



**ITB NO. 21-025
INVITATION TO BID
CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
For
BRUNSWICK-GLYNN COUNTY JOINT WATER AND SEWER COMMISSION
BRUNSWICK, GA**

Issued Tuesday, June 1, 2021

**MANDATORY Pre-bid teleconference
Friday, June 18th at 9:00 a.m. EST
Brunswick-Glynn County Joint Water and Sewer Commission Chambers
1703 Gloucester Street
Brunswick, Georgia 31520**

Deadline for questions is Wednesday, June 23rd at 5:00 p.m. EST
Please submit questions via e-mail to pcrosby@bgjwsc.org

Bids Due by 12:00 NOON EST Wednesday, July 7, 2021 to:

**Purchasing Division
Pam Crosby, Director of Purchasing
Brunswick-Glynn County Joint Water and Sewer Commission
1703 Gloucester Street
Brunswick, Georgia 31520
(912) 261-7100**

Bids should be clearly labeled as follows:
"ITB No. 21-025 Canal Road to Glynco Parkway Water Main Extension"

Submit responses in hard copy only; electronic or fax responses will not be accepted.
Responses received after the deadline or at any other locations will not be accepted.

FOR COMPLETE DETAILS OF THIS SOLICITATION, please visit the BGJWSC website, utilizing the following link:

<http://www.bgjwsc.org/departments/procurement/>

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BIDDING REQUIREMENTS

INVITATION FOR BIDS – 21-025

Sealed bids for **ITB No. 21-025 CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION, BRUNSWICK, GEORGIA** will be received by the Brunswick-Glynn County Joint Water and Sewer Commission (JWSC) at the JWSC's Office of the Director, 1703 Gloucester Street, Brunswick, Georgia 31520 until **12:00 NOON, EST, Wednesday, July 7, 2021** at which time and place they will be publically opened and read aloud.

Bidding documents are available, free of charge, on the JWSC website All updates and relevant information for the solicitation may be found here. Please use the link below:

<https://www.bgjwsc.org/departments/procurement/>

The work to be performed under this contract consists of furnishing all labor, materials, tools, equipment and incidentals required to construct complete in place and ready to install approximately 600 LF of 12-inch HDPE water main along Glynco Parkway via horizontal direction drill and connection to existing JWSC installed water main stub on Glynco Parkway. More specifically the scope of work includes, but is not limited to:

- Excavation, Dewatering Backfill, Traffic Control and Compaction
- Erosion and sedimentation controls
- Installation of approximately 600 LF of (12)-inch HDPE DR11 water main carrier and (24)-inch HDPE DR21 casing by horizontal directional drill with associated fittings and appurtenances
- Connection to existing JWSC water main stub(s)
- Testing and disinfection
- Complete site restoration
- All installation to include appropriate associated fittings, tracer wire, detection tape, erosion and sedimentation control, temporary and final grassing

The Bidder is ***encouraged*** to examine the location of the work and inform himself fully as to the conditions present at the site. A ***mandatory pre-bid teleconference*** will be held on **Friday, June 18, 2021 at 9:00 a.m. EST**. Questions regarding this solicitation shall be made in writing to the Purchasing Director, Pam Crosby, via email: pcrosby@bgjwsc.org. All responses to submitted questions will be issued via Addendum to pre-bid teleconference attendees and posted on the JWSC website for reference. Please email pcrosby@bgjwsc.org to receive register and receive login credentials for the pre-bid teleconference no later than **3:00 p.m. EST on Thursday, June 17, 2021**.

A bid guarantee in an amount not less than five percent (5%) of the amount bid must accompany each bid. Acceptable forms of bid guarantees are: a bid bond, certified check or cashier's check made payable to the Brunswick-Glynn County Joint Water and Sewer Commission. Performance and Payment bonds, each in an amount equal to hundred percent (100%) of the contract amount will be required of the successful Bidder.

The Brunswick-Glynn County Joint Water and Sewer Commission provides equal opportunity for all businesses and does not discriminate against any person or business because of race, color, religion, sex, national origin, disability or veteran status. This policy ensures all segments of the business community have access to supplying the goods and services needed by the JWSC.

The JWSC reserves the right to reject any and all bids, waive technicalities and make an award in the best interest of the JWSC.

SECTION 00200
INSTRUCTIONS TO BIDDERS

1.0 Scope of Work and Intent

The work to be performed under this contract is physically located in the North Mainland service district of Brunswick, Glynn County, Georgia and consists of furnishing all labor, materials, tools, equipment and incidentals required to construct complete in place and ready to operate a new water main and appurtenances. More specifically the scope of work includes, but is not limited to:

- Excavation, Dewatering and Backfill
- Erosion and sedimentation controls
- 600 LF of Twelve (12)-inch HDPE DR11 water main with (24)-inch HDPE DR21 casing with associated fittings and appurtenances
- Connection to existing JWSC water main stub(s)
- Complete site restoration

It is intended that the Instructions to Bidders, General Conditions, Construction Plans and Technical Specifications shall define and describe the complete work to which they relate. These instructions are to be followed by every entity bidding to provide the Brunswick-Glynn Joint Water and Sewer Commission (JWSC) with goods and/or services. These instructions constitute acknowledgement and acceptance of its obligation to adhere to these instructions, which are to be incorporated into and considered part of any contract the Bidder ultimately executes with the JWSC.

The timeframe to complete this scope of work is estimated not to exceed forty-five (45) calendar days. Bidders are advised to consider this aspect thoroughly as they plan and evaluate the multiple elements that will be involved to execute this project within the desired timeframe. Listed below is the tentative schedule of events associated with this project.

Date	Event
No later than 6/1/2021	Solicitation Released; Bid Docs Available for Prospective Bidders
Friday, 6/18/2021 – 9:00 a.m. EST	Mandatory Pre-Bid Teleconference
Wednesday, 6/23/2021 – 5:00 p.m. EST	Deadline for Questions
Wednesday, 07/07/2021 – 12:00 p.m. EST	Bids Due
Thursday, 7/15/2021 – 2:00 p.m.	Anticipated Contract Award – July JWSC Commission Meeting
7/16/2021 – 8/15/2021	Contract Execution Period and Pre-Construction Meeting/Notice to Proceed issued
No later than week of 08/16/2021	Commencement of Work
October 2021	Completion of Work

2.0 Mandatory Pre-Bid Teleconference

A *mandatory pre-bid teleconference* will be held on **Friday, June 18, 2021, at 9:00 a.m. EST**. The purpose of this meeting is to present and clarify information about the Project and process and respond to any immediate questions that Bidders may have about this IFB. A list of persons in attendance will be recorded and posted on the Owner's website. Late entry to the Pre-registration for this teleconference may be completed by emailing pcrosby@bgjwsc.org to register and receive login credentials no later than 3:00 p.m. EST on Thursday, June 18, 2021.

3.0 Questions and Requests for Clarification

If there is any question whatsoever regarding any portion of the specifications, it shall be the Bidder's responsibility to seek clarification immediately from the JWSC, as early as possible prior to the bid opening. Regarding requests for clarification during the bidding period, requests must be submitted in writing to the Purchasing Director, Pam Crosby via email pcrosby@bgjwsc.org on or before **5:00 p.m. EST on Wednesday, June 23, 2021**. Requests for clarification received after this date will not be considered. No oral communications from the Owner Contact or individual are binding. No contact with the JWSC staff, Commission members or any public official concerning the project during the solicitation process is allowed, except through the owner contact. A violation of this provision may result in disqualification of Bidder. Responses to requests for clarification will be issued by addendum to all pre-bid attendees and will also be posted on the JWSC website:

<https://www.bgjwsc.org/departments/procurement/>

It is the responsibility of all bidders to monitor this site for updates and addenda that may be added during the solicitation process.

4.0 Site Examination

The Bidder is *encouraged* to examine the location of the work and inform himself fully as to the conditions present at the site. Unless it is otherwise stated in the bid documents, it shall be the responsibility of the bidder to inform itself as to all conditions of the work site and to make and take account thereof in calculating and submitting its bid. Documents may be made available by the JWSC during the bidding process; no warranty of accuracy is made in regard to these documents, and it is the responsibility of the bidder to make its own investigations as to the nature of the work and the conditions under which it shall be performed, and to make its own independent assumptions as to these matters. The burden of anticipating unforeseen circumstances, either hidden or latent, and the conditions of the work site and all related circumstances, and the cost of accommodating thereof should unanticipated circumstances be later encountered shall rest upon the bidder.

5.0 Georgia Open Records Act Compliance

Information submitted by the Bidder in the bid process shall be subject to disclosure after bid award in accordance with the Georgia Open Records Act. Proprietary information must be identified and be accompanied by a signed affidavit outlining the redacted information. Entire bids may not be deemed proprietary. All updates and solicitation documents and any addenda will be posted to the JWSC website.

6.0 Bonds/Surety, Insurance and Contract Forms

A bid guarantee in an amount not less than five percent (5%) of the amount bid must accompany each bid. Acceptable forms of bid guarantees are: a bid bond, certified check or cashier's check made payable to the Brunswick-Glynn County Joint Water and Sewer Commission. The JWSC will return bid guarantees, other than bid bonds, to unsuccessful bidders as soon as practicable, but not sooner than the execution of a contract with the successful bidder. If for any reason whatsoever the successful Bidder withdraws from the competition after opening the bids, or refuses to execute the Contract, the Owner will proceed on the Bid Bond or deposit the certified check or cashier's check as damages for the Bidder's failure to enter into a contract for the work.

Performance and Payment bonds, each in an amount equal to one hundred percent (100%) of the contract amount will be required of the successful Bidder.

The Surety of the Bid Bond, Performance Bond, and Payment Bond shall be a surety company authorized to do business in the State of Georgia, shall be listed in the Department of the Treasury Circular 570, and shall have an underwriting limitation in excess of one hundred percent (100%) of the bid amount. The Bonds and Surety shall be subject to approval by the JWSC legal counsel.

Attorneys-in-fact who sign and seal Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of their power of attorney.

The successful bidder must comply with the applicable Insurance and Risk Management Requirements prior to beginning performance, and during the contract period. The requirements for this project are listed under Contracting Requirements - Section 00640.

7.0 Determination of Successful Bidder

The contract, if awarded, will be awarded to the lowest responsive, responsible Bidder. The determination of the Bidder's *responsibility* will be made by the JWSC based on whether the Bidder:

- Maintains a permanent place of business,
- Has the appropriate technical experience,
- Has adequate plant and equipment to do the work properly and expeditiously,
- Has suitable financial means to meet obligations incidental to this work, and
- Is appropriately licensed for the described work in the State of Georgia
- Submitted the E-Verify Affidavits and Agreements with bid.

While price is the prime criteria, and the JWSC intends to purchase at the lowest responsible bid available, price shall not be the sole criteria utilized by the JWSC in evaluating the bid package submitted. The following criteria shall also be utilized by the JWSC in determining the lowest responsible bid:

- Ability of Bidder to perform in the time frame needed by the JWSC.
- Reputation of Bidder in its industry.
- Reasonable of the bid in relation to anticipated costs
- Ongoing relationships with the JWSC based on above-average prior performance of work with the Commission.

The Bidder shall furnish, to the JWSC, all such information and data for this purpose as the JWSC may request. The JWSC reserves the right to reject any bid if the evidence submitted by, or investigation of, the Bidder fails to satisfy the JWSC that he is properly qualified to carry out the obligations of the Contract.

The determination of *responsiveness* will be made by the JWSC based on a consideration of whether the Bidder has submitted a complete Bid Form without irregularities, excisions, special conditions, or alternative bids for any item unless specifically requested in the Bid Form.

The JWSC reserves the right to reject any and all bids including without limitation, the right to reject any or all nonconforming, nonresponsive, unbalanced or conditional bids; the right to award each of the contract components individually or to a single qualified Bidder; the right to waive technicalities and make an award in the best interest of the JWSC; the right to award any, all or none.

8.0 Bid Document Alterations

Alterations to the documents are strictly prohibited and shall result in automatic disqualification of the Bidder's bid. If there are "exceptions" to the specifications or comments to any of the solicitation requirements or other language, the bidder may ask questions regarding those requirements or submit additional documentation as to the variation from the specifications, but may not alter any of the language contained in the solicitation. In the case of goods, the person, firm or corporations making the Bid may Bid all items. All items may be considered separately, at the discretion of the JWSC.

9.0 Bid Alternates

Bidders are requested to review bid alternates, if any, as outlined on the Bid Form.

10.0 Non-Collusion

When public work is let out for bid, no person shall prevent or attempt to prevent competition in such bid. Such bidders must make an oath filed with the officer who makes payments under the contract that they have not prevented or attempted to prevent competition in the bid process. Such oath must be signed by: if a partnership, all partners and any office or agent or other person who acted on the partnership's behalf during the bidding process; if a corporation, all officers, agents or other persons who acted for the corporation in the bid process.

11.0 Georgia Security and Immigration Compliance Act

In accordance with O.C.G.A. § 13-10-91, no bid for the physical performance of services will be considered unless the bid includes a signed, notarized Contractor E-Verify Affidavit as set forth herein. JWSC cannot consider any bid which does not include a completed affidavit. It is not the intent of this notice to provide detailed information or legal advice concerning the Georgia Security & Immigration Compliance Act of 2006, as amended on May 11, 2009. All Bidders intending to do business with JWSC are responsible for independently apprising themselves and complying with the requirements of that law and its effect of JWSC procurements and their participation in those procurements.

12.0 Bid Form

Bids shall be submitted on the Bid Form included. Bids shall be based upon unit or lump sum prices as indicated by the Bid Form. Where errors or omissions result in discrepancies in proposal totals, prices per unit as submitted will be binding. Final payment will be based upon completion and acceptance of the work by the JWSC.

13.0 Bid Tender and Acceptance

Bids shall not be withdrawn or cancelled by the bidder past the bid opening date and time. The bidder may make modifications/corrections to the bid by submitted a corrected, sealed bid but only if the change is prior to the bid opening. The corrected document should be clearly marked that it supersedes the bid originally submitted. No modification or corrections will be allowed subsequent to the bid opening.

Bidders are hereby notified and agree by submission of a Bid Form that if additional items not listed in the Bid Form become necessary and require unit prices not established by the Bid Form, the unit prices of such items shall be negotiated and shall be directly proportional to the established unit prices of similar items on the Bid Form.

By tendering a bid, a Bidder agrees to leave the bid open for acceptance by the JWSC for (60) days after the date set for the opening thereof.

By tendering a bid, the bidder certifies that the bidder has carefully examined these instructions and the terms and specifications applicable to and made a part of the bid. The Bidder further certifies that the prices shown in any schedule of items on which the Bidder is proposing are in accordance with the conditions, terms and specifications of the bid and that they are aware that any exception taken thereto may disqualify the bid. Bidders are required to inform themselves as to the availability of materials and the conditions relating to construction and labor under which any work will be or is now being performed. No error or misjudgement nor any lack of information on local conditions, general law or regulations on the part of the Bidder shall merit withdrawal of the bid.

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

14.0 Contract Time

The time slated for completion of this work is stated in the bid form. Contract time shall consist of **forty five (45)** consecutive calendar days for the completion of work, to be computed from the date of the Notice to Proceed. Time is of the essence and is an essential element of this Agreement, and the Contractor shall pay to the JWSC, not as a penalty, but as liquidated damages, the sum of **One Thousand Dollars (\$1,000.00)** for each calendar day that he shall be in default of completing the work within the time limit named herein.

15.0 Contract Execution

Award of this bid shall be by action of the JWSC Commission at its regular monthly meeting.

The contract between the JWSC and the Contractor shall be executed on a form provided by JWSC and will be subject to all requirements of the contract documents (which include but may not be limited to the Contract, these instructions, any Purchase Orders, and the Insurance and Risk Management Requirements), and shall form a binding contract between the parties.

Failure to execute the Contract, any required Surety Performance and Payment Bonds, or to furnish any required satisfactory proof of coverage of required insurance within (15) days from the date of notice of award on the Contract shall be just cause for the annulment of the award and for forfeiture of the bid guaranty to the JWSC, the award may then be made to the next lowest responsible bidder, or the work may be readvertised or constructed by the JWSC.

Any Contract and Contract Bonds shall be executed in duplicate.

The Bidder must employ such methods and means in carrying out the work as will not cause any interruption of or interference with any other Contractor.

16.0 Submission of Bids

Bids must be made on the enclosed Bid Form. Bidder shall submit One (1) electronic (USB drive), One (1) original hard-copy and Five (5) hard-copies of its Bid in an opaque, sealed envelope no later than **12:00 NOON EST on Wednesday June 23, 2021**. On the outside of the envelope containing the Bid shall be noted the following:

"Sealed Bid – 21-025 CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION"

The outside of the envelope shall also bear the name, address and Utility Contractor's License Number of the Bidder.

All bids must be hand delivered, delivered by courier service, or mailed via the United States Postal Service. No facsimiles will be accepted. Address bids to: Brunswick Glynn Joint Water and Sewer Commission, 1703 Gloucester Street, Brunswick, GA 31520 ATTN: Purchasing Division.

All blanks in the Bid Form must be completed and written or printed in ink. The person signing the Bid Form must initial any changes or corrections.

Bids by corporations must be executed in the corporate name by the president or vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested to by the secretary or an assistant secretary of the corporation. The corporate address and state of incorporation must be shown on the Bid Form.

Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown on the Bid Form.

The address, telephone number, facsimile number and email address for communications regarding the Bid must be shown on the Bid Form.

All names and titles must be typed or printed in ink below the signature.

The Bid shall contain an acknowledgement of receipt of all Addenda, if any. Copies of each Addendum must be included with the bid form.

The following are the required forms for bid submittal:

- Bid Form
- Bid Bond
- Oath
- EEO Representation
- Legal and Character Qualifications
- Non-Collusion Affidavit
- E-Verify Affidavit
- Acknowledgement and receipt of all addenda – signed copies of each addendum must be included

SECTION 00410

BID FORM

DATE SUBMITTED:

PROJECT NAME:

**CANAL ROAD TO GLYNCO PARKWAY
WATER MAIN EXTENSION
Brunswick, Georgia**

SUBMITTED TO:

Brunswick – Glynn County Joint
Water and Sewer Commission
1703 Gloucester Street,
Brunswick, Georgia 31520

SUBMITTED BY:

Company Name:

Address:

Georgia Utility Contractor's License No.

Acknowledge Receipt of Addenda Numbers

(Also include signed copies of each Addenda)

The undersigned as BIDDER hereby declares that the only person or persons interested in the BID as principal or Principals is or are named herein and that no other person than herein mentioned has any interest in the BID or in the Contract to be entered into; that this BID is made without connection with any other person or parties making a BID, and that it is in all respects fair and in good faith without collusion or fraud.

The BIDDER declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the plans and specifications for the work and the documents relative thereto; and has read all General and Special Conditions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
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The BIDDER proposes and agrees, if the BID is accepted, to contract with the Brunswick – Glynn County Joint Water and Sewer Commission to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor to complete the work in full and complete accordance with the shown, noted, described and reasonably intended requirements of the plans, specifications and contract documents to the full and entire satisfaction of the Brunswick – Glynn County Joint Water and Sewer Commission with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and contract documents for the prices set forth below.

EXPERIENCE AND REFERENCES:

The Bidder shall provide references relative to work it has done of a similar nature as solicited in this Invitation for Bids. Give references that will afford the JWSC opportunity to judge as to experience, skill, business standing and financial ability.

