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.
4. 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.
5. Walking or working on the completed water 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.
6. Under no conditions shall water 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.
7. Provide thrust blocking or adequate anchorage at each hydrant, valve, bend, tee and at reducers or fittings where changes occur in pipe diameter or direction.

B. Connections to existing mains

1. Connections to existing water mains will be made by using tapping valves and tapping sleeves while the existing main is in service.
2. Taps into existing mains shall be of the same size as the tapping valve.
3. Installation of the tapping sleeves and tapping valves, together with the tapping of the existing main shall be accomplished in accordance with the recommendations of the manufacturer of the tapping materials and equipment.
4. Installation of tapping sleeves and tapping valves shall be made under pressure. No interruption of water service will be permitted.
5. Valves and sleeves shall be firmly secured to prevent blow out when under pressure.

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DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

C. Valves

1. Valves shall be installed in accordance with Section 02512.

D. Hydrants

1. Hydrants shall be installed in accordance with Section 02513.

E. Water Meters and Service Assemblies

1. Water meters and service assemblies shall be installed in accordance with Section 02514.

3.03 **HYDROSTATIC TESTING**

A. General

1. Before the water system will be accepted, it shall be subjected to pressure and leakage tests. Tests shall not begin until all concrete thrust blocks on the section to be tested have been in place for at least 5 days.
2. All tests, personnel and testing equipment, including water, shall be provided by the Contractor at no cost to the Owner. Prior to performance of the test, all air shall be expelled from the pipeline to the satisfaction of the Engineer.

B. Pressure Test

1. Piping or any valved section of piping shall be subjected for 6 hours to a hydrostatic pressure of 150 pounds per square inch. Each valve shall be opened and closed several time during the test. If left exposed, joints, fittings and valves shall be carefully examined during the test. Joints showing visible leakage shall be replaced or remade, as necessary. Cracked or defective pipe, fittings and valves discovered in consequence of this pressure test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory to the Engineer.

C. Leakage Test

1. Leakage tests shall be conducted after the pressure test has been satisfactorily completed. The duration of each leakage test shall be at least 6 hours, and during the test the main shall be subjected to 150 pounds per square inch pressure. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section thereof, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.
2. The amount of leakage under the stated test pressure shall not exceed 10.5 gallons per day for each mile of pipe for each inch of diameter. Should the amount of leakage exceed the above limit, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified limits.

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DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

3.04 STERILIZATION

A. General

1. All new potable water lines, including pipe, valves, fittings, etc., shall be sterilized prior to being placed in use and before final acceptance.
2. The Contractor shall furnish suitable plugs or caps for the pipe, injection pumps, pipe connections, disinfectant and equipment together with all labor required. Cost of sterilization shall be included in the price bid for water lines and will not be paid for separately.
3. Sterilization shall comply with the requirements of the Louisiana Department of Health and Hospitals.

B. Procedure

1. Before sterilization, all lines shall be flushed clean. Sterilization shall be accomplished with a chlorine solution made with liquid chlorine or hypochlorite containing not less than 50 ppm of available chlorine. Other disinfectants may be used upon approval of the Engineer.
2. The chlorine solution shall be introduced in a manner that will insure uniform distribution. While the solution is being applied to any section of the system, the water shall be allowed to escape at all extremities of this section until an orthotolidin test indicates a 50 ppm (50 mg/l) chlorine residual. The chlorine solution shall be allowed to remain in the section for a minimum of 24 hours, after which the lines shall be thoroughly flushed until the residual chlorine is reduced to no less than 5 ppm (5 mg/l). During the 24 hour period and during flushing, all valves shall be opened and closed several times.
3. Samples shall be taken for bacteriological tests and bacteriological testing shall be done by a lab that is certified by the State Health Officer. Contractor shall be responsible for obtaining and testing of all samples. If tests indicate that the lines are not completely sterilized, the process shall be repeated on that section, until the bacteriological tests indicate that the section is sterilized.
4. New water lines shall not be used nor shall they be connected to existing lines in any way, until the new lines have been tested, sterilized and approved by the Engineer and the Louisiana Department of Health and Hospitals.

3.05 INSPECTION

- A. Final inspection of the work shall be made by the Engineer after the Contract has been completed and tendered for acceptance. In order to be acceptable, the work must, at a minimum, comply with the following:**
1. The pipe work shall be true to line and grade.
 2. There shall be no cracked or broken pipe, fittings, valves, hydrants or meters.
 3. There shall be no defective joints.
 4. The interconnections and main shall be free from mud, trash, debris, etc.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02510 - WATER DISTRIBUTION LINES

5. All water lines, valves, hydrants, meters and fittings must have met the required pressure and leakage tests.
6. All trenches shall have been refilled after settlement so that the surface condition is equal to that before the work started, and all surplus earth shall have been removed unless otherwise instructed by the Engineer.
7. All roadways shall be in good condition, at least equal to the condition existing before work commenced under this Contract, and all shell roadways repaired so that the integrity of the roadway as a whole is unimpaired.
8. Present written certification from the Louisiana Department of Health and Hospitals that the system may be used as a municipal or community potable water supply system.