Project	Brief Scope of Project	Project Owner (Agency, Contact Name and Title)	Phone Number	Email Address	Mailing Address

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
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BERGEN WOODS OFFSITE IMPROVEMENTS BID FORM

For furnishing all labor, materials and equipment necessary to install approximately 600 linear feet of 12-inch HDPE water main along Glynco Parkway via horizontal directional drill and to connect to existing JWSC water main stub-outs located on Glynco Parkway. Work includes but not limited to mobilization; clearing and grubbing; trench excavation; horizontal direction drill; bedding and backfill; dewatering; HDPE water main; misc. fittings and valves; pressure testing; erosion control and grassing; complete surface restoration and all other work and appurtenances required, to the following unit prices:

CANAL ROAD TO GLYNCO PARKWAY WATERMAIN EXTENSION					
OPTION 1 - 20" CASING HDD W/ 14" CARRIER					
ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
1	MOBILIZATION, DEMOBILIZATION, INSURANCE & BONDS	1	LS		
2	CLEARING AND GRUBBING	1	LS		
3	20" HDPE DR17 WM HDD- CASING	600	LF		
4	20" HDPE DR17 WM CASING MATERIAL (PIPE)	600	LF		
5	14" HDPE DR11 WM HDD - CARRIER	600	LF		
6	14" HDPE DR11 MATERIAL (PIPE, ADAPTERS, WIRE)	1	LS		
7	FUSE 1 MJ TO EXISTING BURIED 14" HDPE	4	HR		
8	MUD DISPOSAL AND MISC. FEES	600	LF		
9	CONNECTION TO EXISTING STUB-OUTS	4	EA		
10	TESTING AND DISINFECTION	1	LS		
11	EROSION CONTROL & GRASSING	1	LS		
OPTION 2 - 24" CASING HDD W/ 14" CARRIER					
ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
12	MOBILIZATION, DEMOBILIZATION, INSURANCE & BONDS	1	LS		
13	CLEARING AND GRUBBING	1	LS		
14	24" HDPE DR21 WM HDD- CASING	600	LF		
15	24" HDPE DR21 WM CASING MATERIAL (PIPE)	600	LF		
16	14" HDPE DR11 WM HDD - CARRIER	600	LF		
17	14" HDPE DR11 MATERIAL (PIPE, ADAPTERS, WIRE)	1	LS		
18	FUSE 1 MJ TO EXISTING BURIED 14" HDPE	4	HR		
19	MUD DISPOSAL AND MISC. FEES	600	LF		
20	CONNECTION TO EXISTING STUB-OUTS	4	EA		
21	TESTING AND DISINFECTION	1	LS		
22	EROSION CONTROL & GRASSING	1	LS		
OPTION 3 - 14" HDD W/O CASING					
ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
23	MOBILIZATION, DEMOBILIZATION, INSURANCE & BONDS	1	LS		
24	CLEARING AND GRUBBING	1	LS		
25	14" HDPE DR11 WM HDD - NO CASING	600	LF		
26	14" HDPE DR11 MATERIAL (PIPE, ADAPTERS, WIRE)	1	LS		
27	FUSE 1 MJ TO EXISTING BURIED 14" HDPE	4	HR		
28	MUD DISPOSAL AND MISC. FEES	600	LF		
29	CONNECTION TO EXISTING STUB-OUTS	4	EA		
30	TESTING AND DISINFECTION	1	LS		
31	EROSION CONTROL & GRASSING	1	LS		
					TOTAL
OPTION 1:					
OPTION 2:					
OPTION 3:					

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
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The Bidder further agrees to accomplish all work and provide all material for the lump sum price submitted and understands that the lump sum price is subject to adjustment by either increase or decrease, only through a properly executed change order.

The Bidder further proposes and agrees to commence work under this contract, with adequate force and equipment, on a date to be specified in a written order of the Owner and shall fully complete all work hereunder within **forty five (45)** consecutive calendar days from and including said date.

The undersigned further agrees that, in case of failure on his part to execute the said Contract and Bonds within fifteen (15) consecutive calendar days after receipt of the conformed Contract Documents, the check or bid bond accompanying this Bid and the monies payable thereto, shall be paid into the funds of the Owner as liquidated damages for such failure otherwise, the check or Bid Bond accompanying this Bid shall be returned to the undersigned.

I understand that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards. I agree to abide by all conditions of this Invitation for Bids and certify that I am authorized to sign this Bid for the Bidder.

This the _____ day of _____ 2021.

Company Name: (Please Type or Print)

Person Authorized to Sign:

Name: _____

Name: _____

Street: _____

Signature: _____

City: _____

Title: _____

State: _____ Zip: _____

Telephone Number: () _____

Fax Number: () _____

E-Mail: _____

SECTION 00420

BID BOND

State of Georgia

City of Brunswick

County of Glynn

KNOW ALL MEN BY THESE PRESENT, that we, _____

_____, as Principal, and

_____, as Surety, are held and firmly bound

unto the Brunswick-Glynn County Joint Water and Sewer Commission (JWSC) in the not to

exceed sum of _____ Dollars

(\$_____) lawful money of the United states, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors and assign, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the JWSC a Bid for:

**CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
BRUNSWICK, GEORGIA**

NOW THEREFORE, the conditions of this obligation are such that if the Bid be accepted, the Principal shall, within fifteen days (15) days after receipt of conformed Contract Documents, execute a contract in accordance with the Bid upon the terms, conditions and prices set forth therein, and in the form and manner required by the JWSC and execute a sufficient and satisfactory Performance Bond and Payment bond payable to the JWSC, each in an amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to the JWSC, then this obligation shall be void; otherwise, it shall be and

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
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remain in full force and virtue in law; and the Surety shall, upon failure of the Principal to comply with any or all to the foregoing requirements within the time specified above, immediately pay to the aforesaid JWSC, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

This bond is given pursuant to and in accordance with the provisions of O.C.G.A. § 36-91-50 *et seq.*, as amended from time to time, and all the provisions of the law referring to this character of bond as set forth in said sections or as may be hereinafter enacted and these are hereby made a part hereof to the same extent as if set out herein in full.

(Continued on Next Page)

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
SECTION 00420

IN WITNESS WHEREOF, the said Principal has hereunder affixed its signature and said Surety has hereunto caused to be affixed its corporate signature and seal, by its duly authorized officers, on

This the _____ day of _____, 2021.

PRINCIPAL: _____

Signed and sealed in the By: _____

Presence of:

Title: _____

1. _____

(Seal)

2. _____

=====

SURETY: _____

Signed and sealed in the By: _____

Presence of:

Title: _____

(Seal)

1. _____

2. _____

SECTION 00430

OATH

State of Georgia

City of Brunswick

County of Glynn

I _____ (Name of Individual) solemnly swear that in the procurement of the Contract for

**CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
BRUNSWICK – GLYNN COUNTY, GEORGIA**

That I or any other person associated with me or my business, corporation or partnership has prevented or attempted to prevent competition in the bidding of said project or from submitting a bid for this project by any means whatsoever.

Lastly, I swear that neither I, nor any other person associated with me or my business, Corporation or partnership has caused or induced any other bidder to withdraw his/her bid from consideration for this project. Said oath is filed in accordance with the requirements set forth in O.C.G.A. § 36-91-21 (e).

This _____ Day of _____, 2021

Name of Party: _____

Corporate or Partnership Name: _____

Sworn to and subscribed before me this _____ Day of _____, 2021

NOTARY PUBLIC:

Name: _____

My Commission Expires: _____

(SEAL)

SECTION 00440

REPRESENTATION

EQUAL EMPLOYMENT OPPORTUNITY (EEO) PRACTICE:

EEO Plan: The successful Bidder will develop and implement an EEO policy that, as a minimum, will recruit, hire, train, and promote, at all levels, without regard to race, color, religion, national origin, sex, or age, except where sex or age is a bona fide occupational qualification.

EEO For Veterans/Handicapped: The successful Bidder will also provide equal employment opportunities for qualified disabled veterans, handicapped persons and veterans of the Vietnam Era.

EEO For Successful Bidder Programs: The successful Bidder, will ensure equal employment opportunity applies to all terms and conditions of employment, personnel actions, and successful Bidder-sponsored programs. Every effort shall be made to ensure that employment decisions, programs and personnel actions are non-discriminatory. That these decisions are administered on the basis of an evaluation of an employee's eligibility, performance, ability, skill and experience.

EEO Acquisitions: The successful Bidder will develop and implement a policy that will give equal opportunity to the purchase of various goods and services from small businesses and minority-owned businesses.

Does the Bidder have the above EEO policy in place?

Yes [] No []

If the answer to a. above is no, will the Bidder have such a policy in place for the project?

Yes [] No []

Statement of Assurance: The Bidder herein assures the JWSC that it is in compliance with Title VI & VII of the 1964 Civil Rights Act, as amended, in that it does not on the grounds of race, color, national origin, sex, age, disability, or veteran status, discriminate in any form or manner against employees or employers or applicants for employment and is in full compliance with A.D.A.

(Firm's Name)

(Authorized Signature)

(Title)

(Date)

SECTION 00450

LEGAL AND CHARACTER QUALIFICATIONS

Convictions: Has the Bidder (including parent corporation, if applicable) or any principal ever been convicted in a criminal proceeding (felonies or misdemeanors) in which any of the following offenses were charged?

	Yes	No		Yes	No
Fraud	[]	[]	Obstruction of justice (or any other misconduct affecting public or judicial officers' performance of their official Duties	[]	[]
Embezzlement	[]	[]			
Tax Evasion	[]	[]			
Bribery	[]	[]	False/misleading advertising	[]	[]
Extortion	[]	[]	Perjury	[]	[]
Jury Tampering	[]	[]	Conspiracy to commit any of the Foregoing offenses	[]	[]
Anti-Trust Violations	[]	[]			

Civil Proceedings: Has the Bidder or any principal ever been a party, or is now a party, to a civil proceeding in which it was held liable for any of the following?

	Yes	No		Yes	No
Unfair/anti-competitive business practices	[]	[]	Violations of securities laws (state & federal)	[]	[]
Consumer fraud misrepresentation	[]	[]	False/misleading advertising	[]	[]
Violation of local government Ordinances	[]	[]			

License Revocation: Has the Bidder or any principal ever had a business license revoked, suspended, or the renewal thereof denied, or is a party to such a proceeding that may result in same?

Yes No

Responses: If yes is the response to any of the questions on the previous page, provide information such as date, court, sentence, fine, location, and all other specifics for each yes response.

SECTION 00460
NON-COLLUSION AFFIDAVIT

This Bid is submitted to Brunswick-Glynn County Joint Water and Sewer Commission (JWSC) by the undersigned who is an authorized officer of the company and said company is licensed to do business in Georgia. Further, the undersigned is authorized to make these representations and certifies these representations are valid. The Bidder recognizes that all representations herein are binding on the Company and failure to adhere to any of these commitments, at the JWSC's option, may result in a revocation of the granted contract.

Consent is hereby given to the JWSC to contact any person or organization in order to make inquiries into legal, character, technical, financial, and other qualifications of the Bidder.

The Bidder understands that, at such time as the JWSC decides to review this Bid, additional information may be requested. Failure to supply any requested information within a reasonable time may result in the rejection of the Bid with no re-submittal rights.

The successful Bidder understands that the JWSC, after considering the legal, financial, technical, and character qualifications of the Bidder, as well as what in the JWSC's judgment may best serve the interest of its rate payers and employees, may grant a contract.

The successful Bidder understands that this bid is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a bid for the same, and is in all respects fair and without collusion or fraud. I understand that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.

Any contract issued will be on the basis of the Bidder's service, financial plans and arrangements being feasible and adequate to fulfill the conditions set forth in this project and the successful Bidder's response.

Company Name: _____

Authorized Person: _____ Signature: _____
(Print/Type)

Title: _____ Date: _____

Address: _____

Telephone: _____ Fax: _____ Email: _____

SECTION 00470

E-VERIFY CONTRACTOR AFFIDAVIT AND AGREEMENT

Georgia Security Immigration and Compliance (GSIC) Act

The Brunswick - Glynn County Joint Water and Sewer Commission and Contractor agree that compliance with the requirements of O.C.G.A. § 13-10-91 and Rule 300-10-1-.02 of the Rules of the Georgia Department of Labor are conditions of this Agreement for the physical performance of services.

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, *stating affirmatively that the individual, firm, or corporation which is contracting with the Brunswick - Glynn County Joint Water and Sewer Commission has registered with and is participating in the federal work authorization program known as: "E-Verify", web address <https://e-verify.uscis.gov/enroll/> operated by the United States Citizenship and Immigration Services Bureau of the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. The undersigned Contractor also verifies that he/she/it is using and will continue to use the federal work authorization program throughout the contract period.*

The undersigned Contractor agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to the contract with the Brunswick - Glynn County Joint Water and Sewer Commission, Contractor will secure from each subcontractor(s) similar verification of compliance with O.C.G.A. § 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees the Contractor will advise the Brunswick - Glynn County Joint Water and Sewer Commission of the hiring of a new subcontractor and will provide the Brunswick - Glynn County Joint Water and Sewer Commission with a Subcontractor Affidavit attesting to the Subcontractor's name, address, user identification number, and date of authorization to use the Federal Work Authorization Program within five (5) days of the hiring before the Subcontractor begins working on the Project. Contractor also agrees to maintain all records of such compliance for inspection by the Brunswick - Glynn County Joint Water and Sewer Commission at any time and to provide a copy of each such verification to the Brunswick - Glynn County Joint Water and Sewer Commission at the time the subcontractor(s) is retained to perform such services.

(Continued on Next Page)

E-Verify Employment Eligibility Verification User I.D. Number

Date of Authorization To Use Federal Work Authorization Program

Name of Contractor

Title of Authorized Officer or Agent of Contractor

Signature and Printed Name of Authorized Officer or Agent

Sworn to and subscribed before me this the _____ day of _____, 2021.

NOTARY PUBLIC:

Name: _____

My Commission Expires: _____

(NOTARY SEAL)

As of the effective date of O.C.G.A. § 13-10-91, the applicable federal work authorization program is the “EEV/Basic Pilot Program” operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

Authority O.C.G.A. § 13-10-91. **History.** Original Rule entitled “Contractor Affidavit and Agreement” adopted F. May 25, 2007; eff. June 18, 2007, as specified by the Agency.

SECTION 00480

E-VERIFY SUBCONTRACTOR AFFIDAVIT AND AGREEMENT

Georgia Security Immigration and Compliance (GSIC) Act

The Brunswick - Glynn County Joint Water and Sewer Commission and Subcontractor agree that compliance with the requirements of O.C.G.A. § 13-10-91 and Rule 300-10-1-.02 of the Rules of the Georgia Department of Labor are conditions of this Agreement for the physical performance of services.

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, *stating affirmatively that the individual, firm, or corporation which is contracting with a Contractor contracting with the Brunswick - Glynn County Joint Water and Sewer Commission has registered with and is participating in the federal work authorization program known as: E-Verify”, web address <https://e-verify.uscis.gov/enroll/> operated by the United States Citizenship and Immigration Services Bureau of the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicable provisions and deadlines established in O.C.G.A. §13-10-91. The undersigned Subcontractor also verifies that he/she/it is using and will continue to use the federal work authorization program throughout the contract period.*

The undersigned Subcontractor agrees that, should it employ or contract with any other subcontractor(s) in connection with the physical performance of services pursuant to the contract with the Brunswick - Glynn County Joint Water and Sewer Commission, Subcontractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. § 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Subcontractor further agrees the Subcontractor will advise the Brunswick - Glynn County Joint Water and Sewer Commission of the hiring of a new subcontractor and will provide the Brunswick - Glynn County Joint Water and Sewer Commission with a Subcontractor Affidavit attesting to the Subcontractor’s name, address, user identification number, and date of authorization to use the Federal Work Authorization Program within five (5) days of the hiring before the Subcontractor begins working on the Project. Subcontractor also agrees to maintain all records of such compliance for inspection by the Brunswick - Glynn County Joint Water and Sewer Commission at any time and to provide a copy of each such verification to the Brunswick - Glynn County Joint Water and Sewer Commission at the time the subcontractor(s) is retained to perform such services.

(Continued on Next Page)

E-Verify Employment Eligibility Verification User I.D. Number

Date of Authorization To Use Federal Work Authorization Program

Name of Subcontractor

Title of Authorized Officer or Agent of Subcontractor

Signature and Printed Name of Authorized Officer or Agent

Sworn to and subscribed before me this the _____ day of _____, 2021.

NOTARY PUBLIC:

Name: _____

My Commission Expires: _____

(NOTARY SEAL)

As of the effective date of O.C.G.A. § 13-10-91, the applicable federal work authorization program is the “EEV/Basic Pilot Program” operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

Authority O.C.G.A. § 13-10-91. **History.** Original Rule entitled “Contractor Affidavit and Agreement” adopted F. May 25, 2007; eff. June 18, 2007, as specified by the Agency.

CONTRACTING REQUIREMENTS

SECTION 00520

PART A – CONTRACT FORM

**AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT**

This Agreement is by and between Brunswick-Glynn County Joint Water and Sewer Commission (“Owner”) and (“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:

WORK

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

THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Canal Road to Glynco Parkway Water Main Extension

2.02 *Definitions: Levels of Project Completion*

A. *Substantial Completion* shall be defined as the date on which the Work was sufficiently completed, in accordance with the contract as modified by any change order or amendments agreed by the parties, so that the owner could occupy the project for the use for which it was intended, the sufficiency of which to be determined and certified by the Engineer. Minor items, not necessary for the primary use of the project, determined as such by the Engineer, may still be incomplete.

B. *Final Completion* shall be defined as the date on which the construction is complete, and all items of the Work have been satisfactorily completed and accepted in accordance with the contract, as determined and certified by the Engineer.

ENGINEER

3.01 The Owner will assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

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: Dates*

- A. The Work will be substantially complete completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions based on the issue date of the Notice To Proceed.

4.03 *Contract Times: Days*

- A. The Work will reach Final Completion within 60 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 days after the date when the Contract Times commence to run.

4.04 *Milestones*

A. No Milestones for this project

4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and 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. The parties agree that the following liquidated damage amounts are reasonable estimates of anticipated or actual harm that might arise from Contractor's breach. 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 \$1,000 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 \$1,000 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 Substantial Completion, and Final Completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.06 *Special Damages*

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

for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

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

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 Exhibit A.

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 20th 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.

- 1. 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 retainage and liquidated damages, in accordance with the Contract and the General Conditions.

- a. Except as otherwise provided herein following the completion of fifty percent (50%) of the Work, Owner shall pay Contractor ninety percent (90%) of the value of the Work completed as provided in the contract documents plus the value of materials and equipment suitably stored, insured, and protected at the construction site and, at the owner's discretion, such materials and equipment suitably stored, insured, and protected off site at a location approved by the owner's authorized contract representative, when allowed by the contract documents, with the remaining ten percent (10%) held as retainage; and

- b. There shall be no amounts retained on progress payments submitted after 50 percent (50%) of the Work on the project has been completed if in the opinion of Owner or Engineer that such Work is satisfactory and has been completed on schedule; and

- i. Discontinuation of retention shall not affect the retained amounts on the first fifty percent (50%) of the Work on the project which may continue to be held to ensure satisfactory completion of the project; and
- ii. If, after discontinuing the retention, the Owner or Engineer determines that the work is unsatisfactory, or has fallen behind schedule, the Owner may resume retention at the previous rate of ten percent (10%).

- B. At Substantial Completion of the Work, and as the Engineer determines the work to be reasonably satisfactory, Owner shall within thirty (30) days after invoice and other appropriate documentation as may be required by the contract documents are provided pay the retainage to the Contractor. If at that time there are any remaining incomplete minor items, an amount equal to 200 percent (200%) of the value of each item as determined by the Engineer shall be withheld until such item or items are completed.
- C. Final payment of the retained amounts to the Contractor under the contract to which the retained amounts relate shall be made after certification by the Engineer in charge of the project covered by the contract that the work has been satisfactorily completed and is accepted in accordance with the contract, plans, and specifications.
- D. Retainage shall be invested at the current market rate and any interest earned on the retained amount by Owner shall be paid to the Contractor when the project has been completed within the time limits specified and for the price specified in the contract, or in any amendments or change orders approved in accord with the terms of the contract, as certified pursuant to Subsection 1 of this paragraph; and
 - 1. Payment to the Contractor of interest earned on the retained amounts shall be made after certification by the Engineer in charge of the project covered by the contract that the work has been completed within the time specified and within the price specified in the contract.
- E. The Contractor shall, within ten days from the contractor's receipt of retainage from the owner, pass through payments to subcontractors and shall reduce each subcontractor's retainage in the same manner as the contractor's retainage is reduced by the owner; provided, however, that the value of each subcontractor's work complete and in place equals 50 percent of his or her subcontract value, including approved change orders and other additions to the subcontract value, provided, further, that the work of the subcontractor is proceeding satisfactorily and the subcontractor has provided or provides such satisfactory reasonable assurances of continued performance and financial responsibility to complete his or her work including any warranty work as the contractor in his or her reasonable discretion may require, including, but not limited to, a payment and performance bond; and
 - 1. The foregoing paragraph is intended to outline Contractor's responsibilities as set forth in O.C.G.A. § 13-10-80, and is not, by itself, intended to confer contractual privity or third party beneficiary status upon any subcontractor or lower tier subcontractor.

6.03 *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.

6.04 *Interest*

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

CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist 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 bid documents table of contents of the project manual (copy of list attached).
6. Drawings listed on the attached sheet index.
8. Addenda (if any)
9. Exhibits to this Agreement (enumerated as follows):
 - a. Bid Form dated in response to Invitation For Bid 21-023 Bergen Woods Offsite Improvements released on May 6, 2021.
10. 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.

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 **insert date 2021** (which is the Effective Date of the Contract).

Owner:
Brunswick-Glynn Count Joint Water and
Sewer Commission

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: G. Ben Turnipseed, Sr.
(typed or printed)

Title: Chairman
(typed or printed)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:
1703 Gloucester Street
Brunswick, GA 31520

Designated Representative:
Name: Andrew Burroughs
(typed or printed)

Title: Executive Director
(typed or printed)

Address:
1703 Gloucester Street
Brunswick, GA 31520

Email: aburroughs@bgjwsc.org

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:
530 Woodlawn Street
Belmont, NC 28012

License No.: _____
(where applicable)

State: Georgia

SECTION 00610
PERFORMANCE BOND

State of Georgia
City of Brunswick
County of Glynn

KNOW ALL MEN BY THESE PRESENT, that we _____

_____, as Principal, and _____

_____, as Surety, do hereby acknowledge ourselves indebted and firmly bound and held unto the Brunswick – Glynn County Joint Water and Sewer Commission, for the use and benefit of those entitled thereto in the not to exceed sum of _____

_____ \$ (_____)

for the payment of which will and truly to be made, in lawful money of the United States, we do hereby bind ourselves, successors, assigns, heirs, and personal representatives.

BUT THE CONDITION OF THE FOREGOING OBLIGATION OR BOND IS THIS:

WHEREAS, the Brunswick –Glynn County Joint Water and Sewer Commission has engaged the said Contractor for the not to exceed sum of _____

_____ \$ (_____)

for the Project entitled:

**CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
BRUNSWICK – GLYNN COUNTY, GEORGIA**

as more fully appears in a written Agreement bearing the same project title, a copy of which Agreement is by reference hereby made a part thereof.

NOW, THEREFORE, if said Contractor shall fully and faithfully perform all the undertakings and obligations under the said agreement or contract herein before referred to and shall fully indemnify and save harmless the Brunswick-Glynn County Joint Water and Sewer Commission from all costs and damage whatsoever which it may suffer by reason of any failure on the part of said Contractor to do so, and shall fully reimburse and repay the Brunswick-Glynn County Joint Water and Sewer Commission such default, and shall guarantee all products and workmanship against defects for a period of one year, then this obligation or bond shall be null and void, otherwise, it shall remain in full force and effect.

And for value received it is hereby stipulated and agreed that no change, extension of time, alteration or addition to the terms of the said Agreement or Contract or in the work to be performed there under, or the Specifications accompanying the same shall in any way affect the obligations under this obligation or bond, and notice is hereby waived of any such damage, extension of time, alteration or addition to the terms of the Agreement or Contract or to the work or to the Specifications.

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
SECTION 00610

This bond is given pursuant to and in accordance with the provisions of O.C.G.A. §§ 36-10-1 *et seq.* and 36-82-100 *et seq.* and all the provisions of the law referring to this character of bond as set forth in said sections or as may be hereinafter enacted, and these are hereby made a part hereof to the same extent as if set out herein in full.

IN WITNESS WHEREOF, the said Principal has hereunder affixed its signature and said Surety has hereunto caused to be affixed its corporate signature and seal, by its duly authorized officers, on

This the _____ day of _____, 2021, executed in three (3) counterparts.

PRINCIPAL: _____

By: _____

Title: _____

(SEAL)

Signed and Sealed in the Presence of:

1. _____

2. _____

SURETY: _____

By: _____

Title: _____

(SEAL)

Signed and Sealed in the Presence of:

1. _____

2. _____

SECTION 00620
PAYMENT BOND

State of Georgia
City of Brunswick
County of Glynn

KNOW ALL MEN BY THESE PRESENT, that we _____

_____, as Principal, and _____

_____, as Surety, do hereby acknowledge ourselves
indebted and firmly bound and held unto the Brunswick – Glynn County Joint Water and Sewer
Commission, for the use and benefit of those entitled thereto in the not to exceed penal sum of

_____ \$ (_____)

for the payment of which will and truly be made, in lawful money of the United States, we do hereby
bind ourselves, successors, assigns, heirs, and personal representatives.

BUT THE CONDITION OF THE FOREGOING OBLIGATION OR BOND IS THIS:

WHEREAS, the Brunswick – Glynn County Joint Water and Sewer Commission has engaged the said
Contractor for the not to exceed sum of _____

_____ \$ (_____)

for the Project entitled:

CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
BRUNSWICK – GLYNN COUNTY, GEORGIA

as more fully appears in a written Agreement bearing the same project title, a copy of which Agreement
is by reference hereby made a part thereof.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if said Contractor
and all subcontractors to whom any portion of the work provided for in said Contract is sublet and all
assignees of said Contract and of such subcontractors shall promptly make payments to all persons
supplying him or them with labor, products, services, or supplies for or in the prosecution of the work
provided for in such Contract, or in any amendment or extension of or addition to said Contract, and for
the payment of reasonable attorney's fees, incurred by the claimants in suits on this bond, then the above
obligation shall be void; otherwise, it shall remain in full force and effect.

HOWEVER, this bond is subject to the following conditions and limitations:

- (a) Any person, firm or corporation that has furnished labor, products, or supplies for or in the
prosecution of the work provided for in said Contract shall have a direct right of action

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
SECTION 00620

against the Contractor and Surety on this bond, which right of action shall be asserted in a proceeding, instituted in the county in which the work provided for in said Contract to be performed or in any county in which Contractor or Surety does business. Such right of action shall be asserted in proceedings instituted in the name of the claimant or claimants for his or their use and benefit against said Contractor and Surety or either of them (but not later than one year after the final settlement of said Contract) in which action such claim or claims shall be adjudicated and judgment rendered thereon.

- (b) The Principal and Surety hereby designate and appoint _____ as agent of each of them to receive and accept service of process or other pleading issue or filed in any proceeding instituted on this bond and hereby consent that such service shall be the same as personal service on the Contractor and/or Surety.
- (c) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than one year after the final settlement of said Contract.
- (d) This bond is given pursuant to and in accordance with the provisions of O.C.G.A. §§ 36-10-1 *et seq.* and 36-82-100 *et seq.* and all the provisions of the law referring to this character of bond as set forth in said sections or as may be hereinafter enacted, and these are hereby made a part hereof to the same extent as if set out herein in full.

(Signatures on Next Page)

CANAL ROAD TO GLYNCO PARKWAY WM EXTENSION
SECTION 00620

IN WITNESS WHEREOF, the said Principal has hereunder affixed its signature and said Surety has hereunto caused to be affixed its corporate signature and seal, by its duly authorized officers, on

This the _____ day of _____, 2021, executed in two (2) counterparts.

PRINCIPAL: _____

By: _____

Title: _____

(SEAL)

Signed and Sealed in the Presence of:

1. _____

2. _____

SURETY: _____

By: _____

Title: _____

(SEAL)

Signed and Sealed in the Presence of:

1. _____

2. _____

SECTION 00630
PART D - AFFIDAVIT OF PAYMENT OF CLAIMS

_____ This the _____ day of _____, 2021
appeared before me, _____, a Notary Public, in and for

_____, and being by me first duly sworn states that all subcontractors and suppliers of labor and materials have been paid all sums due them to date for work performed or material furnished in the performance of the Contract between the Brunswick – Glynn County Joint Water and Sewer Commission (JWSC) and **Contractor to be Named** (Contractor) last signed on _____, for the

**CANAL ROAD TO GLYNCO PARKWAY WATER MAIN EXTENSION
BRUNSWICK – GLYNN COUNTY, GEORGIA**

CONTRACTOR _____ **Company:** _____

By: _____

Title: _____

(SEAL)

Sworn to and subscribed before me this the _____ day of _____, 2021

NOTARY PUBLIC _____ **Name:** _____

My Commission Expires: _____

(NOTARY SEAL)

SECTION 00640
PART E – CERTIFICATE OF INSURANCE

This is to certify that _____
(Insurance Company)

Of _____
(Insurance Company Address)

Has issued policies of insurance, as identified by a policy number to the insured named below, and that such policies are in full force and effect at this time. Furthermore, this is to certify that these policies meet the requirements described in the General Conditions of this project; and it's agreed that none of these policies will be canceled or changed so as to affect this Certificate until thirty (30) days after written notice of such cancellation or change has been delivered to:

**BRUNSWICK – GLYNN COUNTY JOINT WATER AND SEWER COMMISSION
EXECUTIVE DIRECTOR
1703 GLOUCESTER STREET
BRUNSWICK, GEORGIA 31520**

It is further agreed that the Brunswick – Glynn County Joint Water and Sewer Commission shall be named as an additional insured on the Contractor's policy.

Insured: _____

Project Name: **CANAL ROAD TO GLYNCO PARKWAY WATER MAIN
EXTENSION
BRUNSWICK – GLYNN COUNTY, GEORGIA**

Policy Number(s): _____

Date: _____
(Insurance Company)

Issued At: _____
(Authorized Representative)

Address: _____

Note: Please attach Certificate of Insurance form to this page.

INSURANCE REQUIREMENTS

(revised April 2019 to include Professional Liability Requirements)

The description section of your insurance certificate must read:

BGJWSC is named as an additional insured on all coverage except Workers' Compensation as per written contract. A waiver of Subrogation applies to all policies shown above as per written contract.

Insurance Requirements

Before starting and until acceptance of the Work by BGJWSC, and without further limiting its liability under the Contract, Company shall procure and maintain at its sole expense, insurance of the types and in the minimum amounts stated below:

SCHEDULE	AMOUNT
<u>Workers' Compensation</u>	
Georgia Statutory coverage and Employer's Liability (including appropriate Federal Acts)	Statutory Limits (Workers' Compensation) \$500,000 Bodily Injury each accident \$500,000 Bodily Injury by Disease each Employee \$1,000,000 Bodily Injury policy limit
<u>Commercial General Liability</u>	
Premises-Operations	\$1,000,000 each occurrence
Products-Completed Operations	\$2,000,000 annual aggregate for bodily injury and property damage, combined single limit
Contractual Liability	
Independent Contractors	
Broad Form Property Damage	
Explosion, Collapse and Underground Hazards (XCU Coverage) as appropriate	
Primary and Non Contributory	
<u>Automobile Liability</u>	
All autos-owned, hired, or non-owned	\$1,000,000 each occurrence, combined single limit
<u>Professional Liability Insurance</u>	
Errors and Omissions	\$2,000,000 each occurrence; \$4,000,000 annual aggregate
<u>Excess or Umbrella Liability</u>	
(This is additional coverage and limits above the following primary insurance: Employer's Liability, Commercial General Liability and Automobile Liability)	\$2,000,000 each occurrence and annual aggregate

Company's Commercial General Liability and Excess or Umbrella Liability policies shall be effective for two years after Work is complete. The above Indemnification provision is separate and is not limited by the type of insurance or insurance amounts stated above. The General liability shall contain a "Per Project Aggregate".

Company shall specify BGJWSC as an additional insured for all coverage except Workers' Compensation and Employer's Liability. Such insurance shall be primary and non-contributory as to any and all other insurance or self-insurance maintained by BGJWSC. Company shall include a Waiver of Subrogation on all required insurance in favor of BGJWSC, its commission members, employees, agents, successors and assigns.

Such insurance shall be written by a company or companies authorized to do business in the State of Georgia, rated at least A- VII by A M Best and satisfactory to BGJWSC. Prior to commencing any Work under this Contract, certificates evidencing the maintenance of the insurance shall be furnished to BGJWSC for approval.

SECTION 00650

PART E - CERTIFICATE OF DRUG FREE WORKPLACE

In order to have a drug- free workplace, a business shall:

Publish a statement notifying employees that the unlawful, manufacture, distribution, dispensing, possession, or use of controlled substances is prohibited in the workplace and specifying the actions that shall be taken against employees for violation of such prohibition.

Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

As a condition of working on the commodities or contractual services then under bid, the employee shall notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of any controlled substance law of the United States or any State, for a violation occurring in the workplace no later than five (5) days after such conviction.

Impose a sanction on, or require satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign this statement, I certify that this firm complies fully with the above requirements.

Company Name: _____

Authorized Signature: _____

Title: _____

Date: _____

SECTION 00700

**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.

DIVISION ONE

**SECTION 01100
SUMMARY OF WORK**

PART 1 GENERAL

1.1 DESCRIPTION

The work covered by this Contract includes furnishing all labor, equipment, materials and incidentals and performing all work required to install approximately 600LF of 12-inch HDPE water main carrier and 24-inch HDPE casing along Glynco Parkway and connection to existing JWSC water main stub-outs along Glynco Parkway. The work includes, but is not limited to, excavation, dewatering, backfill, traffic control and compaction, installation of approximately 600LF of 24-inch HDPE DR21 casing and 12-inch HDPE DR11 carrier by horizontal directional drill. All installation to include appropriate associated fittings, air relief valves, tracer wire, detection tape, erosion and sedimentation control, temporary and final grassing, complete surface restoration and all other work and appurtenances required.

1.2 PLANS AND SPECIFICATIONS

The completed work shall be in accordance with these specifications and the construction plans prepared by Brunswick-Glynn Joint Water & Sewer Commission entitled "*Canal Road to Glynco Parkway Water Main Extension*" last revised on May 26, 2021 as follows:

INDEX OF DRAWINGS		
Sheet	Title	Date
1	Cover Sheet	12/10/20
2	General Notes	12/10/20
3	Overall Utility Plan	05/26/21
4	Overall Utility Plan	05/26/21
5	Construction Details	05/20/21

1.3 APPLICABLE STANDARDS

In general, all work is intended to conform to the JWSC's Standards for Water and Sewer Design and Construction, latest edition. In the event of a conflict between these project specifications, the aforementioned construction plans and the JWSC Standards, the project specifications and construction plans shall take precedence.

PART 2 (Not Used)

(END OF SECTION)

**SECTION 01110
MEASUREMENT AND PAYMENT**

PART 1 GENERAL

1.1 SCOPE

Under this section shall be included the methods of measurement and payment for items of work under this Contract.

1.2 ESTIMATED QUANTITIES

All estimated quantities for unit price items, stipulated in the Proposal, or other Contract Documents, are approximate and are to be used as a basis for estimating the probable cost of the Work and for comparing the bids submitted for the Project. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of the work done and material furnished as shown on the Plans. The Contractor agrees to make no claim for damages, anticipated profits or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished and the estimated amounts included in the Proposal. The Contractor will provide assistance to the Owner to check quantities and elevations when so requested.

1.3 LUMP SUM AND UNIT PRICE QUANTITIES

All quantities are for unit price or lump sum items stipulated in the Bid Form. The Contractor, having read and understood the Bidding Documents and examined the Project Site and adjoining areas and being familiar with the obstacles and conditions that will affect proposed work, hereby offers and agrees to furnish all labor, products, and services needed to provide work in accordance with the Bidding Documents and will provide a properly itemized listing for each bid item, supported by sufficiently substantially data, to permit evaluation of partial pay requests.

1.3 CONSTRUCTION ITEMS

Canal Road to Glynco Parkway Water Main Extension – Bid Form

(1) Item(s) 1, 12 and 23

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the lump sum price in the Bid Form. The lump sum price for this item shall not exceed 5% of the total of all bid items in the Base Bid.

Payment shall include all compensation for mobilization, insurance requirements and bonds for the project. Payment for 75% of the item shall be made when the contractor completes project mobilization and satisfies the insurance and bonding requirements to the satisfaction of the Owner. Payment for the remaining 25% of the item shall be after demobilization and completion of the work to the satisfaction of the Owner.

(2) ***Item(s) 2, 13 and 24***

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the lump sum price in the Bid Form. Payment includes all labor, equipment and materials necessary for clearing, grubbing and all site work and prep as shown on the drawings.

(3) ***Item(s) 3, 14 and 25***

Pipe, installed in accordance with the specifications and accepted by the Owner, will be measured along the pipe from center of structure to center of structure. Payment will be made based on the unit contract price per linear foot as shown in the Bid Form and includes, but is not limited to, mobilization; HDPE pipe; trenching and backfill; dewatering; demobilization; complete surface restoration; and all other work and appurtenances required.

(4) ***Item(s) 4, 15 and 26***

Pipe, installed in accordance with the specifications and accepted by the Owner, will be measured along the pipe from center of structure to center of structure. Payment will be made based on the unit contract price per linear foot as shown in the Bid Form and includes, but is not limited to, mobilization; HDPE pipe; trenching and backfill; dewatering; demobilization; complete surface restoration; and all other work and appurtenances required.

(5) ***Item(s) 5 and 16***

Pipe, installed in accordance with the specifications and accepted by the Owner, will be measured along the pipe from center of structure to center of structure. Payment will be made based on the unit contract price per linear foot as shown in the Bid Form and includes, but is not limited to, mobilization; HDPE DR11 pipe; trenching and backfill; dewatering; demobilization; complete surface restoration; and all other work and appurtenances required.

(6) ***Item(s) 6, 17 and 26***

Pipe, installed in accordance with the specifications and accepted by the Owner, will be measured along the pipe from center of structure to center of structure. Payment will be made based on the unit contract price per linear foot as shown in the Bid Form and includes, but is not limited to, mobilization; HDPE DR11 pipe; trenching and backfill; dewatering; demobilization; complete surface restoration; and all other work and appurtenances required.

(7) ***Item(s) 7, 18 and 27***

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the single unit price in the Bid Form. Payment includes all labor, equipment and materials necessary for installation as shown on the drawings.

(8) *Item(s) 8, 19 and 28*

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the single unit price in the Bid Form. Payment includes all labor, equipment and materials necessary for installation as shown on the drawings.

(10) *Item(s) 9, 20 and 29*

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the single unit price in the Bid Form. Payment includes all labor, equipment and materials necessary for installation as shown on the drawings.

(11) *Item(s) 10, 21 and 30*

There will be no separate measurement of the items under this heading. Payment for this item will be on the basis of the single unit price in the Bid Form. Payment includes all labor, equipment and materials necessary for installation as shown on the drawings.

(12) *Item(s) 11, 22 and 31*

Erosion control and grassing will be measured on the basis of the completed item. Payment will be made in accordance with the lump sum price stated in the Bid Form and includes all structural practices and vegetative measures directed by the Engineer, required and/or as shown to ensure effective erosion control at the work site.

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

**SECTION 01120
FIELD ENGINEERING**

PART 1 GENERAL

1.1 SCOPE

Field engineering shall include all surveying work required to layout the proposed facilities and control the location of the finished project. The Contractor shall be solely responsible for constructing the project to the correct horizontal and vertical alignment as shown on the drawings and as specified herein. The Contractor shall assume all costs associated with rectifying any work constructed in the wrong location.

The drawings provide the location and/or coordinates of principal components of the project.

1.2 JWSC'S RESPONSIBILITIES

The JWSC will provide the following:

One (1) vertical control point on the project site with its elevation (included on the drawings – Plan Sheet 3)

A topographic survey (included on the drawings)

The JWSC may, acting through the Engineer, order changes to the location of some of the components of the project or provide clarification to questions regarding the correct alignment.

1.3 CONTRACTOR'S RESPONSIBILITIES

The Contractor's responsibilities include but are not limited to the following:

Be responsible for setting reference points and/or offsets, establishment of baselines, and all other layout, staking and other surveying required for the construction of the project.

Safeguard all reference points, stakes, grade marks, horizontal and vertical control points, and bear the cost of re-establishing same if disturbed.

Stake out temporary and permanent easements or the limits of construction to ensure the work is not deviating from the indicated limits.

Record drawing surveys shall be performed in accordance with Section 01700 of these specifications. Baselines shall be defined as the line to which the location of the work is referenced, i.e. edge of pavement, road centerline, property line, right of way or survey line.

1.4 STAKING PRECISION

1.4.1 Site Work

The precision of construction staking shall match the precision of a component's location as indicated on the drawings. Staking of utilities shall be done in accordance with generally accepted practice for the type of utility.

1.4.2 Water Mains and Accessories

The precision of construction staking required shall be that which the correct location of the water main can be established for construction and verified by the Engineer of Record. Where the location of the components of the water main, such as valves, fittings, fire hydrants, etc. are not dimensioned on the drawings, they shall be located based upon scaling these locations from the drawings with relation to readily identifiable landmarks (survey reference points, power poles, manholes, etc.).

1.4.3 Sewer Mains, Manholes and Appurtenances

The precision of construction staking shall be no less than 1:10,000. Horizontal distances shall be measured with a precision no less than 0.01 feet and horizontal angles measured with a precision of no less than 10 seconds.

1.5 QUALITY ASSURANCE

The Contractor shall furnish documentation, prepared by a Registered Professional Surveyor currently licensed in the State of Georgia, confirming that staking is being done to the horizontal and vertical alignment shown in the Contract Documents. This requires that the Contractor hire at his own expense, a registered surveyor suitable to the JWSC to provide on-going construction staking and confirmation of such.

Any deviations from the drawings shall be confirmed by the Engineer of Record prior to construction of that portion of the project.

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

SECTION 01340

SHOP DRAWINGS

PART 1 GENERAL

1.1 SCOPE

The work under this Section includes submittal to the JWSC of shop drawings, product data and samples required by the various Sections of these specifications. The submittal contents required are specified under each Section.

1.2 DEFINITIONS

1.2.1 Shop Drawings

Shop drawings include technical data, drawings, diagrams, procedures and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.

1.2.2 Product Data

Product data includes standard printed information on materials, products and systems, not specifically prepared for this project other than the designation of selections from among available choices printed therein.

1.2.3 Samples

Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and smaller portions of units of work, either for limited visual inspection or more detailed testing and analysis.

1.3 ROUTING OF SUBMITTALS

Submittals and routine correspondence shall be routed as follows:

Supplier to Contractor
Contractor to Engineer/JWSC
Engineer/JWSC to Contractor
Contractor to Supplier

1.4 SUBMITTAL LOG

At the discretion of the JWSC, a submittal log shall be created and issued to the Contractor as the complete listing of submittals required for the project.