3.06 MAINTENANCE OBLIGATION

- A. If at any time during the performance of the contract, defects in the work shall develop or be discovered, the Contractor shall promptly repair or replace the defective workmanship or materials even though such workmanship or materials has already passed inspection.

When the work covered by the Contractor has been completed, it will be given the careful inspection and remeasurement. The Contractor shall remove all obstructions and deposits found in the pipes, connections, etc., and shall repair or remove and replace as directed by the Engineer, any crushed, broken or otherwise defective structures or appurtenances.

For a period of 45 days after substantial completion of the work, the Contractor shall keep all pipes, connections, structures, paved and unpaved surfaces, etc., constructed under this Contract in good condition, making repairs to such maintenance and repair in an obligation of the Contractor and the cost thereof must be included in the price bid for the various items of work. In the event of the Contractor's failure to do this maintaining and repairing to the satisfaction of the Engineer and according to terms of the Contract, the Owner will have the right to have the necessary work done and to deduct the cost thereof from retained money. If the retained money is not sufficient, the surety company will reimburse the Owner for expenses involved.

END OF SECTION

State of Louisiana Safe Drinking Water Program

Low lead requirements in plumbing and potable water distribution systems:

Concentrations of lead found in drinking water do not typically derive from natural sources. Instead, the most common cause of lead concentrations in potable water is contamination from the gradual corrosion of water supply pipes and plumbing fixtures as well as the solder, or flux, used for installation and repair. Most current regulatory efforts to control lead in drinking water focus primarily on reducing the lead content of these system components.

On June 29, 2011, Gov. Bobby Jindal signed Louisiana House Bill 471 and enacted Act Number 362. This Act takes effect January 1, 2013, and prohibits the use, installation, repair, introduction into commerce, or sale of pipes, fittings, fixtures, solder, or flux that are not "lead free" when used for conveying water for human consumption.

The Department of Health and Hospitals (DHH) has prepared this fact sheet to help clarify how Act 362 redefines "lead-free" and how these new, lowered lead limits will affect various components used in the construction of new and existing plumbing and water distribution projects. In addition, this fact sheet will describe the key components of implementation including code development, applicable performance and material standards, enforcement and exceptions.

Reduced Lead Requirements of Act 362 (effective January 1, 2013):

Under Act 362, the lead content of pipes, fittings and fixtures will be reduced from not more than 8.0 percent lead to not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.

All pipe, plumbing fittings and fixtures, solder or flux used in the installation or repair of any public water system or any plumbing in a facility providing water for human consumption must meet the new low lead requirements, except when necessary for the repair of leaded joints of cast iron pipes.

EXCEPTIONS: The following materials are not required to meet the reduced lead requirements of Act 362:

- ▶ Pipes, pipe fittings, plumbing fittings or fixtures, including backflow preventers, which are used exclusively for non-potable services such as manufacturing, fire sprinkler system, industrial processing, irrigation, outdoor watering or any other uses where the water is not anticipated to be used for human consumption; or
- ▶ Toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, showers, safety shower flushes, service saddles or water distribution main gate valves that are two inches in diameter or larger.
- ▶ Materials purchased or acquired by a public water system prior to January 1, 2013, can continue to be utilized until January 1, 2014.

In addition to the installation requirements, no person shall introduce into commerce any pipe, pipe or plumbing fitting or fixture intended to convey or dispense water for human consumption through drinking or cooking that is not lead-free, including kitchen faucets, bathroom faucets or any other end-use devices intended to convey or dispense water for human consumption through drinking or cooking.

Louisiana Administrative Code (LAC) Updates:

These new low-lead requirements will be published in Parts XII (Water Supplies) and XIV (Plumbing)

OVER



of LAC Title 51 (Sanitary Code). Under Parts XII and XIV, all applicable potable water piping, fixtures, pipe related products and materials that join or seal pipes shall be evaluated and listed as conforming with NSF/ANSI 372-Drinking Water System Components, Lead Content or shall be certified to be lead-free by an independent American National Standards Institute (ANSI)-accredited third party testing laboratory, inspection agency or other organization concerned with product evaluation.

Enforcement:

The enforcement of the lead reduction law will be handled during plan reviews, permit inspections, surveys, complaints, etc. For plumbing-related violations, the enforcement will typically be handled at the local level in accordance with their ordinances, laws or other regulations. When handled at the state level, the enforcement process will be in accordance with Part I of LAC Title 51.

Potential Health Effects of Lead Exposure:

- ▶ Lead is a neuro-toxic metal that accumulates in both soft tissue and bones. Even low-level exposure can lead to a range of adverse health effects, including brain, nervous system and blood disorders.
- ▶ Children and Infants— Exposure can result in delays in physical or mental development, reduced intelligence, learning disabilities, attention deficit disorder, behavioral problems, stunted growth, impaired hearing and kidney damage.
- ▶ Adults— Exposure can result in kidney problems, high blood pressure, nerve disorders, fertility problems, muscle and joint pain, irritability, memory and concentration problems. Pregnant women can pass lead contained in their bodies to their fetuses.