PART 2 (Not Used)

PART 3 EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall ensure that the material or equipment shall be as described in the submittal. The Contractor shall verify in writing that all features of all products conform to the requirements of the drawings and specifications. Submittal documents shall be clearly edited to indicate only those items which are being submitted for review. All extraneous material shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and shall notify the JWSC in each case where his submittal may affect the work of another contractor or the JWSC. The Contractor shall ensure coordination of submittals among the related crafts and subcontractors.

Before each submittal, the Contractor shall have determined and verified all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto; all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the work; and all information relative to the Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

Submittal documents common to more than one piece of equipment shall be identified with the appropriate equipment numbers and specification section and paragraph. Each submittal shall bear a stamp or written indication that the Contractor's obligations under the contract with respect to the Contractor's review and approval of that submittal have been met. Any deviations from the requirements of the drawings and specifications shall be noted on the submittals. The Contractor shall submit six copies of all specified information. **Submittals which do not have all the information required to be submitted including deviations, are not acceptable and will be returned without review.**

In lieu of hard copies, submittals may be made electronically via email to hpatel@bgjwsc.org. The routing of submittals shall remain as specified in Paragraph 1.3 of this Section.

3.2 REVIEW PROCEDURES

The JWSC's review will not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights, or fabrication processes, or to safety precautions or programs incident thereto. Unless otherwise specified, within fourteen days after receipt of a submittal, The JWSC will review the submittal and return three copies to the Contractor with comments. The returned submittals will indicate one of the following actions:

If the review indicates conformance with the drawings and specifications, submittal copies will be marked "**NO EXCEPTIONS TAKEN**". In this event, the Contractor may begin to implement the work or incorporate the material or equipment covered by this submittal.

If the review indicates limited corrections are required, submittal copies will be marked "**MAKE CORRECTIONS NOTED**". The Contractor may begin implementing the work or incorporate the materials or equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated into Operation and Maintenance data, a corrected copy shall be provided.

If the review indicates that the submittal is insufficient or contains incorrect data, submittal copies will be marked **“AMEND AND RESUBMIT”**. Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted, and returned marked either **“NO EXCEPTION TAKEN”** or **“MAKE CORRECTIONS NOTED”**.

If the review indicates that the submittal does not comply with the drawings and specifications, submittal copies will be marked **“REJECTED - SEE REMARKS”**. Submittals with deviations that have not been clearly identified will be rejected. Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted, and returned marked either **“NO EXCEPTIONS TAKEN”** or **“MAKE CORRECTIONS NOTED”**.

Review of drawings, submittals, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors and omissions therein and shall not be regarded as an assumption of risks or liability by the JWSC or the Engineer of Record or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure or partial failure, or the method of work, material, or equipment so reviewed. A mark of **“NO EXCEPTION TAKEN”** or **“MAKE CORRECTIONS NOTED”** shall mean that the JWSC has no objection to the Contractor, upon his own responsibility, using or providing the materials or equipment proposed.

(END OF SECTION)

**SECTION 01500
TEMPORARY FACILITIES**

PART 1 GENERAL

1.1 SCOPE

Temporary facilities required for this work include, but are not necessarily limited to the following:

Temporary utilities such as water and electricity

First aid facilities

Sanitary facilities

Potable water

Temporary enclosures and construction facilities

1.2 GENERAL

First aid facilities, sanitary facilities and potable water shall be available on the project site on the first day that any activities are conducted on site. The other facilities shall be provided as the schedule of the project dictates.

Use all means necessary to maintain temporary facilities in proper and safe condition throughout the construction period. In the event of loss or damage, immediately make all repairs and replacements necessary at no additional cost to the JWSC.

Remove all temporary facilities as rapidly as the progress of the work will allow.

1.3 TEMPORARY UTILITIES

1.3.1 General

Provide and pay all costs for water, electricity and other utilities required for the performance of the work. Pay all costs for temporary utilities until project completion.

1.3.2 Temporary Water

Provide temporary piping and upon completion of the work remove all such temporary piping. Provide and remove water meters.

1.3.3 Temporary Electricity

Provide all necessary wiring for the Contractor's use. Furnish, locate and install area distribution boxes such that the individual trades may use their own construction type extension cords to obtain adequate power and artificial lighting at all points where required.

1.4 FIRST AID FACILITIES

The Contractor shall provide a suitable first aid station, equipped with all facilities and medical supplies necessary to administer emergency first aid treatment. The Contractor shall have standing arrangements for the removal and hospital treatment of any injured person. All first aid facilities and emergency ambulance service shall be made available by the Contractor to the JWSC and the Engineer's personnel.

1.5 SANITARY FACILITIES

The Contractor shall furnish, for use of the Contractor's personnel all necessary toilet facilities which shall be secluded from public observation. These facilities shall be chemical toilets. All facilities shall be kept in a clean and sanitary condition and shall comply with the requirements and regulations of the area in which the work is performed.

1.6 POTABLE WATER

The Contractor shall be responsible for furnishing a supply of potable drinking water for employees, subcontractors, inspectors, engineers and the JWSC who are associated with the work.

1.7 ENCLOSURES AND CONSTRUCTION FACILITIES

Furnish, install and maintain for the duration of the construction all required scaffolds, tarpaulins, canopies, steps, bridges, platforms and other temporary construction necessary for the completion of the work in compliance with all pertinent safety and other regulations

1.8 PARKING FACILITIES

Parking facilities for the Contractor's employees and subcontractors shall be the Contractor's responsibility. The storage and work facilities provided by the JWSC, if any, shall not be used for parking by the Contractor.

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

**SECTION 01510
JOB SITE SECURITY**

PART 1 GENERAL

1.1 BARRICADES, LIGHTS AND SIGNALS

The Contractor shall furnish and erect such barricades, fences, lights and danger signals and shall provide such other precautionary measures for the protection of persons or property and of the work as necessary. Barricades shall be painted in a color that will be visible at night. From sunset to sunrise, the Contractor shall furnish and maintain at least one light at each barricade and sufficient numbers of barricades shall be erected to keep vehicles from being driven on or into any work under construction.

The Contractor will be held responsible for any damage to the work due to failure of barricades, signs and lights. The Contractor's responsibility for the maintenance of barricades, signs and lights shall not cease until the project has been accepted by the JWSC.

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

SECTION 01600 SUBSTITUTIONS

PART 1 GENERAL

1.1 SCOPE

This Section outlines the restrictions and requirements for substitutions, product and manufacturer options, and construction method options.

1.2 DEFINITIONS

For the purposes of these Contract Documents, a “substitute item” shall be defined as one of the following:

A product or manufacturer offered as a replacement to a specified product or manufacturer.

A product or manufacturer offered in addition to a specified product or manufacturer.

A “substitute construction method” shall be defined as one of the following:

A mean, method, technique, sequence or procedure of construction offered as a replacement for a specified mean, method, technique, sequence or procedure of construction.

A mean, method, technique, sequence or procedure of construction offered in addition to a specified mean, method, technique, sequence or procedure of construction.

1.3 GENERAL

An item or construction method, which is offered where no specific product, manufacturer, mean, method, technique, sequence or procedure of construction is specified or shown on the drawings, shall not be considered a substitute and shall be at the option of the Contractor, subject to compliance with all provisions in the Contract Documents for that item or construction method.

For products specified only by a referenced standard, the Contractor may select any product by any manufacturer, which meets the requirements of the Specifications, unless otherwise indicated in the Contract Documents.

If the manufacturer is named on the drawings or in the Specifications as an acceptable manufacturer, products of that manufacturer meeting all requirements of the drawings and specifications are acceptable.

Whenever the JWSC’s or Engineer of Record’s design is based upon a specific product or process of a specific manufacturer, that manufacturer shall be so listed in the specifications and such product or process ***shall be used in the base bid.***

1.4 APPROVALS

Any **Contractor** proposing to furnish products or processes other than those listed in the specifications shall make a written application for approval of the proposed substitution to the

SECTION 01600
SUBSTITUTIONS

JWSC or Engineer of Record at least 10 days prior to the date set for receipt of bids. The minimum information required in the application is listed below.

- A. Documentation demonstrating that the item being proposed as a substitute will fit in the space allowed, perform the same functions and have the same capabilities as the product or process specified.
- B. A letter signed by an officer of the company certifying compliance with the specifications without exception.
- C. Installation list with contacts and phone numbers for the same minimum number of installations and years of experience as the specified product or process.
- D. Complete descriptive and technical data addressing all specification requirements.
- E. Complete list of deviations from the specifications as written.
- F. Identification of accessory items required as a result of the proposed substitution.
- G. Identification of all architectural, structural, mechanical, piping, electrical or other modifications required as a result of the proposed substitution.

Whenever a product specification includes minimum experience requirements which the proposed substitution cannot meet, a condition of approval will require that the manufacturer furnish the JWSC with a cash deposit or bond acceptable to the JWSC in an amount equal to the cost of the product or process which shall remain in effect until the experience requirement has been met.

The burden of proving equivalency of a proposed substitute to an item designated by trade name or manufacturer's name referenced on the drawings or in the specifications rests on the party submitting the request for approval. The JWSC will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed product with previous users or any other written information that is reasonable under the circumstances. The degree of proof required for approval of a proposed substitute as equivalent to a named product is the amount of proof necessary to convince the JWSC beyond all doubt. To be acceptable, a proposed substitute must meet or exceed all requirements of the plans or specifications.

If the proposed substitution is approved, an addendum will be issued to all prospective bidders at least five days prior to the date set for the opening of bids listing any and all approved substitutions. If approved the bidder may offer a price for the substitution. The bid offered shall include the cost of all additional architectural, structural, mechanical, piping, electrical or other modifications, including engineering and design costs, required as a result of the proposed substitution. The JWSC shall be the final judge on questions of equivalence.

PART 2 (Not Used)

PART 3 (not Used)

(END OF SECTION)

SECTION 01700 RECORD DOCUMENTS

PART 1 GENERAL

1.1 SCOPE

The work under this Section includes but is not limited to the compiling, maintaining, recording and submitting of project record documents as herein specified.

Record documents include but are not limited to the following:

1. Drawings
2. Specifications
3. Change orders and other modifications to the Contract
4. JWSC field orders or written instructions, including requests for information (RFI) and clarification memos
5. Reviewed shop drawings, product data and samples
6. Test records

The Contractor shall maintain an up to date set of Record Drawings

1.2 SYSTEM SOURCE AND QUALITY ASSURANCE

1.2.1 STORAGE

Store documents and samples in the Contractor's office, apart from documents used for construction. File documents and samples in accordance with the format of these specifications

1.2.2 Maintenance

Maintain documents in a clean, dry legible condition and in good order. Do not use record documents for construction purposes. Record documents shall at all times be available for inspection by the JWSC. Failure to maintain record documents in a satisfactory manner may be cause for withholding of a certificate for payment.

Each document shall be labeled "PROJECT RECORD" in neat, large printed letters. All record information shall be kept concurrently with construction progress. Do not conceal any work until the project information is recorded.

1.3 RECORD DRAWINGS

Record drawings maintained by the Contractor shall provide dimensions, distances and coordinates

to the nearest 0.1 foot. Elevations shall be provided to the nearest 0.01 foot.

Final record drawings shall be prepared by a professional surveyor licensed in the State of Georgia from a post construction field run survey. The Contractor shall pay all surveying and preparation costs associated with the final record drawings. The final record drawings shall provide elevations to the nearest 0.01 foot for the invert of all precast structures, access covers, and all other pertinent items constructed by the Contractor. The final record drawings shall provide dimensions, distances and coordinates to the nearest 0.01 foot and angles to the nearest 10 seconds.

Final Record Drawing shall be labeled "FINAL RECORD DRAWINGS" and shall include the name of the surveyor who prepared the drawings as well as the date the drawings were prepared.

Record drawings shall include the following:

Horizontal and vertical location of all exposed and underground piping systems including manholes, services, cleanouts, valves, hydrants and fittings

Location and dimensions of roadways and parking areas

Location of structures including finish floor elevations

1.4 SPECIFICATIONS

Legibly mark each section to record the manufacturer, trade name, catalog number and supplier of each product and item of equipment actually furnished. Also record all changes made by Requests for Information (RFI), field order, clarification memorandums of Contract change order.

1.5 SUBMITTAL

At the completion of the project, deliver Record Documents to the JWSC. Include a signed transmittal letter which lists the title and number of each record document.

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

SECTION 01710
OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

1.1 SCOPE

The Contractor shall provide five copies of complete Operation and Maintenance manuals for each item of equipment installed containing sufficient information to enable system operators to correctly operate service and maintain all equipment and accessories provided under the Contract. The data contained in the manual shall explain and illustrate clearly and simply all principles and theory of operation, operating instructions, maintenance and calibration procedures and safety precautions and procedures for the equipment involved.

1.2 SUBMITTAL FORMAT

Each copy of the manual shall be assembled in one or more 3-ring hardback loose leaf binders, each with a title page, table of contents and lists of tables and figures. The cover and binding edge of each manual shall have the project name, specification number and title and manual title printed thereon.

1.3 CONTENTS

Each manual shall the following items:

Title page which includes the equipment name and model number as well as the name, address and contact information of the Manufacturer, Supplier and Contractor.

Detailed Table of Contents

Equipment function, normal operating characteristics, performance data and limiting conditions

Detailed disassembly, overhaul and reassembly, installation, alignment, adjustment and testing procedures

Operating checklists

Detailed operating instructions for startup, calibration, routine and normal operation, regulation and control, safety procedures, shut down and emergency conditions

Detailed list of settings for relays, pressure switches, temperature switches, level switches, thermostats, alarms, relief valves, rupture discs, etc.

Preventative maintenance procedures and schedules including detailed lubrication instructions, identification of required lubricants and operating fluids and diagrams illustrating lubrication points

Detailed troubleshooting guide

Detailed parts list with name and part number

Recommended spare parts list

SECTION 01710
OPERATION AND MAINTENANCE MANUALS

Electrical and instrumentation schematics including motor control centers, control panels, instrument panels and analyzer panels

List of special tools required

Name, address and contact information of nearest service center for parts, overhaul and service

Procedures for storing, handling and disposing of any chemicals or products used with the equipment or system

PART 2 (Not Used)

PART 3 (Not Used)

(END OF SECTION)

DIVISION TWO

**SECTION 02120
EROSION, SEDIMENTATION AND POLLUTION CONTROL**

PART 1 GENERAL

The requirements of this Section apply only to those projects for which the Contractor is under direct contract to the JWSC.

1.1 SCOPE

The work of this section includes implementation of the Erosion, Sedimentation and Pollution Control plan including but not limited to the installation and maintenance of all structural and vegetative Best Management Practices (BMP's), and all other work and appurtenances required.

1.2 RELATED WORK SPECIFIED ELSEWHERE

SECTION 02220	Trenching Excavation, Bedding and Backfill
SECTION 02555	Water Distribution System
SECTION 02650	Sanitary Sewer System

1.3 APPLICABLE STANDARDS

The following standards and/or publications are made a part of this specification by reference. The Contractor shall obtain copies all referenced standards or publications and keep available on the jobsite at all times during the construction period. In the event of conflicts among the various sources cited below, the most stringent criteria shall take precedence.

"Manual for Erosion and Sediment Control in Georgia", latest edition copies of which are available from the State Soil and Water Conservation Commission.

1.4 QUALIFICATIONS

1.4.1 Installers

Installation of BMP's must be performed by an installer who has completed Erosion, Sedimentation and Pollution Control Plans similar in material, design and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.

The Contractor must disclose to the JWSC/ENGINEER prior to project award all violations and citations received in the last five (5) years from the Georgia Environmental Protection Division, Army Corps of Engineers, and other City/County/State agencies dealing with erosion and sediment control deficiencies or wetlands deficiencies.

1.4.2 Inspectors

Contractor shall have a Qualified Personnel, as defined by the NPDES Permit on site whenever construction activity occurs. "Qualified Personnel" means a person who has successfully completed an erosion and sediment control short course eligible for continuing education units, or an equivalent course approved by the Georgia Environmental Protection

Division and the State Soil and Water Conservation Commission.

1.5 SUBMITTALS

The following information shall be submitted to the JWSC prior to commencement of the work.

Copy of Certification with GSWCC number of Qualified Person(s)

Technical Product Data for

Sediment barriers
Inlet protection materials

NPDES Forms

A Notice of Intent (NOI) with the JWSC's and Operator's signatures is ***required*** for this project.

Notice of Implementation immediately after completing the installation of the initial BMP's

PART 2 MATERIALS

2.1 MATERIALS

All materials shall conform to these specifications and to the applicable standards listed in Paragraph 1.3 of this Section. BMP's required but not specified below shall be in accordance with the "Manual for Erosion and Sediment Control in Georgia" latest edition.

2.1.1 Ds1 - Disturbed Area Stabilization (Mulching Only)

Ds1 is a temporary cover of plant residues applied to the soil surface for a period of six (6) months or less when seeding is not practical. Materials shall consist of the following.

Compressed and compacted bound bundles of wheat, oat, rye or other local hays free of weeds

Wood waste consisting of chips, sawdust or bark

Polyethylene film

Hydro-mulch

Composed of wood cellulose fiber containing no germination or growth inhibiting factors

Colored green to allow visual metering in application and properties evenly dispersed and suspended when agitated in water

Add hydro-mulch water slurry in hydraulic seeder after proportionate quantities of seed, fertilizer and other materials have been introduced

SECTION 02120
EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

Moisture Content	9.9% (+ or -) 3.0%
Organic Matter	99.2% (+ or -) 0.8%
Ash Content	0.8% (+ or -) 0.2%
Water Holding Capacity(min)	1150 grams water per 100 grams fiber

2.1.2 Ds2 - Disturbed Area Stabilization (Temporary Seeding)

Ds2 is a temporary vegetative cover with fast growing seedings for up to a twelve (12) month period or until permanent vegetated is established. Materials shall consist of the following.

Lime

Lime shall be natural limestone containing minimum 85% total carbonates.

95% or more pass 20 mesh sieve
55% pass 60 mesh sieve
40% pass 100 mesh sieve

Fertilizer

Fertilizer shall be as follows.

Dry or hydro

Commercial grade manufactured in accordance with Georgia Department of Agriculture Specifications and bearing approval label of State of Georgia

Grade containing plant food elements determined by laboratory analysis

Grass Seed

Grass Seed must be planted according to recommendations contained the "Manual for Erosion and Sediment Control in Georgia" or as approved by a Landscape Architect.

Ryegrass, annual (*Lolium Multiflorum*) containing minimum 98% pure seed with 90% minimum germination and maximum 0.5% weed seed

Bermuda 100% hulled common Bermuda grass (*Cynodon Dactylon*) containing minimum 87% pure Bermuda with 85% minimum germination and maximum 1% weed seed

All seed types listed in the "Manual for Erosion and Sediment Control in Georgia".

Hydro-seed shall be applied at the following rates.

Ryegrass 250 Lbs/Acre

Bermuda 175 Lbs/Acre

2.1.3 Ds3 - Disturbed Area Stabilization (Permanent Vegetation)

Ds3 is permanent vegetative cover using grasses, trees, shrubs or legumes on highly erodible or critically eroded lands. Materials shall consist of the following.

Lime

Lime shall be natural limestone containing minimum 85% total carbonates. Dolomitic limestone shall be used in sandy plains and coastal soils. Conventional equipment shall be use to ground limestone.

95% or more pass 20 mesh sieve
55% pass 60 mesh sieve
25% pass 100 mesh sieve

For hydraulic seeding use finely ground limestone.

98% or more pass 20 mesh sieve
70% pass 100 mesh sieve

Fertilizer

Fertilizer shall be as follows.

Dry or hydro

Commercial grade manufactured in accordance with Georgia Department of Agriculture Specifications and bearing approval label of State of Georgia

Grade containing plant food elements determined by laboratory analysis

Grass Seed

Grass Seed must be planted according to recommendations contained the "Manual for Erosion and Sediment Control in Georgia" or as approved by a Landscape Architect.

Ryegrass, annual (*Lolium Multiflorum*) containing minimum 98% pure seed with 90% minimum germination and maximum 0.5% weed seed

Bermuda 100% hulled common Bermuda grass (*Cynodun Dactylon*) containing minimum 87% pure Bermuda with 85% minimum germination and maximum 1% weed seed

Hydro-seed shall be applied at the following rates.

Ryegrass 250 Lbs/Acre
Bermuda 175 Lbs/Acre

2.1.4 Cd - Check Dam

Check dam (Cd) is a small temporary barrier consisting of stone or hay bales constructed across a swale, drainage ditch or area of concentrated flow.

Hay Bale Check Dams

Compressed and compacted bound bundles of wheat, oat, rye or other local hays free of weeds

2.1.5 Co - Construction Exit

Construction Exit (Co) is a stone stabilized pad located at any point where traffic will be leaving a construction site to a public right of way, street, alley, sidewalk or parking area.