Highlighted Facts:

- ▶ Act 362 Becomes Effective January 1, 2013.
- ▶ Prohibits the use, installation or repair, introduction into commerce, or selling of pipes, fittings, fixtures, solder, or flux that is not “lead-free” when used for conveying water for human consumption.
- ▶ Pipes, fittings and fixtures that are used exclusively for non-potable services are not required to meet the reduced lead requirements of Act 362.
- ▶ Materials purchased or acquired by a public water system prior to January 1, 2013 can continue to be utilized until January 1, 2014.
- ▶ All applicable piping, fixtures, pipe-related products and materials that join or seal pipes shall be evaluated and listed as conforming with NSF/ANSI 372-Drinking Water System Components, Lead Content or shall be certified to be lead free by an independent ANSI-accredited third party testing laboratory.

State of Louisiana Safe Drinking Water Program Department of Health and Hospitals Office of Public Health

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TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02512 - VALVES

PART 1 - GENERAL

1.01 SCOPE

- A. The work shall consist of the requirements for furnishing and installing valves as indicated on the Drawings or as directed by the Engineer. The work shall include all labor, materials, equipment and appurtenances necessary for complete and operable valves.
- B. Related Sections
 - 1. Division 1 - General Requirements
 - 2. Section 02315 - Excavation, Backfilling and Compaction
 - 3. Section 02510 - Water Distribution Lines
 - 4. Section 02513 - Hydrants
 - 5. Section 02514 - Water Meters

1.02 REFERENCED STANDARDS/DOCUMENTS

The latest edition of the publications listed below for a part of these specifications to the extent referenced. The publications are referred to in text by the basic designation only.

- 1. ASTM A126 "Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings"
- 2. ASTM A536 "Standard Specification for Ductile Iron Castings"
- 3. ASTM A743 "Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application"
- 4. AWWA C111 "American National Standard for Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings"
- 5. AWWA C504 "AWWA Standard for Rubber Seated Butterfly Valves"
- 6. AWWA C507 "AWWA Standard for Ball Valves, 6" through 48"
- 7. AWWA C509 "AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service"
- 8. AWWA C550 "AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants"

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 approval by the Engineer, shall become the basis for inspecting, accepting, and/or rejecting actual installation procedures used on this project.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02512 - VALVES

- 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.

1.04 **DELIVERY, STORAGE AND HANDLING**

A. Preparation for Transport.

Prepare valves for shipping as follows:

1. Ensure valves are dry and internally protected against rusting and corrosion.
2. Protect valve ends against mechanical damage to threads, flange faces, and weld end preps.
3. Set valves in best position for handling. Globe, and gate valves shall be closed to prevent rattling; ball and plug valves shall be open to minimize exposure of functional surfaces; butterfly valves shall be shipped closed or slightly open; and swing check valves shall be blocked in either closed or open position.

B. Storage

Use the following precautions during storage:

1. Do not remove valve end protectors unless necessary for inspection; then reinstall for storage.
2. Protect valves against weather. Where practical store valves indoors. Maintain valve temperature higher than the ambient dew point temperature. If outdoor storage is necessary, support valves off the ground or pavement and protect in watertight enclosures.

C. Handling

1. Valves whose size requires handling by crane or lift shall be slung or rigged to avoid damage to exposed valve parts. Handwheels and stems, in particular, shall not be used as lifting or rigging points.

PART 2 - PRODUCTS

2.01 **VALVES**

A. Gate Valves

1. Valve 2" and Larger: Iron-body, bronze trim, resilient-seated non-rising stem with square nut, mechanical joint or flanged ends conforming to AWWA C-515, latest revision.
2. Valves smaller than 2": Iron-body, brass mounted, or all brass construction, IPS ends.
3. Valves installed above ground shall be equipped with handwheel; direction of opening indicated by an arrow cast on operating nut handwheel.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02512 - VALVES

4. Valves to be manufactured by M & H, Mueller, U.S. Pipe, Clow, or approved equal.
5. Counting to conform to AWWA C-550.

B. Valve Boxes

1. Valve boxes shall be cast iron, heavy roadway type, adjustable top section and inside diameter of not less than 5 inches.
2. Valve box and cover to be V-8460 Series as manufactured by East Jordan Iron Works, Inc. or approved equal.

C. Ball Valves

1. Ball valves up to 2": Brass body, teflon coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, AWWA/IPS inlet end as applicable, IPS outlet.

D. Butterfly Valves

1. Valves shall be iron-body, ductile iron disc, resilient replaceable seat; conforming to AWWA C-504.
2. Ends shall be flanged (wafer suitable for installation between full faced flanges for valves 3" - 10") or mechanical joint in accordance with AWWA-C111.
3. Valve disc shall be the off-set design, provide 360° uninterrupted seating and of the flow through type for sizes 30" and larger.
4. Natural rubber resilient seat bonded to 18-8 Type 304 Stainless steel retaining ring secured to the disc by 18-8 Type 304 SS screws.
5. Coatings to conform to ASTM C550, latest revision.
6. Valves to be manufactured by Pratt, or approved equal.

E. Lever and Spring Check Valves

1. The valve body shall be of cast iron (ASTM A126-B) and with a cast iron disc of same material. The hinge shaft shall be of 18-8 stainless steel with the disc arm and counterweight arm keyed thereon. The body seat shall be all stainless steel. The spring arm may be of the manufacturer's standard construction. The hinge shaft packing gland shall be of the adjustable packing gland design employing a compression type packing. Simple o-ring shaft seals will not be accepted.
2. The check valves shall be manufactured by Empire Speciality Co., Inc. or Mars, Pennsylvania, Fig. 230 or approved equal.

F. Silent Check Valves

The valve body shall be of cast iron (ASTM A126-B) with a replaceable bronze seat. Plug and replaceable bushing shall also be bronze. Spring and seat retaining screws shall be of 303/304 stainless steel for ease of replacement when required. The valve seating arrangement shall consist of an o-ring seal contained in a dovetail groove providing a true pressure metal-to-metal seating.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02512 - VALVES

The valve shall be manufactured by Empire Specialty Valve Co., Inc., Figure No. 280 or approved equal.

G. Plug Valves

1. Valves shall be of the non-lubricated eccentric type with an elastomer covering all seating surfaces. The elastomer shall be suitable for the service intended. Flanged valves shall be manufactured in accordance with ANSI B16.1 Class 125/150, including facing, drilling and flange thickness. Mechanical joint ends shall be in compliance with AWWA/ANSI C-111-92. Ports shall be round with a minimum of eighty-one (81) percent port area of sizes 2 1/2" through 12" to facilitate "pigging" when required. Valves 14" and larger shall be of a rectangular port design with a minimum of eighty-one (81) percent port area.
2. Valve bodies shall be of ASTM A-126 Class B cast iron in accordance with AWWA C-504-87 Section 5.2.1 Valves three (3) inches and larger shall be furnished with a welded-in overlay seat of not less than ninety (90) percent nickel in accordance with AWWA C-507. Sprayed, plated, or screwed-in seats are not acceptable.
3. Plugs shall be of ASTM A-536 Grade 65-45-12 in compliance with AWWA C-504-87 Section 2.2.2. The plugs shall be one (1) piece solid construction with PTFE thrust bearings on the upper and lower bearing journals to reduce torque and prevent dirt and grit from entering the bearing and seal area.
4. Valves shall be furnished with replaceable sleeve type bearings conforming to AWWA C-504-87, Section 3.6.1 and AWWA C-507-85, Section 3.2.4. Bearings shall be of centered, oil impregnated type 316 stainless steel ASTM A-743 Grade CF-8M. Valve shaft seals shall be of the "U" cup type in accordance with AWWA C-504-87, Section 3.7.2. Seals shall be self adjusting and repackable without removing the bonnet from the valve.
5. Wrenches operated valves 2 1/2" - 8" shall be capable of being converted to worm gear or automated operation without removing the bonnet or plug from the valve. All wrench operated valves shall be equipped with a two (2) inch square nut for use with removable levers or extended "T" handles.
6. Valves shall be designated and manufactured to shut off bubble tight at 175 psi in either direction for valves 2 1/2" through twelve (12) inches and at 150 psi in either direction for valves fourteen (14) inches through thirty-six (36) inches. Valves forty-two (42) inches and larger shall be certified bubble tight in both direction at 125 psi.
7. Each valve shall be given a hydrostatic and seat test with the test results being certified. Certified copies of Proof-of-Design test reports shall be furnished as outlined in AWWA C-504-87, Section 5.2.4 when requested.
8. Plug valves shall be Dezuric, APCO, Clow, M & H or approved equal.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02512 - VALVES

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify water main size and location, are as indicated.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's installation procedures/recommendations.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02513 - HYDRANTS

PART 1 - GENERAL

1.01 SCOPE

- A. The work shall consist of the requirements for furnishing and installing hydrants as indicated on the Drawings or as directed by the Engineer. The work shall include all labor, materials, equipment and appurtenances necessary for complete and operable hydrants.
- B. Related Sections
 - 1. Division 1 - General Requirements
 - 2. Section 02315 - Excavation, Backfilling and Compaction
 - 3. Section 02510 - Water Distribution Lines
 - 4. Section 02512 - Valves

1.02 REFERENCED STANDARDS/DOCUMENTS

The latest edition of the publications listed below for a part of these specifications to the extent referenced. The publications are referred to in text by the basic designation only.