Aggregate size shall be National Stone Association R-2 (1 1/2-inch to 3 1/2-inch stone)

Approved Geo-textiles

Amoco CEF-1199, 2019
Carthage 6%
Contech C70/06
GT-400E
Geotex 104 F
Filterweave 403, 700
TNS Advanced Technologies M706
US Fabrics 670
Terratex EP

2.1.6 Sd1-Sediment Barrier

A temporary structure made of silt fence supported by steel or wooden posts, sandbags, straw bales or other filtering material.

Sediment Barrier Type 'A' (Sd1-A)

Fabric height	36-inches
Trench Depth	6-inches

Fence Posts	48-inches long 1 1/2-inch by 1 1/2-inch Oak 3-inch diameter or 2-inch by 4-inch softwood Steel 1.3 Lbs/Ft Minimum
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Approved silt fence fabrics

Amoco CEF 2019

Beltech 755 & 890
Cady bag Company 20-CSF 350/26
LINQ Industrial Fabrics, Inc. GTF-200S
Geotex 914SC, 915SC
TNS Advanced Technologies TNSW101
Terratex GASF
Willacoochee Industrial Fabrics, Inc. 1215 Silt Fence

PART 3 EXECUTION

3.1 PERFORMANCE REQUIREMENTS

Erosion control devices shall be installed as shown on the plans (and elsewhere as deemed necessary) and are required for all earth areas disturbed by grading and construction operations. The extent of disturbed areas is shown on the construction plans. Erosion control activities include but are not limited to:

- Initial installation of erosion control devices
- Implementation of Best management Practices (BMP's)
- Application of temporary ground cover
- Maintenance of erosion control devices for the duration of the construction period.
- Application of permanent ground cover
- Removal of erosion control devices

3.1.1 Non-Compliance

Upon notification by the JWSC/ENGINEER of non-compliance with this specification, the Contractor has seven (7) days to address and install additional erosion control devices or otherwise correct the deficiencies noted.

3.1.2 Temporary Erosion Control Measures

Contractor shall install, maintain, repair and/or replace all temporary erosion control measures including, but not limited to, the following:

- Silt fences
- Construction exits
- Check Dams

The Contractor shall be responsible for providing additional erosion control measures as needed to prevent sediment from leaving the site. Contractor shall be responsible for all additional costs associated with additional erosion control measures.

3.1.3 Maintenance of Erosion Control Measures

The Contractor is responsible for maintenance, repair and/or replacement of erosion control measures throughout the construction period due to any of the following causes:

- Downed silt fences
- Washed out silt fences and rock

Vandalism
When silt overburdens structure
Erosion of earth or dam
Damage due to abnormal weather conditions

3.2 SEQUENCE OF EVENTS

Best Management Practices (BMP's) shall be implemented during construction activities from commencement of construction to completion. Schedule grading operations so as to minimize the time that denuded soils are exposed. Any exposed area left undisturbed for a period of 14 days or longer shall be stabilized with mulch or temporary seeding.

3.3 INSTALLATION AND MAINTENANCE

3.3.1 Ds1 - Disturbed Area Stabilization (Mulching Only)

Install mulch on all building pad area left for more than seven (7) days. Mulch shall re-applied whenever ground cover is less than 90%.

Dry straw or hay shall be applied uniformly at a depth of 2-inches to 4-inches by hand or by mechanical equipment. Straw or hay mulch shall be anchored immediately after application. Mulch can be pressed into the soil with a disk harrow using packer disk. Mulch spread with special blower-type equipment may be anchored with emulsified asphalt, tackifiers and/or binders.

Wood waste shall be applied at a depth of 2-inches to 3-inches.

Cut back asphalt shall be applied at the rate of 1200 gallons per acre.

Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection.

3.3.2 Ds2 - Disturbed Area Stabilization (Temporary Seeding)

All disturbed areas shall be seeded within seven (7) days of the completion of land disturbing activities or when land disturbing activities are to be discontinued for longer than two weeks. Seed areas outside buildings, walks and paving not to immediately receive permanent grass or landscaping with temporary seed producing fast growing cover resistant to erosion.

Maintenance of seeded areas shall include but not be limited to watering, re-fertilization, weeding, mowing and repairing washouts and gullies.

3.3.3 Ds3 - Disturbed Area Stabilization (Permanent Vegetation)

Permanent vegetation and structural control measures must be installed as soon as practicable.

3.3.4 Cd - Check Dams

Construct temporary ditch checks of stone, sand or cement bagged, rip-rap, or treated timber post in all ditches and drainage areas on or adjacent to the work area and/or as shown on the plans. The toe of the upstream dam shall be at the same elevation as the top of the downstream dam. The height of check dams shall be 24-inches maximum at center. Check dams shall be 9-inches lower at the center than the outer edges. Side slopes shall be 2:1 or flatter.

3.3.5 Co - Construction Exit

Contractor shall provide temporary construction exits at all locations where vehicles exit the construction site. The stone pad thickness shall be at least 6-inches and shall cover the full width of the entrance. In no case shall the pad width be less than 20 feet. The length of the stone pad shall be at least 50 feet. A layer of geo-textile fabric shall be placed between the stone pad and the soil surface as specified in paragraph 2.1.6 above. Periodically add a 2-inch thick top dressing to maintain pad effectiveness and sprinkle regularly to settle accumulated sediment.

3.3.6 Sd1 - Sediment Barriers

Construct silt fences in accordance with applicable regulations and details. Sediment barriers shall be installed at the toe of all embankments or at the perimeter of all disturbed areas and shall be located to interrupt silt transport conveyed by surface runoff.

Remove, re-distribute and compact sediments which accumulate behind silt fences when such accumulations reach one-half the original height of the barrier and immediately before beginning temporary grassing operations.

Replace fabric whenever it has deteriorated to such extent that the effectiveness of the barrier is compromised or every six months, whichever comes first.

3.4 CONCRETE WASHOUT AREAS

Contractor shall provide at least one 10' by 10' washout area for the disposal of excess concrete, mortar and similar products. Washout areas shall be cleaned as needed. Washout areas shall be completely removed after construction has been completed. Remove all concrete and silt and dispose of materials in an approved landfill. Backfill, grade and stabilize area.

3.5 REMOVAL OF TEMPORARY DEVICES

Temporary erosion control devices shall remain in place and be properly maintained until one of the following has occurred:

A permanent device has been installed to replace the function of the temporary device.

The Contractor has achieved 95% stabilization of disturbed areas and a Notice of Termination has been submitted.

Remove erosion control devices installed under this contract and any erosion control devices left from previous phases of work.

(END OF SECTION)

SECTION 02220
TRENCHING EXCAVATION, BEDDING AND BACKFILL

PART 1 GENERAL

1.1 SCOPE

The work of this section includes trench excavation, dewatering, bedding, backfilling and all other work required for the installation of underground water, and sewer systems as shown on the drawings and/or specified herein.

1.2 RELATED WORK SPECIFIED ELSEWHERE

02120 Erosion, Sedimentation and Pollution Control
02555 Water Distribution System

1.3 APPLICABLE STANDARDS

All work to be performed in accordance with applicable provisions of the Southern Standard Building Code, OSHA Safety Requirement, State and Local Ordinances and other authorities having jurisdiction.

All construction shall comply with the Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1926, subpart P, revised July 1, 1995.

If local authorities have standard specifications for pavement removal and replacement, work shall be done in accordance with such standards.

In the event of conflicts among the various sources cited above, the most stringent criteria shall take precedence.

1.4 PROTECTION

1.4.1 Existing Utilities

Contractor shall contact the Utilities Protection Center at 1-800-282-7411 at least 72 hours in advance of trenching operations. The location of existing underground utilities shown on the plans is based upon the best information available and may not accurate or complete. The Contractor shall verify the location of all underground utilities prior to commencing work and shall be responsible for the protection of same. Any damage to existing utilities shall be promptly repaired at the Contractor's expense to the full and complete satisfaction of the utility owner.

1.4.2 Existing Structures

Contractor shall protect from damage all existing structures, roads, sidewalks, curbing, etc. against damage from foot or vehicular traffic. Install and maintain adequate barricades, planking, bridging as necessary. Underpin or otherwise support adjacent structures, including service lines and pipe chases, to prevent damage by excavation work.

1.4.3 Excavations

Protect excavations by shoring, sheeting, bracing or other means as required to prevent cave-ins or loose dirt from falling into excavated trenches. Methods and procedures utilized shall conform to, as a minimum, the requirements of OSHA and other governing authorities having jurisdiction.

1.5 QUALITY ASSURANCE

Tests for compaction and density, where required, shall be conducted by an independent testing laboratory selected by the JWSC and paid for by the Contractor. The Contractor shall make all necessary excavations and provide access to the work by the testing laboratory. The cost of all retests made necessary by the failure of materials to conform to the requirements of these specifications shall be paid for the Contractor.

PART 2 MATERIALS

2.1 BEDDING AND BACKFILL MATERIALS

Pipe bedding and backfill materials shall be as follows:

Class I:

This Class includes angular, 1/4-inch to 1-1/2-inch graded stone including a number of fill materials including coral, slag, crushed stone and crushed shells.

Class II:

This Class includes coarse sands and gravels with maximum particle size of 1-1/2-inches including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW and SP are included in this Class.

Class III:

This Class includes fine sand with clayey gravels including fine sands, clay-sand mixtures, and gravel-clay mixtures. Soil types GM, GC, SM and SC are included in this Class.

Class IV:

This Class includes silt, silty clays and clays including organic clays and silts of medium to high plasticity and liquid limits. Soil Types MH, ML, CH and CL are included in this Class. *Class IV materials may only be used with the approval of the Engineer.*

Class V:

This Class includes the organic soils OL, OH and PT as well as soil containing frozen earth, debris, rocks larger than 1-1/2-inches in diameter and other foreign materials. *Class V materials shall not be used.*

PART 3 EXECUTION

3.1 EXCAVATION

The contractor shall examine the work site and inform himself fully as to the nature of all materials to be encountered during excavation for the construction of the various facilities and related

appurtenances. The contractor shall perform excavation of all substances encountered to the depth shown on the drawings.

During excavation, pile excavated materials that are suitable for backfilling in an orderly manner and at a sufficient distance from the trench banks to avoid overloading and prevent slides or cave-ins. Remove and dispose of unsuitable material in a manner acceptable to the JWSC.

Grade work site as necessary to prevent surface water from flowing into trenches or other excavations and remove any water accumulating therein by pumping or other approved methods.

Excavation shall not be carried below the required level. Where excavation is carried below the grade indicated through error, the contractor shall refill to the proper grade with Class I or Class II material as directed by the JWSC to obtain a suitable pipe support.

Where wet or otherwise unsuitable material incapable of properly supporting the pipe, as determined by the JWSC/Engineer, is encountered in the trench bottom, the Contractor shall remove such soil or unsuitable material, dewater to the depth required and backfill trench to proper grade with a foundation of Class I or Class II material as directed by the JWSC to obtain a suitable pipe support.

3.2 DEWATERING

The contractor shall keep all excavations clear of water while pipe and appurtenances are being installed. All water pumped or bailed from trenches and other excavated areas shall be conveyed to a point of discharge where it will cause no hazard to the safety and protection of the public, to private property or to other work in progress.

Provide all necessary equipment including well points, pumps, piping and temporary drains sufficient to handle both surface and subsurface water. Maintain equipment for the duration of trench exposure to the elements.

3.3 PIPE BEDDING

Pipe bedding shall be Class A, B, C or D as specified below or as shown on the construction plans. Rigid pipe includes ductile iron (DIP), reinforced concrete (RCP), or steel pipes with or without coatings. Flexible pipe includes PVC and HDPE.

3.3.1 Bedding Classifications

The following bedding classifications shall be used as specified below or where shown on the drawings.

Class A:

This bedding class shall consist of a continuous concrete cradle or a concrete arch with granular bedding. Locations shall be as shown on the drawings.

Class B:

Class B Standard - shall consist of granular Class I material placed a minimum of 4-inches below the pipe and continuing to the spring line of the pipe.

SECTION 02220
TRENCHING EXCAVATION, BEDDING AND BACKFILL

Class B Modified - shall consist of granular Class I material placed a minimum of 4-inches below the pipe and continuing to 6-inches above the top of the pipe.

Class C:

This bedding class shall consist of granular Class I material placed a minimum of 4-inches below the pipe with Class II or Class III material continuing to the spring line of the pipe.

Class D:

This bedding class shall consist of a native undisturbed earth trench bottom with an area excavated for the pipe bell. This bedding class may only be used for dry trench conditions. If the trench becomes wet, Class B bedding shall be used.

3.3.2 Bedding Requirements

Bedding requirements for the various piping systems shall be as shown in the following table.

PIPE SYSTEM	BEDDING CLASS
Sanitary & Storm Sewers (Gravity)	
Rigid Pipe	Class C
Flexible Pipe	Class B Modified
Water mains & Force mains	
Rigid Pipe	Class C
Flexible Pipe	Class B Standard

Bedding material under and around the pipe shall be placed in 6-inch layers and compacted by rodding, spading or with approved vibratory equipment to obtain not less than 98% standard proctor as determined by ASTM Method D698.

3.4 BACKFILLING

If unsuitable materials are encountered, such materials may not be used for backfilling operations and shall be removed from the site. Unsuitable material includes but is not limited to debris, muck, clay, large clods, stones, wood, stumps, and roots. Prior to backfilling, piping and appurtenances shall be observed by the JWSC's Inspector.

Contractor shall carefully backfill trenches with approved materials. Only Class III (or Class IV if approved by the JWSC/Engineer) materials shall be used. Backfill materials shall be free from large clods of earth or stone and shall be deposited in 6-inch layers and carefully compacted until the following densities are obtained:

Areas under structures	100% Standard Proctor (ASTM D698)
Areas under walks and pavements	98% Standard Proctor (ASTM D698)
Areas under lawns and landscaping	95% Standard Proctor (ASTM D698)

Re-open improperly backfilled trenches (trenches where settlement occurs, or where tests indicate non-compliance with the densities specified above) to depth required for proper compaction. Then refill and compact with surface restored to required grade.

3.5 PAVEMENT REMOVAL AND REPLACEMENT

3.5.1 Removal

Where necessary to cut existing pavements, curbs and gutters, walks, driveways, etc. make cut with neat parallel straight lines at least 12" wider than the required trench width on each side.

3.5.2 Replacement

Replace pavements, curbs and gutters, walks and driveways with the same materials and cross section as the original except when otherwise detailed on the construction plans.

Backfill open trenches across roadways, or other areas to be paved as specified in Paragraph 3.4 above except backfill entire trench depth in 6-inch layers, moisten and compact each layer to density of 100% of standard proctor test, so that paving of area can proceed immediately after backfilling is complete.

3.5.2 Temporary Surfaces

Use temporary road surface of gravel or crushed stone as approved. Maintain one-way traffic at all times and street must be fully opened to traffic as quickly as possible. Completely remove temporary materials and dispose of when permanent pavement is placed.

(End of Section)

SECTION 02555
WATER DISTRIBUTION SYSTEM

PART 1 GENERAL

1.1 WORK INCLUDED

Provide all labor, materials and equipment necessary to install, test, disinfect (where required) and place into operation the water distribution system as shown on the drawings, as specified herein and as required for a complete and operational system.

1.2 SUBMITTALS

Complete shop drawings and product data on all piping and fittings shall be submitted to the Engineer in accordance with the requirements of Section 01340 of these specifications.

1.3 RELATED WORK SPECIFIED ELSEWHERE

01340 Shop Drawings
02220 Trench Excavation, Bedding and Backfill

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

The contractor shall furnish and install water distribution systems in accordance with the material specifications detailed below. All references to industry standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless stated otherwise. All materials shall be new.

2.2 PIPING

Pipe sizes and applications shall be as indicated on the plans and shall conform to the following table.

Pipe Size and Application Table

Pipe Material	Pipe Size	Joint Types	Applications
PVC (ASTM D2241 SDR-21)	2-inch	Push-on Joint – Below Ground	Potable Water
Polyethylene Tubing	≤2-inch	See Specifications Below	Water Services

2.2.1 PVC Pressure Pipe

Pipe shall be virgin polyvinyl chloride (PVC) pressure pipe shall have a bell type coupling with a thickened wall section integral with the pipe barrel in accordance with ASTM D3139. Provisions must be made for expansion and contraction at each joint with flexible

ring gaskets made of rubber or other suitable material. Elastomeric seals shall meet ASTM F477.

PVC pressure pipe two (2) inches in diameter and smaller shall conform to ASTM D2241, Class 200 SDR-21 with push-on type jointing. Glued or Solvent weld joints shall not be used. PVC 1120, SDR-21 fittings shall be injection molded push-on bell type with elastomeric rubber seals in accordance with ASTM D3139. Seals shall conform to ASTM F477. Pipe for domestic potable water mains shall be *blue* in color with each length marked with name of the manufacturer, pressure rating, nominal pipe diameter and the seal of the National Sanitation Foundation (NSF).

2.2.2 Polyethylene Tubing

All water services two (2) inches in diameter and smaller shall be manufactured of PE 3408, high density polyethylene in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D2737 and ASTM D3350. Tubing shall have a minimum working pressure of 200 PSI, shall be copper tube size SDR-9 and shall be blue in color. Couplings shall be made of bronze with compression fittings on both ends suitable for connection to polyethylene tubing with inserts.

Tubing shall be approved for use with potable water by the National Sanitation Foundation and shall be continuously marked at intervals of not more than four (4) feet with the nominal size, pressure rating, NSF seal, manufacturer's name, standard dimension ratio and ASTM specification.

2.3 WATER VALVES AND APPURTENANCES

Water valves shall be of the size and type shown on the approved construction plans. All valves shall open by turning left or "counter-clockwise". Extension stems on buried valves will be used only at the direction of the Engineer.

2.3.1 Gate Valves (<4-inch)

Gate valves two (2) inches to three (3) inches in diameter shall be non-rising stem, resilient seat wedge type with epoxy coated iron body and two (2) inch square operating nut. Valve shall conform to the applicable requirements of AWWA C509 and ASTM A126 Class B with threaded ends and designed for 200 PSI working pressure.

2.3.2 Valve Boxes

Valve boxes shall be cast iron, heavy duty roadway, screw type adjustable to six (6) inches up and down from the nominal required cover over the pipe. Six (6) inch PVC C900 Pipe shall be used to extend valve boxes to grade. Cast iron castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM A48, Class 20B. Valve boxes shall have cast iron drop covers with the word "WATER" stamped on it.

2.3.3 Yard Hydrants

Yard hydrant shall be high capacity freeze proof type hydrants as Merrill Manufacturing C-1000 Series or approved equal with the following features:

- Inlet – 1" NPT in no lead brass casting

- Outlet – ¾” no-lead hose thread & outside of nozzle has 1” pipe thread
- Stainless steel operating rod
- Teflon packing
- Stainless steel and molded rubber plunger made of self-lubricating material
- 1” no-lead galvanized pipe

2.4 WATER SERVICES AND APPURTENANCES

2.4.1 Corporation Stops

Corporation stops are required on all water services. Corporation stops shall be made of brass conforming to AWWA C800, ASTM B62 and/or ASTM B584 and shall accommodate the full working pressure of the system. The inlet connection shall be AWWA standard iron pipe (IPT) thread. The outlet connection shall be compression type for polyethylene tubing.

2.4.2 Curb Stops

Curb stops shall be ball valve type conforming to AWWA C800. Curb stops shall be made of brass conforming to AWWA C800, ASTM B62 and/or ASTM B584 and shall accommodate the full working pressure of the system. Service line connections shall be compression type for polyethylene tubing.

2.4.3 Double Strap Tapping Saddles

Double strapped tapping saddles shall be epoxy coated ductile iron body type with NPT service outlet. The saddles shall have a self-energizing, O-ring rubber gasket, two alloy steel straps, and a female iron pipe tap conforming to AWWA C800.

2.5 BACKFLOW PREVENTION DEVICES

Provide reduced pressure zone backflow preventers where shown on the drawings. Backflow preventers shall be rated for operation with inlet water pressures up to 175 psig and water temperatures up to 140°F. Backflow preventers shall be tested and certified in accordance with ASSE 1013, AWWA C506, and USC-FCCCHR.

Provide with bronze body construction, rubber check valve and relief valve assemblies, and Clecon check seats.

Provide isolation valves on the inlet and outlet of each backflow preventer. These valves shall be ¼ turn, full port, resilient seated, bronze ball valves.

Provide bronze body ball valve test cocks.

Provide bronze body strainer on the inlet.

Acceptable manufacturers: Watts Series 909, Wilkins, Hersey.

2.6 MISCELLANEOUS ITEMS

2.6.1 Detection Tape

Detection tape shall be composed of a solid aluminum foil encased in a protective plastic jacket. The tape shall be safety blue in color, shall be at least two and half (2-1/2) inches wide and will bear the printed identification "CAUTION: BURIED WATER LINE BELOW".

2.6.2 Tracer Wire

Water pipe tracer wire shall be AWG 12/1, single conductor solid copper with blue jacket, UL rated suitable for direct burial, temperature range -20° C to 60° C, 600 Volts RMS.