- 1. AWWA C502 - "AWWA Standard for Dry-Barrel Fire Hydrants"

PART 2 - PRODUCTS

2.01 HYDRANTS

A. Fire Hydrants

- 1. Fire hydrants shall be cast iron bodied, fully bronze mounted, suitable for a working pressure of 250 psi and shall meet all requirements of AWWA Specifications C502, latest revision. Each hydrant shall be given a 500 psi hydrostatic test in the shop.
- 2. The waterways of hydrants shall be as free as possible of obstructions, sharp turns, corners or other cause for resistance. The base of the hydrant shall be have a mechanical joint connection.
- 3. Hydrants located on main 6 inches and larger shall have 6 inch leads and 6 inch mechanical joint connection, and shall be equipped with two 2 1/2 inch branch nozzles with threads for hose connections and one brass nozzle with threads for pumper coupling. The bottom valve of the hydrant shall be not less than 5 1/4 inches in diameter.
- 4. Hydrants located on 4 inch mains shall have 4 inch leads and 4 inch mechanical joint connections and shall be equipped with two 2 1/2 inch branch nozzles with threads for hose connections. The bottom valve of the hydrant shall be not less than 4 1/4 inches in diameter.
- 5. Nozzle caps shall be securely fastened to hydrants and shall be threaded to fit nozzles.
- 6. Threads for hose and pumper connections shall match those of existing hydrants. Hydrants shall open by turning in a counterclockwise direction.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02513 - HYDRANTS

7. The hydrant main valve shall be of the compression type, closing with pressure. The valve shall be faced with rubber, or other approved material. Hydrant shall be traffic model and shall be breakable on impact without loss of water.
8. Drain valves shall be automatic and positive acting. When the main valve is closed, drain valves shall automatically open, insuring rapid and complete drainage of the hydrant riser. They shall close automatically when the main valve is opened.
9. Hydrants shall have a safety "breakable" section located above ground line. The distance from the ground line of hydrant to the top of the hydrant lead shall not be less than thirty (30") inches. Hydrants shall come with one shop coat of red lead. After installation, skinned or scratched surfaces of hydrants shall be wire brushed and touched up with one (1) coat of Tnemec 99-D Dark Red Primer, or equal. All exposed surfaces shall be given one (1) final field coat of Tnemec Gloss 642-P Bright Red, or equal.
10. The Contractor shall provide the Owner with three (3) cartons of collision breakable repair parts for the hydrants and one (1) valve wrenches. All new hydrants in the project shall be Mueller, M & H, Kennedy or pre-approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Support fire hydrants at base on foundation at least eighteen (18") inches square of solid concrete pad (2500 psi) as shown on Plans. Set concrete foundation on firm, solid ground properly graded.
- B. Provide adequate drainage for hydrants when closed by filling circular space around hydrant with at least 7 cubic feet of clean gravel. Place gravel carefully, so as not to displace hydrant or valve which has been connected.
- C. Before setting, clean hydrants completely free of dirt and other foreign matter. Set hydrants solidly with concrete thrust blocks behind barrel and behind tee connection to prevent movement of pipe in joints, or of hydrant.
- D. Locate all hydrants where shown on the drawings or where indicated by the Engineer, and so that damage from vehicles and/or injury to pedestrians is minimized.
- E. When placed behind curb, set hydrant barrel so that no portion of pumper or hose nozzle cap shall be less than (6") inches or over twelve (12") inches from gutter face or curb, or less than twenty (20') feet from curb line intersection.
- F. When set in lawn space (parkway) between curb and sidewalk or between sidewalk and property line, no portion of hydrant or nozzle cap shall be within six (6") inches of sidewalk.
- G. All hydrants shall stand plumb and shall have their nozzles parallel with or set at right angles to curb with pumper nozzles facing street curb. They shall conform to established grade, with nozzles at least eighteen (18") inches above ground.

TECHNICAL SPECIFICATIONS
DIVISION 2 - SITE CONSTRUCTION

SECTION 02513 - HYDRANTS

- H. All hydrants shall be set to a depth and to the details as shown on the plans and as specified. They shall be set at a depth so that the ground line beading shall be at the same elevation as the existing ground line.
- I. Backfill above gravel shall be thoroughly tamped. Care shall be taken to keep the drain holes clean.

END OF SECTION

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

PART 1 - GENERAL

- 1.01 A. All meters shall be warranted to meet or exceed AWWA standards for capacity and accuracy for new meters for five years from the date of installation.
- B. All meters shall be equipped with encoder-type remote registration devices that are manufactured in strict accordance with American Water Works Association (AWWA) specification C707-92 or latest revision for "Encoder-Type Remote Registration Systems for Cold-Water Meters".
- C. All meters shall have a unique serial number stamped or embossed on the main case. The first two digits of the number shall indicate the year of manufacture.
- D. Meters furnished under these specifications shall be the product of a manufacturer with at least ten (10) years experience in meter manufacturing for the United States market.

PART 2 - PRODUCTS

2.01 **ENCODER-TYPE REMOTE REGISTRATION SYSTEM**

- A. Supplier shall submit an affidavit of compliance that all systems or components to be furnished are in compliance with AWWA C 707 standards, including the latest revision, as well as the supplemental specifications contained herein.
1. The register shall be warranted to be free of defects of a period of five years from the date of installation. Any register that fails during the warranty period shall be replaced, at the Suppliers expense.
 2. Connection cable shall be supplied by the Supplier on self-feeding spools. Cable shall be supplied in sufficient quantity to allow for a total footage of thirty feet per meter purchased (we may need this for a few select meters, but not in general).
 3. The meter register shall have a minimum of six wheels, which registers in gallons.
 4. The register shall be interchangeable with other registers of the same manufacturer based on size and type.
 5. The meter register assembly shall be factory set, tamper resistant, and hermetically sealed.
 6. The register shall be secured to the meter case with a tamper-proof seal pin or tamper-proof screw.
 7. The register shall be designed in a manner that prevents the formation of condensation within the register.

2.02 **RESIDENTIAL POSITIVE-DISPLACEMENT METERS**

A. **GENERAL**

1. All positive displacement type residential meters (5/8, 1, 1 ½ and 2 inch) shall be manufactured in strict accordance with American Water Works Association (AWWA)

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

specification "C 700-95, or latest revision, for Cold-Water Meters – Displacement Type, Bronze...Main Case"

2. Supplier shall submit an affidavit of compliance that the displacement meters to be furnished are in compliance with AWWA C 700, latest revision, as well as the supplemental specifications contained herein.
3. Supplier shall submit a certificate showing that each displacement meter has been tested for accuracy and capacity, and that each meter's accuracy and capacity is within the parameters set forth in AWWA C 700, Sections 4.2.2 and 4.2.8. Such certificate shall be attached to each meter.
4. Residential Displacement Meters shall be packaged in cartons or crates consecutively numbered, and marked with the serial number of the meter contained therein. Such cartons or crates shall be secured on wooden skids or pallets to facilitate handling by forklift.

B. MATERIALS

1. Bottom main case covers on 5/8 and 1-inch meters shall be breakable (frost protection) cast iron, in accordance with AWWA C 700, Section 4.1.9.
2. All external fasteners shall be made of stainless steel as specified in AWWA C 700, Section 4.1.

C. DESIGN

1. All meters shall be the nutating disc or piston type and shall be provided within a removable stainless steel or plastic strainer in accordance with AWWA C 700, Section 4.3.6.
2. All meters shall have magnetically coupled drive.

2.03 TURBINE METERS (3-INCH THROUGH 10-INCH)

A. GENERAL

1. Turbine meters shall be manufactured in strict accordance with the American Water Works Association (AWWA) Specification C 701-97, or latest revision for "Cold-Water Meters - Turbine-Type, For Customer Service".
2. Supplier shall submit an affidavit of compliance that the turbine meters to be furnished are Class II and in compliance with AWWA C 701-97, or latest revision, as well as the supplemental specifications contained herein.
3. The Supplier shall submit a certificate showing that each turbine meter has been tested for accuracy and that each meter's accuracy is within the parameters set forth in AWWA C 701, section 4.2.7. Such certificate shall be attached to each meter.
4. Turbine meters shall be supplied exclusive of companion flanges, nuts, bolts or gaskets.
5. Turbine meters shall be shipped individually in wooden crates, with strainers attached, and strapped to skids.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

B. MATERIALS

1. Main casings, including flanges and main case cover, shall be made of copper alloy as specified in AWWA C 701, section 4.1.
2. All external fasteners shall be made of stainless steel as specified in AWWA C 701, section 4.1.8.

C. DESIGN

1. Operating Range

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)
3-inch	5 gpm to 450 gpm
4-inch	10 gpm to 1200 gpm
6-inch	20 gpm to 2500 gpm
8-inch	35 gpm to 4000 gpm
10-inch	50 gpm to 6500 gpm

2. The maximum overall length, not including strainer, of turbine meters from flange to flange shall be:

Meter Size	Maximum Length
3-inch	12 inches
4-inch	14 inches
6-inch	18 inches
8-inch	20 inches
10-inch	26 inches

3. All turbine meters shall be fitted with a strainer supplied by the meter manufacturer and shall be shipped with the strainer attached. Strainer screws shall be bronze or stainless steel. The internal straining material shall be stainless steel.
4. All turbine meters shall have an internal measuring unit which is interchangeable with other meters of the same manufacturer and size.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

2.04 TURBINE FIRE METERS WITH METERED BY-PASS SIZE 4-INCH THROUGH 10-INCH

A. GENERAL

1. Turbine fire meters shall be manufactured in strict accordance with American Water Works Association (AWWA) specification C 703-96, or latest revision, for "Cold-Water Meters - Fire Service Type."
2. Supplier shall submit an affidavit of compliance that the turbine fire meters to be furnished are in compliance with AWWA C 703.
3. The Supplier shall submit a certificate showing that each turbine fire meter has been tested for accuracy and capacity, and that each meter's accuracy and capacity is within the parameters set forth in AWWA C 703, sections 4.2.6 and 4.2.2. Such certificate shall be attached to each meter.
4. Turbine fire meters shall be supplied exclusive of companion flanges, nuts, bolts or gaskets.
5. Turbine fire meters shall be shipped individually in wooden crates, with strainers attached, and strapped to skids.