PART 3 EXECUTION

3.1 PRODUCT DELIVERY, STORAGE AND HANDLING

The contractor shall inspect all materials delivered to the job site for damage. Materials shall be unloaded and stored with a minimum of handling. Materials shall be stored above ground and the interior of pipe and fittings shall be kept free of dirt and debris. Store non-metallic piping and rubber gaskets under cover and protect from exposure to sunlight.

Valves, hydrants, and other appurtenances shall be handled to ensure delivery at the point of installation in sound, undamaged condition. If coating or linings of pipe or fittings are damaged, such pipe and fittings shall be removed from the site and new materials furnished. Pipe shall not be dragged.

3.2 INSTALLATION

The contractor shall install all pipe, valves, hydrants and other appurtenances in accordance with the specifications detailed below. All references to industry standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless stated otherwise.

3.2.1 Pipe and Fittings

3.2.1.1 General Requirements

Excavation, cleaning, laying, jointing and backfilling shall follow as closely as possible during prosecution of the work. In no case shall pipe be left in the trench overnight without completing the jointing. All precautions shall be taken to prevent sand, dirt and debris from entering the pipe during installation. Any time that pipe installation is not in progress, open pipe ends shall be closed by a watertight plug or other method approved by the JWSC/Engineer.

Plugs shall remain in pipe ends until all water has been removed from the trench and any foreign material that enters the pipe shall be removed immediately. No pipe shall be installed when trench or weather conditions are unsuitable for such work.

Water lines shall not be laid closer than ten (10) feet horizontally from a sanitary sewer main unless otherwise indicated on the drawings or directed by the JWSC/Engineer. Sanitary sewer lines shall pass beneath water lines with the top of the sewer being at least eighteen (18) inches below the bottom of the water line, Where sewer lines cross water lines, no joints in the sewer line shall be located closer than ten (10) feet horizontal distance from the water line.

3.2.1.2 Pressure Pipe

All PVC C900 pipe shall be laid in accordance with AWWA C605. All ductile iron pipe and fittings shall be laid in accordance with the manufacturer's recommendations and AWWA C600. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints.

Pipe alignment and gradient shall be straight or shall follow true curves as near as practicable. Curvature in pipe lines, where required, shall be well within (no more than 80% of) the manufacturer's allowable joint deflection or laying radius for the pipe supplied. Otherwise fittings shall be required.

Pipe shall be laid with a minimum cover of forty two (42) inches in paved areas and thirty six (36) inches in unpaved areas with an allowable maximum of sixty (60) inches. Cover in paved areas shall be measured from crown of pipe to finish grade. Greater depths are permissible when required to clear obstructions, conflicts, etc.

Contractor shall furnish and install locate wiring on all non-metallic pressure mains. Locate wire shall be brought to grade outside a valve box or locating station box, as required, at four hundred and seventy five (475) foot intervals (maximum). In addition, all pressure mains shall have detection tape installed two (2) feet above the pipe.

Installed locate wiring shall be tested by the contractor as part of the inspection process, using a qualified tester and suitable testing equipment. The contractor shall notify the Engineer at least 48 hours in advance of the locate wire field testing schedule.

3.2.2 Valves

All buried valves shall be carefully mounted in their respective positions free from distortion and strain. Valves shall be placed as shown on the drawings. Gate valves shall be installed as near as possible to tee and cross fittings. The contractor shall check all exposed bolts on all valves to ensure that they are tight prior to installation. Where required, extension stems shall be furnished and located as directed by the Engineer.

Adjustable valve boxes shall be installed with each buried valve, placed vertically and concentric with the valve stem. Any valve box which has been moved from its original position by trench settlement or other causes, and which prevents the use of a valve wrench for opening and closing of the valve, shall be reset by the Contractor prior to final acceptance. The entire assembly shall be plumb.

In unpaved areas, a poured in place reinforced concrete valve pad shall be installed around all valve boxes. The concrete thickness shall be four (4) inches for poured in place collars. The top of poured in place collar shall be level with the top of the cast iron valve box and level with the *final grade*.

3.2.3 Backflow Prevention Devices

Backflow prevention devices shall be installed in accordance with the manufacturer's instructions and AWWA M14.

3.3 DISINFECTION

Upon satisfactory completion of the hydrostatic test (where applicable), all new potable water lines and other pipe related installations which may have been contaminated by the work shall be disinfected in accordance with AWWA C651, the Rules for Safe Drinking Water as published by the Georgia Environmental Protection Division, and as outlined below. The contractor shall disinfect all new water lines in the presence of the Engineer.

Prior to disinfection, water lines shall be thoroughly flushed to remove contaminated materials from the line. The contractor is referred to AWWA C651 for precautions during construction and procedures for flushing.

Disinfection shall be accomplished by introducing chlorine into the main to be disinfected. The disinfection procedure used may be any of the methods or procedures outlined in AWWA C651. A chlorine residual of at least 25 milligrams per liter (mg/l) shall be maintained for 24 hours in the water line to be disinfected. After the 24 hour holding or contact period, the heavily chlorinated water shall be flushed from the main until the chlorine residual within the main reaches the level of chlorine normally carried in the distribution system (1.0 mg/l). De-chlorination of the flushing water may be required if the highly chlorinated water is to be discharged directly to a surface water stream or storm drain system. If the water can be sheet-flowed over a large area or discharged to a holding pond, de-chlorination may be avoided.

After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24-hours apart, shall be collected from the new main.

At least one set of samples shall be collected from every twelve-hundred (1200) linear feet of new water main, plus one set from the end of each line and at least one set from each branch. The JWSC/Engineer will determine the number and location of the required sampling points to meet the current standards. All required sampling taps shall be installed by the contractor, at his expense, prior to disinfection.

The collection of samples and bacteriological testing will be performed by the JWSC at the Contractor's expense unless noted otherwise on the construction plans. If the bacteriological tests are unsatisfactory, disinfection procedure shall be repeated until satisfactory results are obtained.

(END OF SECTION)

SECTION 02580
PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL
DRILLING

PART 1 GENERAL INFORMATION

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RELATED DOCUMENTS

Drawing and general provisions of the Contract, including General and Special Conditions and Technical Specifications Sections, apply to this Section.

1.2 SUMMARY

1. The work to be done under this Section addresses the installation of pipelines by directional drilling. Directional drilling is a method of trenchless construction using a surface launched steerable drilling tool controlled from a mobile drilling frame, and includes a field power unit, mud mixing system and

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

mobile spoils extraction system. The drilling frame differs from micro tunneling, auger boring or pipe jacking equipment in that operations are performed from the surface. The drilling frame is set back from an access pit and a high-pressure fluidjet toolhead that uses a mixture of bentonite clay and water is launched. Using an electronic guidance system, the toolhead is guided through the soil to create a pilot borehole. Upon reaching the endpoint, the toolhead is removed and a reamer with the product pipe attached is joined to the drill string and pulled back through the borehole.:

1.3 DEFINITIONS

A. The following are industrial abbreviations for non-metallic materials:

1. PVC - Polyvinyl Chloride
2. HOPE - High Density Polyethylene FPVC - Fusible PVC

1.4 SUBMITTALS

A. Experience

1. Submit a list of field supervisory personnel and their experience with directional drilling operations. At least one of the field supervisors listed must be at the site and be responsible for all work at all times when directional drilling operations are in progress. The responsible field supervisor must have a minimum of five (5) year directional drilling experience. Submit completed Section 02750 - Horizontal Directional Drilling Contractor Qualifications with the Bid Proposal.

B. Work Plan

1. Bentonite drilling mud products information (MSDS); special precautions necessary; method of mixing and application; and method of removing spoils.
2. Submit computations to the engineer detailing the pullback forces expected to be encountered for this project.
3. Environmental Response Plan to prevent any adverse impacts to the environment from the directional drilling process. Plan should include information such as emergency contact information, drill mud composition, drilling mud monitoring plan, drilling mud containment plan (both during construction and if a spill were to occur).
4. Working drawings and written procedure describing in detail the proposed method of installation. This will include, but not be limited to, size, capacity and setup requirements of equipment; location and siting of drilling and receiving pits; dewatering if applicable; method of fusion and type of equipment for joining pipe; type of cutting tool head; and method of monitoring and controlling line and grade.
5. If the Contractor determines that modifications to the method and equipment as stated in the submittal is necessary during construction, the contractor will submit a plan describing such modifications, including the reasons for the modification. Work shall not commence until the Engineer has approved the submittals.

C. Coordination Drawings

1. For piping and specialties including relation to other services in same area. Show piping and specialty sizes, vents and valves and elevations.

D. Field Quality – Control Test Reports

1. From Contractor.

1.5 QUALITY ASSURANCE

A. Product Options

1. Drawings indicate size, profiles, and dimensional requirements of piping and specialties and are based on the specific system indicated.

B. Regulatory Requirements

1. Comply with requirements of utility companies who have service in the project work area.

C. Material Markings

1. Piping materials shall bear label, stamp, or other markings of specified testing agency.

D. Testing Agencies

1. Mill certificates of tests on materials made by the manufacturers will be accepted provided the manufacturer maintains an adequate testing laboratory, makes regularly scheduled tests that are spot checked by an outside laboratory, and furnishes satisfactory certificates with the name of the one making the test.
2. The Contractor shall make hydrostatic tests on pipe with equipment approved by the Engineer.

1.6 DELIVERY, STORAGE & HANDLING

- A. Material shall be unloaded in a manner that will avoid damage and shall be stored where it will be protected and will not be hazardous to traffic. The Contractor shall repair any damage caused by the storage. Pipe and accessories shall be handled so as to ensure delivery to the trench in sound, undamaged condition. Particular care shall be taken not to injure the pipe coating or lining. If the coating or lining of any pipe or fitting is damaged, the Contractor at his expense shall make the repair in a satisfactory manner. Material shall be examined before installation and no damaged or deteriorated material shall be used in the work.

1.7 GUARANTEE

- A. The Contractor shall guarantee the quality of the materials, equipment, and workmanship for a period of 12 months after acceptance. The Contractor at no cost to the Owner shall repair defects discovered during that period. The Performance Bond shall reflect this guarantee.

1.8 PROJECTS CONDITIONS

- A. Existing Utilities

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

1. All known utility facilities are shown schematically on Drawings, and not necessarily accurate in location as to plan or elevation. Utility such as service lines or unknown facilities not shown on Drawings, will not relieve the Contractor of his responsibility under this requirement except as noted below. "Existing Utilities Facilities" means any utility that exists on the project in its original, relocated or newly installed position. The Contractor will be held responsible for the cost of repairs to damaged underground facilities; even when such facilities are not shown on the Drawings. The Contractor is to contact all utility companies prior to beginning work and request an accurate location of their respective utility lines.

B. Surface Interference

1. Drilling operations must not interfere with, interrupt or endanger surface activity upon the surface.

C. OSHA

1. Contractor must comply with all applicable jurisdictional codes and OSHA requirements.

D. Obstructions

1. When rock stratum, boulders, underground obstructions, or other soil conditions that impede the progress of drilling operations are encountered, the Contractor and Project Engineer must review the situation and jointly determine the feasibility of continuing drilling operations, making adjustments or switching to an alternative construction method.

E. Noise Requirements

1. The Contractor is responsible for have mufflers on all equipment used on this project. The Contractor may be required to add additional noise reduction measures if requested by the Owner.

1.9 COORDINATION

- A. The Contractor shall furnish the necessary pipe and perform all excavation, dewatering, shoring backfilling, etc., necessary to make the directional drill, install the pipe and plug both ends. The Contractor shall contact the Utility System Owner a minimum of 48 hours in advance of construction. Contractor shall be responsible for coordinating his construction with the Engineer or his representative

1.10 DAMAGE TO EXISTING UTILITY SYSTEM

- A. Damage to any part of the existing utility systems or to the water or sewer system by the Contractor or utility Subcontractors, shall be repaired at no cost to the Owner.

1.11 RECORD DRAWINGS

- A. Record drawings must be received and approved by the Engineer prior to final acceptance.

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

PART 2 PRODUCTS**2.1 FUSIBLE PVC PIPE AND FITTINGS**

- A. Fusible PVC Pipe and fittings will be used in accordance with the material specifications. All pipe installed by directional drilling will be joined by an approved butt fusion or electro fusion technique according to the manufacturers specifications. For information only, submit manufacturer's certificate indicating that the pipe and fittings have been inspected and tested at the place of manufacture and meet the requirements on the referenced Standards and these Specifications.

2.2 DRILLING FLUID

- A. Drilling fluid shall be a mixture of water and bentonite clay. The fluid shall be inert. The fluid should remain in the tunnel to ensure the stability of the tunnel, reduce drag on the pulled pipe, and provide backfill within the annulus of the pipe and tunnel.
- B. Disposal of excess drilling fluid and spoils shall be the responsibility of the Contractor who must comply with all relevant regulations, right-of-way, and workspace and permit agreements. Excess drilling fluid and spoils shall be disposed at an approved location. The Contractor is responsible for transporting all excess drilling fluid and spoils to the disposal site and paying any disposal costs. Excess drilling fluid and spoils will be transported in a manner that prevents accidental spillage onto roadways. Excess drilling fluid and spoils will not be discharged into sanitary or storm drain systems, ditches or waterways.
- C. Drilling fluid returns (caused by fracturing of formations) at locations other than the entry and exit points shall be minimized. The Contractor shall immediately clean up any drilling fluid that surfaces through fracturing.
- D. Mobile spoils removal equipment capable of quickly removing spoils from entry or exit pits and areas with returns caused by fracturing shall be present during drilling operations.
- E. The Contractor shall be responsible for making provisions for a clean water supply for the mixing of drilling fluid.

2.3 POTABLE WATER

- A. Potable water will be provided by the Contractor as necessary to complete the project. Temporary connections to the Owner's water system must be coordinated with the Owner and meters obtained from the Owner shall be installed by the contractor.

PART 3 EXECUTION

3.1 GENERAL

- A. The Project Engineer must be notified immediately if any obstruction is encountered that stops the forward progress of drilling operations. The Contractor and Project Engineer must review the situation and jointly determine the feasibility of continuing drilling operations or switching to an alternative construction method. When it is determined that it is impossible to continue drilling operations, the Contractor will be allowed to abandon the completed portion in place, unless otherwise directed by the Project Engineer.
- B. Dewatering method of pits and excavations will be at the option of the Contractor. When water is encountered, the Contractor must provide a dewatering system of sufficient capacity to remove water, keeping any excavations free of water until the backfill operation is in progress. Dewatering will be performed in a manner that removal of soil particles are held to a minimum.

3.2 PREPERATION

- A. Pits
 - 1. Excavate required pits in accordance with the working drawings.
- B. Electrical
 - 1. The drilling procedures and equipment shall provide protection of workers, particularly against electrical shock. As a minimum, grounding mats, grounded equipment, hot boots, hot gloves, safety glasses and hard hats will be used by crewmembers. The drilling equipment will have an audible alarm system capable of detecting electrical current.
- C. Removal of Existing Surfaces or Features
 - 1. Removal of trees, landscaping, pavement or concrete shall meet the general provisions and specifications.
- D. Existing Utilities
 - 1. The Contractor shall be responsible for determining the location of all underground utilities to be crossed prior to commencing drilling operations.

3.3 DIRECTIONAL DRILLING OPERATIONS

- A. Equipment
 - 1. The drilling equipment must be capable of placing the pipe within the limits indicated on the Contract Drawings.

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

2. The system shall consist of a surface launched steerable drilling tool controlled from a mobile drilling frame, and include a field power unit, mud mixing system and mobile spoils extraction system.
3. The number of access pits shall be kept to a minimum and the equipment must be capable of boring the following lengths in a single bore. The directional drilling system shall have the capability of boring and installing a continuous run without intermediate pits.
4. The guidance system shall have the capability of measuring vertical (depth) position, horizontal position and roll. The guidance system must meet the following specifications in soft homogenous soils:
5. Accuracy Vertical position: Plus or minus 1 inch Horizontal position: Plus or minus 3 inches
6. The Owner's representative shall be kept informed of the drilling progress and pipe location. Information pertaining to the drilling and pipe location shall not be withheld from the Owner's representative.
7. Equipment set-up requirements must be determined by the Contractor and submitted to the Engineer.

B. Installation

1. The actual location of the pipe with respect to the proposed line and grade shall be continuously monitored. A steering head or other suitable method shall be used to control the line and grade of the pipe to within line and grade specifications. A magnetic guidance system shall continually monitor downhole probe location. A locating system shall be established to provide a backup and independent determination of pipeline location.

C. Drilling Fluids and Excavated Material

1. Drilling fluids and cuttings shall be contained within designated work/construction areas. Excess fluids, cuttings, and other related materials shall be disposed of in a legal site in accordance with governing regulations. Fluids shall not be allowed to enter any wetland area or river.
2. The Contractor shall be responsible for furnishing and using, as necessary, all drilling fluids and any additives needed for salt water or other conditions.
3. The Contractor shall be responsible for the proper clean-up and disposal of drilling fluids. The Contractor shall be responsible to provide a suitable and approved site for the disposal of the drilling mud and cuttings.

D. Damaged or Improperly Installed Pipe

1. If the pipe is damaged before installation or does not meet the specifications, it shall be replaced at no expense to the Owner. If the pipe is damaged during installation by the Contractor's operations, is placed at the improper grade or line or cannot be advanced because of an unseen obstruction or any other reason, it shall be abandoned in place, and filled with concrete. After abandoning a pipe, an alternate installation shall be made, as directed by the Engineer. With the exception of pipe that has to be abandoned in place due to unseen obstructions, the cost for abandonment of pipe shall be at the expense of the Contractor. No additional payment shall be made for the pipe which is abandoned, including dewatering, excavation, drilling, etc.
2. The Contractor shall continue pull back until 10 linear feet (minimum) of pipe is above ground for the purpose of pipe inspection. Contractor to give As-builts of piping when crossing is complete.

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

3.4 REQUIRED SAFETY EQUIPMENT

- A. During drilling operations all equipment shall be effectively grounded and incorporate a system that protects operating personnel from electrical hazards. The system shall be equipped with an audible alarm that can sense if contact is made with an energized electric cable. Proper operation of the alarm system will be confirmed prior to the drilling.

3.5 PILOT HOLE BORING

- A. The entry angle of the pilot hole and the boring process shall maintain a curvature that does not exceed the allowable bending radii of the product pipe or inhibit pullback of the pipeline.
- B. Alignment Adjustments and Restarts
 - 1. The Contractor shall follow the pipeline alignment as shown on the Drawings, within the specifications stated. If adjustments are required, the Contractor shall notify the Project Engineer for approval prior to making the adjustments.
 - 2. In the event of difficulties at any time during boring operations requiring the complete withdrawal from the hole, the Contractor may be allowed to withdraw and abandon the hole and begin a second attempt at a location approved by the Project Engineer.

3.6 INSTALLING PRODUCT (FUSIBLE PVC) PIPE

- A. After the pilot hole is completed, the Contractor shall commence pullback operations. Once started, pipeline pullback shall be continuous. Pre-reaming may be necessary and is at the option of the Contractor.
- B. The pipe shall be continuously lubricated with bentonite slurry or other suitable techniques.
- C. The pipe being pulled shall be protected and supported so that it moves freely and is not damaged by stones and debris on the ground during installation.
- D. Pullback forces shall not exceed the allowable pulling forces for the pipe.
- E. The Contractor shall allow sufficient lengths of product pipe to extend pass the termination point to allow connections to adjacent pipe sections or manholes. Pulled pipe will be allowed 24 hours of stabilization prior to making tie-ins.

3.7 PERMITS

- A. The Owner shall obtain permits necessary for installation of the pipeline. , The pipeline shall be installed in strict compliance with all applicable permits.

PIPELINE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILLING

3.8 TESTING

- A. The pipeline shall be tested twice, once before insertion into the drilled hole and once after installation. A low-pressure air test shall be conducted prior to installation of the pipe. A hydrostatic test shall be conducted following installation of the pipe.
- B. Unless otherwise specified pressure lines installed by horizontal directional drill shall have a low-pressure air test prior to installation. Test pressure is to be conducted at 2 psi to check for joint integrity and pin holes. The test shall be maintained at full pressure for at least two hours.
- C. Unless otherwise specified pressure lines shall be hydrostatically tested to the 150% working pressure but not less than 150 PSI or greater than pressure rating of pipe based on the lowest point of the section under pressure. Before applying the test pressure, all air, dirt and foreign material shall be expelled completely from the line through air valves, flushing and other means. The test shall be maintained at full pressure for at least two hours. Pressure gauges on test apparatus shall be a minimum of 4" diameter with a minimum of 1 PSI graduations. All damaged or defective pipe, fittings, joints, valves, hydrants and appurtenances discovered after the pressure test shall be repaired or replaced with sound material, and the pressure test repeated until satisfactory to the ENGINEER.
 - 1. Pressure lines shall be tested to 150% of the working pressure but not less than 150 psi. for a period of 2 hours. No leakage will be allowed. Pipeline must maintain test pressure for 2 hours.
 - 2. If during the test a pressure drop occurs, the CONTRACTOR shall, at his own expense, locate and repair all defects until there is no leakage or drop in pressure. All visible leaks shall be repaired regardless of the amount of leakage.
 - 3. Water for testing will be furnished by the CONTRACTOR, who shall furnish the test pump, measuring devices and all necessary pipe or hose extensions or transportation to the point of use, and shall exercise care in the use of water.
 - 4. If large amounts of water are needed for flushing, the CONTRACTOR must make arrangements with the City of Statesboro to measure water used.
 - 5. All valves within the test section shall be completely opened and closed several times during the test period.