B. MATERIALS

1. Main casings and strainers, including flanges and main case cover, shall be made of a copper alloy or cast iron as specified in AWWA C 703, section 4.1.2, or epoxy-coated steel.
2. All external fasteners shall be made of stainless steel as specified in AWWA C 703, section 4.1.8.
3. All components of the meter assembly shall be Underwriter's Laboratories (UL) listed, as well as Factory Manual (FM) approved for fire service use.

C. DESIGN

1. Typical Operating Range with by-pass meter size shown:

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)
4-inch with 1" by-pass	3/4 gpm to 1200 gpm
6-inch with 1 ½" by-pass	1½ gpm to 2500 gpm
8-inch with 2" by-pass	2 gpm to 4000 gpm
10-inch with 2" by-pass	2 gpm to 6500 gpm

2. 1" by-pass meter shall be a frost bottom type. Accuracy shall not drop below 90 percent during changeover from by-pass to turbine, or vice versa.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

3. The maximum overall laying length, including strainer, measured from flange face to flange face, of turbine fire meters shall be:

Meter Size	Maximum Length
4-inch	33 inches
6-inch	45 inches
8-inch	53 inches
10-inch	68 inches

4. All turbine fire meters shall be fitted with a strainer in accordance with AWWA C 703, section 4.3.13. Strainer shall be UL listed or FM approved and National Fire Protection Association (N. F. P. A.) approved.
5. The mainline shall include a tapped test plug, which is removable for field test purposes.
6. The by-pass assembly shall consist of two isolation ball valves (one upstream and one downstream) of the displacement meter and check valve. The by-pass meter shall include couplings, bushings, tailpieces and a check valve between the isolation valves to allow for future meter testing and replacement.
7. A stainless steel, spring loaded, mainline check valve, with a semi-hard rubber seat, shall be located downstream of the turbine meter. Such check valve shall have a clear opening at least equal in size to the turbine meter. No loaded parts shall be incorporated in the check valve assembly.
8. Each component of the fire meter (both turbine and displacement) shall be interchangeable with other turbine and displacement meters of the same manufacturer based on size and type.

2.05 COMPOUND METERS

A. GENERAL

1. Compound meters shall be manufactured in strict accordance with American Water Works Association (AWWA) specification C 702-92, or latest revision, for "Cold-Water Meters-Compound Type".
2. Supplier shall submit an affidavit of compliance that the compound meters to be furnished are in compliance with AWWA C 702-92, or latest revision.
3. Supplier shall submit a certificate showing that each compound meter has been tested for accuracy and capacity, and that each meter's accuracy and capacity is within the parameters set forth in AWWA C 702, sections 3.2 and 3.6. Such certificate shall be attached to each meter.
4. Compound meters shall be supplied exclusive of companion flanges, nuts, bolts or gaskets.

TECHNICAL SPECIFICATIONS
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SECTION 02514 - WATER METERS

5. Compound meters shall be shipped individually in wooden crates, with strainers attached, and strapped to skids.

B. MATERIALS

1. Main casings, including flanges and main case cover, shall be made of a copper alloy as specified in AWWA C 702, section 2.2.
2. All external fasteners shall be made of stainless steel as specified in AWWA C 702, section 2.8.

C. DESIGN

1. Normal Operating Range

Meter Size	Normal Operating Range @ 100% Accuracy (+/- 1.5%)
3-inch	½ gpm to 320 gpm
4-inch	¾ gpm to 500 gpm
6-inch	1½ gpm to 1000 gpm
8-inch	

2. Accuracy shall not drop below 90 percent during changeover from by-pass to turbine, or vice versa.
3. The maximum overall laying length, including strainer, measured from flange face to flange face, or turbine meters shall be:

Meter Size	Maximum Length
3-inch	38 inches
4-inch	40 inches
6-inch	52 inches
8-inch	

4. All compound meters shall be fitted with a stainless steel strainer screen in accordance with AWWA C702, section 4.1.2.1.
5. The mainline shall include a tapped test plug which is removable for field test purposes.
6. A stainless steel, spring loaded, mainline check valve, with a semi-hard rubber seat, shall be located downstream of the turbine meter. Such check valve shall have a clear opening at least equal in size to the turbine meter. No leaded parts shall be incorporated in the check valve assembly.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02514 - WATER METERS

7. Each component of the compound meter shall be interchangeable with other compound meters of the same manufacturer based on size and type.

PART 3 - EXECUTION

3.01 **WARRANTIES**

- A. Meter register warranties. All encoder registers supplied in connection with this proposal shall be guaranteed to be free from defects in workmanship for a period of at least 5 years from the date of installation. Any register that fails during this period shall be replaced at manufacturer's sole cost and expense.