3.9 CLEAN-UP

- A. The Contractor is required to maintain the work site in a neat and orderly condition throughout the period of work and after completing the work at each site, remove debris, surplus material and temporary structures erected by the Contractor. The site must be restored to a condition equal to the existing condition prior to being disturbed.

3.10 RECORD DATA

- A. Complete record data information shall be submitted by the Contractor to the Engineer and shall include horizontal and vertical location information of the installed pipeline.

(END OF SECTION)

DIVISION 15

**SECTION 15044
PRESSURE TESTING OF PIPING**

PART 1 GENERAL

1.1 WORK INCLUDED

Scope of Work: Hydrostatic testing shall be conducted for all pressurized piping systems. Pressure and leakage testing shall be performed in accordance with the JWSC Standards for Water and Sewer Design and Construction and the relevant sections of the technical specifications.

PART 2 PRODUCTS

2.1 GENERAL

Testing fluid shall be potable water.

2.2 MATERIALS AND EQUIPMENT

Unless otherwise indicated, Contractor shall provide pressure gauges, pipes, bulkheads, pumps, and meters to perform the hydrostatic testing.

PART 3 EXECUTION

3.1 TESTING

All work shall conform to the requirements of the JWSC Standards for Water and Sewer Design and Construction and the relevant sections of the technical specifications as noted below.

1. Reference Section 2.5.3.8 of the JWSC Standards for hydrostatic testing of water mains.
2. Reference Section 4.7.7 of the JWSC Standards for hydrostatic testing of force mains.

(END OF SECTION)

**SECTION 15100
VALVES AND SPECIALTIES**

PART 1 GENERAL

1.1 WORK INCLUDED

Scope of Work: Furnish, install, support, and test valves, gates, hydrants, cocks, stops, and faucets, when applicable, (hereinafter referred to as "valves") in the location(s) and of the size(s) and quantities shown on the Drawings and/or as directed by the JWSC. All work shall conform to the requirements of the JWSC Standards for Water and Sewer Design and Construction and as described in this Section.

1.2 QUALITY ASSURANCE

Qualifications:

1. All equipment furnished under this Specification shall be new and unused and shall be a standard product which has a successful record of reliable service in similar installations for a minimum of five (5) years.
2. All valves of same type and duty shall be furnished by a single manufacturer.

Standards:

1. ANSI.
2. AISI.
3. SSPC.
4. AWWA.

1.3 SUBMITTALS

Materials and Shop Drawings: Copies of all materials required to establish compliance with the Specification shall be submitted in accordance with the Special Conditions. Submittals shall include at least the following:

1. Certified shop drawings showing all important details of construction, dimensions (including laying length), and weight.
2. Descriptive literature, bulletins, and/or catalogs showing all valve parts, valve operator, and describing material of construction by material and specification (e.g., AISI).
3. Valve coatings and linings, as required.
4. A complete total bill of materials for all equipment.

Operating Instructions: Copies of operating and maintenance instructions shall be furnished in accordance with Section 01710 Operation and Maintenance Data. These shall include equipment lists, descriptions, and information necessary to instruct operating and maintenance personnel unfamiliar with the valves.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

Shipping:

1. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed.
2. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the JWSC.
3. Finished surfaces of all exposed openings shall be protected by wooden blanks, strongly built and securely bolted thereto.
4. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
5. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.
6. Each box or package shall be properly marked to show its net weight in addition to its contents.

Storage:

1. Store valves and accessories in an area on the construction site protected from weather, moisture, or possible damage.
2. Do not store valves or accessories directly on the ground.

Handling:

1. Handle valves and accessories to prevent damage of any nature.
2. Carefully inspect all materials for:
 - a. Defects in workmanship and materials.
 - b. Removal of debris and foreign material in valve openings and seats.
 - c. Proper functioning of all operating mechanisms.
 - d. Tightness of all nuts and bolts.

PART 2 PRODUCTS

2.1 GENERAL

Materials shall be as indicated in JWSC Standards for Water and Sewer Design and Constructions, specific sections, or on the Drawings, and compatible with intended use.

Valves shall have the name of the manufacturer and the size of the valve cast or molded onto the valve body or bonnet or shown on a permanently attached stainless steel plate.

Bolts, washers, nuts, and gaskets for flanged valves shall be as described in the JWSC Standards for Water and Sewer Design and Construction or the specific piping sections.

Coat metal valves located above ground or in vaults and structures the same as the adjacent piping. Apply the specified prime coat at the place of manufacture. Apply finish coat in field. Finish coat shall match color of the adjacent piping.

2.2 PLUG VALVES – FORCEMAIN ISOLATION

All plug valves, unless specifically shown otherwise on the drawings, shall be of non-lubricated, eccentric plug type with resilient faced plugs and shall be furnished with end connections as shown on the Contract Drawings, unless otherwise approved. Flanged valves shall be faced and drilled to the ANSI 125/150 lb. standard. Mechanical joint ends shall meet AWWA C111, Class B.

Valve bodies shall be ASTM A126, Class B cast iron with all exterior mounted bolts and nuts to be stainless steel. Valve shall have Buna “N” neoprene, epoxy, or fusion bonded, nylon faced plug. The interior of all plug valves shall be epoxy coated.

Port areas shall be 100% of full pipe area. The valve seat material shall consist of either a welded in 1/8 inch overlay of 90% pure nickel, or 316 stainless steel screwed into the cast iron body. Upper and lower plug stem bearings shall be sleeve-type of a stainless steel or other non-corrosive bearing material. The packing shall be adjustable and the bonnet shall be bolted. All bolts, nuts and washers shall be 316 stainless steel for buried, non-buried, and pit installed service. All buried valves on push-on joint pipe shall have mechanical joint ends and meet the requirements of ANSI A21.11. All exposed (non-buried) valves shall have flanged ends in accordance with American Standard B16.1, Class 125. The valves shall be rated for a minimum of 150 psi, non-shock cold W.O.G. and shall provide drip-tight shut off with this pressure in either direction. The operating nut or hand wheel shall have an arrow cast in the metal indicating direction of opening. The valve manufacturer shall furnish certified copies of performance, leakage and hydrostatic testing as outlined in AWWA C504.

All plug valves 8-inches and larger shall be equipped with totally enclosed worm gear actuators complying with AWWA C504. All gearing shall run in oil. The actuator housing shall be semi-steel with seals to prevent dirt or water from entering the housing. Shaft bearings shall be permanently lubricated bronze bushings. Appropriately sized hand wheel operators shall be provided for each non-buried, gear-actuated valve. Buried valves shall have seals on all shafts and gaskets on valve covers. Buried valves shall be provided with 2-inch square operating nut with extension stem with operating nut no more than 8-inches below finish grade.

Plug valves shall be as manufactured by DeZurik PEF Eccentric Plug Valves, Pratt Ballcentric Full Port Eccentric Plug Valve, or JWSC approved equal.

2.3 CHECK VALVES

Check valve shall be mounted horizontally unless approved otherwise by JWSC. Check valves shall conform to the requirements of AWWA C508.

All check valve interiors shall be fully coated with a liquid thermosetting epoxy suitable for use in wastewater applications.

Check valves shall be swing check type. Swing check valves larger than two (2) inch nominal size shall be cast iron body with stainless steel bolts and nuts, flanged ends, 316 stainless steel shaft connected to a steel outside lever and weight, swing-type with straight-away passageway of full pipe area. The valve shall have renewable bronze seat ring and rubber-faced disc.

Check valves larger than two (2) inch shall be 150 psi working pressure.

Check valves two (2) inch and smaller nominal size shall be all brass swing check valves, 200 psi working pressure.

Swing check valves larger than two (2) inch nominal size shall be Clow Valve Company Style 1106LW or Style 159-02 or JWSC approved equal.

2.4 VALVE BOXES

All buried valves shall have cast-iron three-piece adjustable valve boxes. Valve boxes shall be provided with suitable heavy bonnets and shall extend to such elevation at or slightly above the finished grade surface as directed by the JWSC. The barrel shall be two-piece, sliding type, having 5-1/4-inch shaft. The upper section shall have a flange at the bottom having sufficient bearing area to prevent settling and shall be complete with a cast iron cover. Covers shall have "WATER" or "SEWER" cast into the top for all such mains, as appropriate. The actuating nuts for deeper valves shall be extended to come up to within four (4) feet of the finished grade.

Care shall be taken installing valve boxes to ensure that valve stems are vertical and the cast iron box has been placed over the stem with base bearing on compacted fill and top flush with final grade. Boxes shall have sufficient bracing to maintain alignment during backfilling. Contractor shall remove any sand or undesirable fill from valve box prior to final inspection. Any valve box which has been moved from its original position by trench settlement or other causes, and which prevents the use of a valve wrench for opening and closing of the valve, shall be reset by the Contractor prior to final acceptance. The entire assembly shall be plumb.

In unpaved areas, a poured in place reinforced concrete valve pad shall be installed around all valve boxes. The concrete thickness shall be four (4) inches for poured in place collars. The top of the poured in place collar shall be level with the top of the cast iron valve box and **level with the final grade**.

PART 3 EXECUTION

3.1 PREPARATION

Apply coatings to valves and miscellaneous piping appurtenances as per JWSC Standards for Water and Sewer Design and Construction.

Apply coats of paint filler and enamel to parts customarily finished at the shop.

Apply a shop coat of grease or other suitable rust resistant coating to ferrous surfaces obviously not to be painted.

3.2 INSTALLATION

Install valves and accessories in strict accordance with manufacturer's instructions and recommendations, as shown on the Drawings and/or as directed by the JWSC.

Carefully erect all valves and support them in their respective positions free from distortion and strain.

Bolt holes of flanged valves shall straddle the horizontal and vertical centerlines of the pipe run to which the valves are attached. Clean flanges by wire brushing before installing flanged valves. Clean flange bolts and nuts by wire brushing, lubricate threads with oil and graphite, and tighten nuts uniformly and progressively. Clean threaded joints by wire brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads before installing threaded valves. Joints shall be watertight.

Support all valves connected to pumps and equipment, and in piping systems that cannot support valves.

Repair any scratches, marks and other types of surface damage, etc., with original coating as supplied by the factory.

3.3 INSPECTION AND TESTING

Check and adjust all valves and accessories for smooth operation.

Test valves for leakage at the same time that connecting pipelines are tested. See Section 15044: Pressure Testing of Piping for pressure testing requirements. Protect or isolate any parts of valves, operators, or control and instrument systems whose pressure rating is less than the pressure tests.

If flanges leak under pressure testing, loosen or remove the nuts and bolts, reseal or replace the gasket, reinstall or retighten the bolts and nuts, and retest the joints.

(END OF SECTION)

DIVISION 16

JWSC STANDARD SPECIFICATIONS – WATER DISTRIBUTION SYSTEM

WATER DISTRIBUTION SYSTEMS**2.1 GENERAL**

This section provides the minimum guidelines for the design and construction of water transmission and distribution systems. The method of design and/or construction shall be in accordance with these Design and Construction Standards and Specifications and the following:

Georgia Rules for Safe Drinking Water Chapter 391-3-5 promulgated under the Georgia Safe Drinking Water Act

Georgia Environmental Protection Division Minimum Standards for Public Water Systems, Latest Edition

American Water Works Association (AWWA) Applicable

Federal, State and Local Requirements

In the event of conflicts among the various sources cited above, the most stringent criteria shall take precedence.

2.2 DESIGN FLOWS

Each water system component shall be designed to meet certain flow requirements to ensure that water will be available in adequate quantities to meet demand characteristics throughout the system. The various flow requirements are described below.

2.2.1 Annual Average Daily Flow (AADF)

The average daily demand expresses the average amount of water used in a system during an average day. One Residential Equivalent Unit (REU) is the equivalent demand that can be expected for one residential connection. The AADF shall be 300 gallons per day per REU. In as much as the AADF will often be exceeded, it is generally not appropriate to use AADF for design purposes.

2.2.2 Maximum Daily Flow (MDF)

The maximum daily demand expresses the maximum amount of water used in a system in one day during peak demand. Normally expressed in gallons per day, the MDF is normally used in the design of water production and storage facilities. For water systems located in the City District, North Mainland District and South Mainland District of Glynn County, the estimated MDF shall be calculated as 1.54 times the AADF. For water systems located on St. Simons Island the MDF shall be calculated as 1.40 times the AADF.

2.2.3 Peak Hourly Flow (PHF)

The peak hourly demand expresses the maximum amount of water used in any hour during a day. Normally expressed in gallons per minute, PHF is used, in conjunction with fire flow requirements, in the design of water distribution systems. For water

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systems located in the City District, North Mainland District and South Mainland District of Glynn County, the estimated PHF shall be calculated as 2.2 times the AADF. For water systems located in on St. Simons Island, the estimated PHF shall be calculated as 2.0 times the AADF.

2.2.4 Fire Flow Requirements

A minimum fire flow of 500 gallons per minute with a residual pressure of 20 PSI for 2 hours at the fire hydrant shall be required.

2.3 SIZING OF WATER MAINS

Water distribution systems must be designed to maintain a residual pressure of at least 20 PSI at each service connection and at all points in the distribution system under all conditions of flow, including fire flow. All construction plan submittals shall be accompanied by a hydraulic analysis prepared by a Professional Engineer registered in the State of Georgia, demonstrating compliance with these design and construction standards and specifications. The hydraulic analysis shall clearly state the basis for the design flows.

2.3.1 Major Transmission Mains

The size of major transmission mains or extensions to such mains, throughout the system shall be in accordance with JWSC Water and Sewer Master Plan, latest revision. Contact the JWSC for additional information and guidance with regard to this requirement.

2.3.2 Distribution Mains

The minimum water main size in residential subdivisions to which fire hydrants are connected shall be eight (8) inches in diameter. It is preferred that such subdivisions be designed with two feeds from a distribution main external to the project wherever possible. In cases where two feeds are not practical, the size of the single main extension serving the development or looped grid must be verified in the hydraulic analysis.

Distribution mains smaller than eight (8) inches in diameter will be considered on a case by case basis, but in no case shall distribution mains smaller than two (2) inch be used. No more than five (5) REU's may be served by a single two (2) inch main.

2.3.3 Velocities in Water Mains

The hydraulic analysis must demonstrate that expected velocities in new distribution mains do not exceed five (5) feet per second at the PHF.

2.3.4 Hazen Williams Roughness Coefficients

The hydraulic analysis shall use roughness coefficients (C-factors) in the Hazen-Williams formula in accordance with the following:

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Pipe	C-factor
Ductile iron pipe (sixteen (16) inches in diameter and above)	120
Ductile iron pipe (Less than sixteen (16) inches in diameter)	130
PVC pipe (All sizes)	140
HDPE pipe (All sizes)	140

2.4 MATERIAL SPECIFICATIONS

The contractor shall furnish potable water piping systems in accordance with the material specifications detailed below. All references to industry standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless stated otherwise. All materials shall be new. These material specifications include a list of acceptable manufacturers for the various water system components (See Appendix 2A). The contractor may choose freely from the manufacturers list and ***material submittals for such items are not required.*** Only products and materials from the acceptable manufacturer's lists herein may be used in the work. Any item required but not specified herein, or any product or manufacturer other than those listed will be considered a substitution. ***Material submittals are required for such items.*** Substitutions will not be allowed without the prior written approval of the JWSC. Substitutions, if allowed, shall meet all criteria of the detailed specifications.

The burden of proof for compliance of any proposed substitution rests with the Contractor/Developer/Owner. The JWSC will be the sole judge as to the acceptance of a proposed substitution and such decisions will be final.

2.4.1 Potable Water Pipe

Pipe for potable water lines shall be ductile iron, polyvinyl chloride (PVC), polyethylene tubing or high density polyethylene (HDPE). Pipe sizes and applications shall conform to the following table.

**Figure WD-1
 Pipe Size and Application Table**

PIPE	PIPE SIZE	JOINT TYPE	APPLICATION
Ductile Iron	4" diameter and larger	Mech. Joint Push-on Joint Flanged Joint*	Water Mains Above Ground Below Ground
PVC DR 14 PVC DR 18 PVC DR 25	4" diameter and larger	Push-on Joint	Water Mains Below Ground
PVC SDR 21	2" diameter	Push-on Joint	Water Mains Below Ground
Polyethylene Tubing	2" diameter and smaller	(See Below)	Water Services

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HDPE	2" diameter and larger	Fused	Water Mains Water Services Below Ground
Steel	4" diameter and larger	Welded	Casings Only

* Flanged joints for above ground applications only

2.4.1.1 Ductile Iron Pipe

Ductile iron pipe wall thicknesses and pressure class shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151) with pressure class 150 as a minimum. Each length shall be clearly marked with the name of the manufacturer, pressure rating, thickness or pressure class and nominal pipe diameter.

All ductile iron pipe shall be externally coated with a bituminous coating per ANSI A21.51. In areas of corrosive soils as defined in AWWA C105, Appendix A, all bolts, nuts, studs and other uncoated parts of joints for underground installations shall be coated with asphalt or coal tar prior to backfilling.

The interior of all ductile iron pipe, fittings and specials shall be cement lined with a seal coat. The lining shall comply with ANSI A21.4 (AWWA C104). In areas of severely aggressive soils, provide polyethylene encasement for all ductile iron piping systems in accordance with AWWA C105.

2.4.1.2 Polyvinyl Chloride (PVC) Pipe

Pipe shall be virgin polyvinyl chloride (PVC) pipe for potable water and shall have a bell type coupling with a thickened wall section integral with the pipe barrel in accordance with ASTM D3139. Provisions must be made for expansion and contraction at each joint with flexible ring gaskets made of rubber or other suitable material. Elastomeric seals shall meet ASTM F477.

PVC water pipe four (4) inches through twelve (12) inches in diameter shall conform to AWWA C900 Pressure Class (PC) 235 DR-18. PVC water pipe fourteen (14) inches and larger shall conform to AWWA C905 Pressure Class (PC) 235 DR-18. Pipe is to be manufactured to ductile iron pipe equivalent outside diameters. Pipe for water mains shall be blue in color with each length marked with name of the manufacturer, pressure rating, nominal pipe diameter and the seal of the National Sanitation Foundation (NSF).

PVC water pipe two (2) inches in diameter and smaller shall conform to ASTM D2241, Pressure Rating (PR) 200 SDR-21 with push-on type jointing. Glued or Solvent weld joints shall not be used. Pipe for water mains shall be blue in color (preferred) with each length marked with name of the manufacturer, pressure rating, nominal pipe diameter and the seal of the National Sanitation Foundation (NSF). If blue is not available, white may be used.

2.4.1.3 Polyethylene Tubing

All water services two (2) inches in diameter and smaller shall be manufactured of PE 3408, high density polyethylene in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D2737 and ASTM

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D3350. Tubing shall have a minimum working pressure of 200 PSI, shall be copper tube size SDR-9 and shall be blue in color. Couplings shall be made of bronze with compression fittings on both ends suitable for connection to polyethylene tubing with inserts.

Tubing shall be approved for use with potable water by the National Sanitation Foundation and shall be continuously marked at intervals of not more than four (4) feet with the nominal size, pressure rating, NSF seal, manufacturer's name, standard dimension ratio and ASTM specification.

2.4.1.4 High Density Polyethylene (HDPE) Pipe

Materials used for the manufacturing of polyethylene pipe and fittings shall be PE3408 high density polyethylene meeting cell classification 345464C per ASTM D3350; and meeting Type III, Class B or Class C, Category 5, Grade P34 per ASTM D1248.

HDPE pipe four (4) inches in diameter and larger shall conform to AWWA C906, DR-11, ductile iron pipe size and NSF 61 Standard. HDPE pipe shall be manufactured in accordance with ASTM F714, Polyethylene (PE) Plastic Pipe (SDR-PR) based on Controlled Outside Diameter and shall be so marked. Pipe sizes are nominal and may require up-sizing so that the inside pipe diameter is approximately the same as the PVC pipe diameter where applicable. HDPE pipe used for potable water shall be permanently identified by multiple co-extruded blue color stripes equally spaced into the outside surface of the pipe.

Electro fusion branch saddles for wet tap applications shall meet AWWA C906 and be designed and manufactured in accordance with ASTM F1055 for use with HDPE pipe. Outlets shall be in accordance with ASTM D3261 specifically manufactured for HDPE pipe.

Polyethylene flange adaptors shall be made with sufficient through bore length to be clamped in a butt fusion joining machine without the use of a stub end holder. The sealing surface of the flange adaptor shall be machined with a series of small v-shaped grooves to provide gasket-less sealing or to restrain the gasket against blow out. Flange adaptors shall be fitted with convoluted type ductile iron back up rings meeting ASTM A536, Grade 65/45/12. Flange bolts and nuts shall be grade 2 or higher.