3.02 **PRE-APPROVED EQUIPMENT**

A. **METERS MANUFACTURERS**

1. Neptune
2. Badger
3. Sensus
4. AMCO
5. Master Meter

B. **ENCODER-TYPE REGISTERS**

The encoder to be furnished with the meters must be compatible and already interfaced with any AMR fixed network provider having more than 5% market share in the water AMR provider space within the United States. If the provider wishes to submit an encoder that is not currently interfaced with an AMR fixed network provider (as stated above), it must provide a written guarantee that the proposed encoder will be integrated and tested and approved by the City, Engineer and AMR provider and that the encoder is fully functional with the selected AMR system one month prior to the first test installation. Failure to perform will result in financial penalties equal to the losses incurred by the City as a result of the failed performance of the encoder.

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 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.

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.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02975 - ASPHALT CONCRETE PATCHING AND JOINT REPAIR

- 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.

TECHNICAL SPECIFICATIONS
DIVISION 02 - SITE CONSTRUCTION

SECTION 02980 - RIGID PAVEMENT PATCHING AND JOINT REPAIR

- 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 ($\frac{3}{4}$ ") 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 sides and neatly fitted.

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03100 - CONCRETE FORMS AND ACCESSORIES

4. Forms for surfaces requiring special finishes shall be plywood with a minimum thickness of five-eighths inch ($\frac{5}{8}$ ") for straight sections and three-eighths inch ($\frac{3}{8}$ ") 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 ($\frac{1}{2}$ ") 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 ($\frac{7}{8}$ ") 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.

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

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 03151 - WATERSTOPS

PART 1 - GENERAL

1.01 SCOPE

- A. This Section covers the requirements for waterstops to be used in the construction of cast-in-place concrete.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-in-place Concrete

1.03 SUBMITTALS

- A. Submit three (3) copies of manufacturer's technical information and installation instruction to show compliance with these Specifications.

1.04 QUALITY ASSURANCE

- A. Waterstops shall conform to the Corps of Engineers Specification CRD-C572-74, latest edition.

1.05 DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall be responsible for the delivery, storage, and handling of products in accordance with the manufacturers recommendations.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Waterstops shall be as manufactured by W. R. Grace and Company; B. F. Goodrich Company; W. R. Meadows, Inc.; Vinylex Corporation; or an approved equal of the same type and material.

2.02 MATERIALS

- A. Waterstops shall be extended from polyvinyl chloride resin plastic meeting the following standards:

Tensile Strength	ASTM D412
Ultimate Elongation	ASTM D412
Hardness - Shore A/10	ASTM D2240
Tear Resistance	ASTM D624
Low Temperature Brittleness C-35°F	ASTM D746
Water Absorption	ASTM 570

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03151 - WATERSTOPS

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All waterstops shall be installed so that one-half ($\frac{1}{2}$) width will be embedded on one (1) side of the joint and one-half ($\frac{1}{2}$) on the other. The Contractor shall employ a method of placing the waterstop to insure that the waterstop will be held and to completely enclose the waterstop in the concrete.

All waterstops shall be continuous and so joined at all points of contact in the same plane, or at intersections with waterstops in different planes, so as to form a complete barrier to the passage of water through any construction, contraction or expansion joint and all joints shall be made by heat welding as specified herein.

Joints in PVC waterstops shall be made by heating the two (2) surfaces to be joined until the material has softened to the point where it is just short of being fluid and then bringing the two (2) softened surfaces together with a slight rubbing motion followed by firmly pressing them together so that a solid and tight bond is made. The joints in strips of waterstops made in the above manner shall be such that the entire cross section of this joint shall be dense, homogeneous and free of all porosity. All finished joints shall have a tensile strength of not less than seventy-five percent (75%) of the material of the strip as extruded.

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 (1/4") 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.

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

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

<u>Bar Size</u>	<u>Minimum Pin Diameter</u>
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.

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DIVISION 3 - 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:

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- 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 ($\pm 5\%$) 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").

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SECTION 03300 - CAST-IN-PLACE CONCRETE

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 ($\frac{1}{2}$ ") 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.

PART 3 - EXECUTION

3.01 MIX PROPORTIONING

A. Liquid Holding and Conveying Structures

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SECTION 03300 - CAST-IN-PLACE CONCRETE

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 ($\pm 1\%$).
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 ($1\frac{1}{2}$) 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

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SECTION 03300 - CAST-IN-PLACE 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 grooves 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

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DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

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 ($\frac{1}{3}$) of the width of the section at that point and their depth one-third ($\frac{1}{3}$) 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.

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

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

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

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 ($\frac{1}{2}$ ") radius and shall have its flanges ground to a knife edge so as to have as little burr as possible.

TECHNICAL SPECIFICATIONS
DIVISION 3 - CONCRETE

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:

<u>Area</u>	<u>Type Finish</u>
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