Polyethylene mechanical joint adaptors used for connections of HDPE pipe to ductile iron or PVC piping, mechanical joint fittings or valves shall be self-restraining, fusible mechanical joint adaptors and shall be of the same SDR rating as the pipe. Adaptors shall include longer T-bolts or all thread rods with nuts at the mechanical joint bell.

2.4.1.5 Steel Casing Pipe

Steel casing pipe shall conform to either ASTM A139 for *Electric Fusion (arc) Welded Steel Pipe* with a minimum yield strength of 35,000 PSI or API-5LX, Grade X-42.

Wall thicknesses shall meet the requirements of the American Railway Engineering Association Manual of Recommended Practice or the Georgia (GDOT) Standard Specifications. For street or highway crossings which are not under railroad or GDOT jurisdiction, the GDOT standards shall be used. Pipe inside diameter shall be in accordance the JWSC standard water construction details. Pipe lengths shorter than eight (8) feet long may not be used unless approved by the JWSC.

2.4.2 Fittings

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Fittings for PVC and ductile iron pipe 4-inches in diameter and larger shall be ductile iron with mechanical joints for below ground applications and flanged joints for above ground installations. Fittings for PVC piping two (2) Inches in diameter and smaller shall be push-on bell type.

2.4.2.1 Ductile Iron Fittings

Ductile iron fittings shall conform to ANSI A21.10 (AWWA C110), ANSI A21.11 (AWWA C111), A21.15 (AWWA C115), and/or A21.53 (AWWA C153). **Compact fittings shall normally be used** but this does not preclude the use of standard or long body fittings where shown on the plans or at the direction of the JWSC. All ductile iron fittings shall be externally coated and internally lined as specified in paragraph 2.4.1.1 of this section.

Fittings shall have cast on them the pressure rating, nominal diameter, manufacturer's name, foundry location and type of fitting (degrees or fraction of a circle). Cast letters and figures shall be on the outside body of the fitting. Fittings shall have a minimum working pressure of 250 PSI.

2.4.2.2 PVC Fittings

PVC 1120, SDR-21 fittings shall be injection molded, push-on bell type with elastomeric rubber seals in accordance with ASTM D3139. Seals shall conform to ASTM F477.

2.4.2.3 Non-Standard Fittings and Wall Castings

The JWSC shall approve all fittings having non-standard dimensions and cast specifically for a particular project. Such fittings shall meet the requirements of the same standards listed in paragraph 2.4.2.1 and shall have the same diameter and thickness as standard fittings. Laying lengths and types of ends shall be determined by the particular application and the piping to which they connect.

Wall castings shall be as indicated on the drawings. Flanges shall be faced and drilled to 125-pound ANSI Standards. Flanges shall be tapped for studs.

2.4.3 Joints

The type of joints used for piping and fittings shall be in accordance with the following specifications. Joints shall be made in accordance with the manufacturer's printed instructions.

2.4.3.1 Mechanical Joints

Mechanical joint materials, assembly and bolting shall be in accordance with ANSI A21.11 (AWWA C11). All glands shall be epoxy coated ductile iron.

2.4.3.2 Flanged Joints

Flanged joints for ductile iron piping shall conform to ANSI A21.10 (AWWA C110), and ANSI A21.15 (AWWA C115). Flanges shall be in accordance with ANSI B16.1, Class 125. Gaskets shall be used on all flanges. Gaskets shall be rubber ring type with cloth inserts and a minimum thickness of one eighth (1/8) inches. Bolts and nuts shall be

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Grade B conforming to ASTM A307. The number and size of bolts shall be in accordance with the same ANSI Standard as the flanges.

2.4.3.3 Restrained Joints

On ductile iron fittings, mechanical joint restraints shall be incorporated into the design of the follower gland. Restraint devices shall consist of multiple gripping wedges incorporated into the follower gland and meeting the requirements of ANSI A21.10 (AWWA C110). Gland body, wedges and wedge actuating components shall be ductile iron in accordance with ASTM A536. Dimensions of the gland shall be such that it can be used with the standard mechanical joint bell and tee head bolts. Twist off nuts (same size as the tee head bolts) shall be used to ensure proper actuation of the restraining device. The mechanical joint restraint shall be designed to accommodate the full working pressure of the pipe with a minimum safety factor of 2.0.

Where called for on the plans, joints on ductile iron piping may be restrained by utilizing a joint restrained gasket which includes a stainless steel locking segment vulcanized into the rubber gasket. The gasket shall be rated for operating pressures up to 250 PSI in accordance with ANSI A21.11 (AWWA C111).

Where it is necessary to restrain PVC pipe bells adjacent to valves and fittings, a harness restraint device shall be used in lieu of thrust blocking. The restraint shall be manufactured of ductile iron in accordance with ASTM A536. A split ring shall be used behind the pipe bell with a serrated ring to grip the pipe. A sufficient number of steel tie rods/bolts shall be used to connect the bell ring and the gripping ring. The harness restraint device shall accommodate the full working pressure of the pipe with a minimum safety factor of 2.0.

The use of concrete thrust blocks as a method of joint restraint shall be limited to situations such as ties to or work associated with existing systems where exposing several joints of pipe is not feasible due to existing ground conditions. In such cases other restraining devices may be required at the direction of the JWSC. Concrete thrust blocks may be used in combination with tie rods in accordance with the JWSC standard construction details. Where used concrete shall be 2,500 PSI minimum.

Where tie rods are used as a method of restraint at mechanical joint fittings and valves, offset eyebolts shall be used to connect tie rods to the fitting. Tie rods shall be steel, threaded as required and installed with a washer and nut (same material as the rod) on either side of the joint. The size and number of tie rods shall be in accordance with the Figure WD-2.

**Figure WD-2
 Tie Rod Size and Number Table**

Pipe Size	No. of Rods	Rod Size
4"	2	3/4"
6"	2	3/4"
8"	2	3/4"
10"	4	3/4"
12"	4	3/4"
14"	6	3/4"
16"	6	3/4"
>16"	*	*

* Contact JWSC

2.4.4 Water Valves and Appurtenances

Water valves shall be of the size and type shown on the approved construction plans. All valves shall open by turning left or "counter- clockwise". Extension stems on buried valves will be used only at the direction of the JWSC.

2.4.4.1 Gate Valves

Gate valves four (4) inches in diameter and larger shall be resilient seat wedge type conforming to applicable sections of AWWA C509 or C515 designed for a minimum working pressure of 250 PSI. When fully open, gate valves shall have a clear port equal to the nominal diameter of the pipe on which it is installed.

Buried gate valves shall be non-rising stem type, epoxy coated, iron body, bronze mounted with all exterior mounted bolts and nuts of 316 stainless steel. Buried gate valves shall have mechanical joint ends and be equipped with a two (2) inch square operating nut and adjustable valve boxes and covers. Valve boxes shall be as specified in paragraph 2.4.4.3 below.

Gate valves installed above ground may be hand wheel operated, non- rising stem type with flanged ends meeting the same general construction as buried valves. Hand wheels shall not be used inside structures or vaults.

Gate valves two (2) inches to three (3) inches in diameter shall be non- rising stem, resilient seat wedge type with epoxy coated iron body and two (2) inch square operating nut. Valve shall conform to the applicable requirements of AWWA C509 and ASTM A126 Class B with threaded ends and designed for 200 PSI working pressure.

2.4.4.2 Fire Hydrants

Fire hydrants shall be of the compression type, closing with line pressure, and conforming to AWWA C502. Fire hydrants shall have a minimum valve opening of five and one-fourth (5 ¼) inches with two and one-half (2 ½) inch hose nozzles and one four and one-half (4 ½) inch pumper nozzle. Hydrants shall open left or counterclockwise. The nozzle caps shall be securely chained to the hydrant barrel and be constructed

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of heavy duty corrosion resistant material.

Fire hydrants shall be fully bronze mounted. All nuts and bolts shall be 304 stainless steel. All working parts, including the valve seat ring, shall be removable through the top of the hydrant without disturbing the barrel. The operating threads shall be totally enclosed in an operating chamber separated from the hydrant barrel by a rubber o-ring stem seal and lubricated by a grease or oil reservoir. The hydrant operating nut shall be pentagon shaped (5-sided) measuring one and one-half (1 ½) inches from point to flat. The inlet connection shall be six (6) inch mechanical joint type.

Fire hydrants shall be traffic type such that the barrel will break away from the standpipe at a point above grade to prevent damage to the barrel and stem. Fire hydrants shall be of a non-freezing type design and shall be provided with a simple and positive automatic drain which will be fully closed whenever the main valve is opened.

The entire outside surfaces of the fire hydrant barrel above grade shall be factory primed and then painted with Koppers GLAMORTEX 501 red enamel paint. The base shoe shall be painted with a minimum 4 mils thick epoxy and the lower barrel shall be asphaltic or epoxy coated.

2.4.4.3 Valve Boxes

Valve boxes shall be cast iron, heavy duty roadway, screw type adjustable to six (6) inches up and down from the nominal required cover over the pipe. Six (6) inch PVC C900 Pipe shall be used to extend valve boxes to grade. Cast iron castings shall be manufactured of clean, even grain, gray cast iron conforming to ASTM A48, Class 20B. Valve boxes shall have cast iron drop covers with the word "WATER" stamped on it.

2.4.4.4 Tapping Valves and Sleeves

Tapping sleeves shall be used for live tap applications or where directed by the JWSC. Tapping sleeves shall be stainless steel wrap around type conforming to ASTM A126 and shall accommodate the full working pressure of the system.

Tapping valves shall meet the requirements of paragraph 2.4.4.1 of this section. Tapping valves shall be flanged on one end for connection to the tapping saddle and mechanical joint on the other end. MJ tapping saddles and valves shall be used where the main to be tapped is not level so that the valve operator may be installed in a vertical position.

2.4.5 Water Services and Appurtenances

2.4.5.1 Corporation Stops

Corporation stops are required on all water services. Corporation stops shall be made of brass conforming to AWWA C800, ASTM B62 and/or ASTM B584 and shall accommodate the full working pressure of the system. The inlet connection shall be AWWA standard iron pipe (IPT) thread. The outlet connection shall be compression type for polyethylene tubing.

2.4.5.2 Curb Stops

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Curb stops shall be ball valve type conforming to AWWA C800. Curb stops shall be made of brass conforming to AWWA C800, ASTM B62 and/or ASTM B584 and shall accommodate the full working pressure of the system. Service line connections shall be compression type for polyethylene tubing.

2.4.5.3 Double Strapped Tapping Saddles

Double strapped tapping saddles shall be epoxy coated ductile iron body type with NPT service outlet. The saddles shall have a self-energizing o-ring rubber gasket, two alloy steel straps, and a female iron pipe tap conforming to AWWA C800.

2.4.5.4 Meter Boxes (Residential)

Meter boxes for residential services shall be furnished and installed by the contractor/developer. Boxes shall be oval in shape, of cast iron construction with minimum dimensions of 20" L x 10¼" W x 9¾" D suitable for a one (1) inch meter set.

2.4.5.5 Meter Boxes (1 ½" to 2")

Meter boxes for one and one-half (1½) inch to two (2) inch meters shall be rectangle in shape. Boxes shall be constructed of a light weight plastic composite material with a minimum tensile strength of 3400 PSI. Dimensions shall be suitable for the meter installed.

2.4.6 Backflow Prevention Devices

2.4.6.1 Double Check Valve (DCV) Assemblies

The backflow preventer shall feature modular check assemblies with center stem guiding. Each check module shall have a captured spring and be accessible through a bolted cover plate. Seats shall be replaceable without special tools. The device shall be completely factory assembled and include, in addition to the check modules, tight closing resilient seated shut off valves, test cocks and strainer.

The assembly shall meet the requirements of USC Manual 8th Edition, ASSE No. 1015, AWWA C510, CSA B64.5, IAPMO PA31 and UL Classified File No. EX3185.

2.4.6.2 Reduced Pressure Zone (RPZ) Assemblies

The RPZ shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting.

The assembly shall meet the requirements of USC Manual 8th Edition, ASSE Std. 1013, AWWA

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C511, IAPMO File No. 1563 and CSA B64.4.

2.4.7 *Miscellaneous Items***2.4.7.1 *Detection Tape***

Detection tape shall be composed of a solid aluminum foil encased in a protective plastic jacket. The tape shall be safety blue in color, shall be at least two and half (2-1/2) inches wide and will bear the printed identification "CAUTION: BURIED WATER LINE BELOW".

2.4.7.2 *Tracer Wire*

Water pipe tracer wire shall be AWG 12/1, single conductor solid copper with blue jacket, UL rated suitable for direct burial, temperature range -20° C to 60° C, 600 Volts RMS.

2.4.7.3 *Casing Spacers*

Casing spacers shall be a two piece shell per carrier pipe and made from T-304 stainless steel of a minimum 14 gauge thickness. Each shell section shall be lined with a 0.090" thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra-high molecular weight polyethylene to provide abrasion resistance and a low coefficient of friction. The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier pipe within the casing pipe. The runners shall be mechanically bolted to the riser. Risers shall be made of T-304 stainless steel of a minimum 10 gauge. All risers shall be MIG welded to the shell. Bottom risers six (6) inches and over in height shall be reinforced. All reinforcing plates shall be 10 gauge T-304 stainless steel and shall be MIG welded to mating parts. All nuts, bolts and washers shall be 304 stainless steel.

2.4.7.4 *End Seals*

Unless dictated otherwise by GDOT or railroad specifications, casing and seals shall be pull-over type made from neoprene with T-304 stainless steel bands for securing to the carrier and casing pipe.

2.5 INSTALLATION OF WATER MAINS AND APPURTENANCES

The contractor shall install potable water piping systems in accordance with the specifications detailed below. All references to industry standards (ASTM, ANSI, AWWA, etc.) shall be to the latest revision unless stated otherwise.

2.5.1 *Product Delivery, Handling and Storage*

The contractor shall inspect all materials delivered to the job site for damage. Materials shall be unloaded and stored with a minimum of handling. Materials shall be stored above ground and the interior of pipe and fittings shall be kept free of dirt and debris. Store non-metallic piping and rubber gaskets under cover and protect from exposure to sunlight.

Pipe, fittings, valves, hydrants and other appurtenances shall be handled to ensure delivery at the point of installation in sound, undamaged condition. If coating or linings of pipe or fittings are damaged, such pipe and fittings shall be removed from the site and new materials furnished. Pipe shall not be dragged.

2.5.2 *Excavation and Backfilling*

2.5.2.1 *General Excavation*

The contractor shall examine the work site and inform himself fully as to the nature of all materials to be encountered during excavation for the construction of the various facilities and related appurtenances. The contractor shall perform excavation of all substances encountered to the depth shown on the drawings. Trench width and/or depth shall be as shown on the *JWSC Standard Details*.

Excavation shall not be carried below the required level. Where excavation is carried below the grade indicated through error, the contractor shall refill to the proper grade with AASHTO Class A-3 soil or granular backfill if directed by the JWSC Inspector and compact to obtain a suitable pipe support.

All excavation work shall be in accordance with OSHA safety standards, including OSHA Excavation Standards (29 CFR Subpart P 1926.650).

2.5.2.2 *Dewatering*

The contractor shall keep all excavations clear of water while pipe and appurtenances are being installed. All water pumped or bailed from trenches and other excavated areas shall be conveyed to a point of discharge where it will cause no hazard to the safety and protection of the public, to private property or to other work in progress.

2.5.2.3 *Backfilling and Compaction*

If unsuitable materials are encountered, such materials may not be used for backfilling operations and shall be removed from the site. Unsuitable material includes but is not limited to debris, muck, clay, large clods, stones, wood, stumps, and roots.

Generally piping and appurtenances shall be observed by the JWSC Inspector prior to backfilling. Should it be necessary to backfill trenches, prior to observation by JWSC inspector, pipe joints shall be left exposed for observation. Backfill and compaction shall be performed to achieve the densities specified below. Methods for the placement of backfill and compaction shall be subject to the approval of the JWSC.

For excavation under pavement, backfill shall be placed in uniform, six (6) inch compacted layers and compacted to 98% of its maximum density as determined by Laboratory Modified Proctor Test, ASTM D1557 to an elevation of one (1) foot above the top of the pipe. The remainder of the trench backfill shall be placed in twelve (12) inch compacted layers and compacted to 98% of its maximum density as determined by Laboratory Modified Proctor Test, ASTM D1557.

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When excavating under existing pavement, such pavement shall be removed to clean straight lines by saw cutting. Backfill shall be placed in uniform, six (6) inch compacted layers and compacted to 98% of its maximum density as determined by ASTM D1557 to an elevation of one (1) foot above the top of the pipe.

The remainder of the trench backfill shall consist of graded aggregate to be placed in six (6) inch compacted layers and compacted to 98% of its maximum density as determined by ASTM D1557. The in-place density is to be tested by ASTM D2922 or ASTM D1556. See the *JWSC Standard Details* for additional information.

For excavation not under pavement, backfill shall be placed in uniform layers, six (6) inch compacted layers and compacted to 98% of its maximum density as determined by Laboratory Modified Proctor Test, ASTM D1557 to an elevation of one (1) foot above the top of the pipe.

The remainder of the trench backfill shall be placed in twelve (12) inch compacted layers and compacted to 98% of its maximum density as determined by Laboratory Modified Proctor Test, ASTM D1557.

If deemed necessary by the JWSC, the contractor shall, at his expense, retain the services of an independent testing laboratory to make in place density tests of backfilled trenches to confirm compaction as specified herein.

2.5.3 Water Mains

2.5.3.1 Pipe Installation

All PVC C900/C905 pipe shall be laid in accordance with AWWA C605. All ductile iron pipe and fittings shall be laid in accordance with the manufacturer's recommendations and AWWA C600. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints.

Excavation, cleaning, laying, jointing and backfilling shall follow as closely as possible during prosecution of the work. In no case shall pipe be left in the trench overnight without completing the jointing. All precautions shall be taken to prevent sand, dirt and debris from entering the pipe during installation. Any time that pipe installation is not in progress, open pipe ends shall be closed by a watertight plug or other method approved by the JWSC Inspector.

Plugs shall remain in pipe ends until all water has been removed from the trench and any foreign material that enters the pipe shall be removed immediately. No pipe shall be installed when trench or weather conditions are unsuitable for such work, as determined by JWSC.

2.5.3.2 Pipe Alignment

Pipe alignment and gradient shall be straight or shall follow true curves as near as practicable. Curvature in pipe lines, where required, shall be well within (no more than 80% of) the manufacturer's allowable joint deflection or laying radius for the pipe supplied. Otherwise fittings shall be required.

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Water mains shall be installed in locations shown on the plans. New water mains in residential subdivisions shall generally be located five (5) feet behind the curb where curb and gutter is used. Where roadside ditches are used in lieu of curb and gutter, the water mains should be placed at the edge of the road shoulder no closer than four (4) feet from the edge of pavement. The placement of water lines, valves and hydrants within the ditch shall require the approval of the JWSC.

2.5.3.3 Pipe Cover

Pipe shall be laid with a minimum cover of forty two (42) inches in paved areas and thirty six (36) inches in unpaved areas with an allowable maximum of sixty (60) inches. Cover in all areas shall be measured from crown of pipe to finish grade. Reductions in pipe cover requirements require the approval of the JWSC. Cover requirements are shown on the *JWSC Standard Details*.

Greater depths are permissible when required to clear obstructions, conflicts, etc. The contractor shall contact the JWSC in advance for instructions as to the modifications necessary. A detail for utility conflicts is shown on the *JWSC Standard Details*.

2.5.3.4 Separation Requirements

Water lines shall not be laid closer than ten (10) feet horizontally from a sanitary sewer main or septic tank line. Exceptions require the approval of the JWSC Planning and Construction Division. Sanitary sewer lines shall pass beneath water lines with the top of the sewer being at least eighteen (18) inches below the bottom of the water line, where sewer lines cross water lines. No joints in the sewer line shall be located closer than ten (10) feet horizontal distance from the water line.

2.5.3.5 Thrust Restraints

All non-flanged fittings and valves shall be restrained. This shall be accomplished using mechanical restraints at fittings and mechanical restraint along adjacent joints of pipe in accordance with the *JWSC Standard Details*. Restraining devices and tie rods, where required, shall be in accordance with paragraph 2.4.3.3 above.

The use of concrete thrust blocks as a method of joint restraint shall be limited to situations such as point repair where exposing several joints of pipe is not feasible due to existing ground conditions. In such cases other restraining devices may be required at the direction of the JWSC. Concrete thrust blocks may be used in combination with tie rods in accordance with the JWSC standard construction details. Where used concrete shall be 2,500 PSI minimum.

All joints within steel casing pipe shall be restrained with mechanical restraining devices. Harness restraints on PVC (caps) pipe installed within casings may require larger casing pipes.

2.5.3.6 Tracer Wire and Detection Tape

Contractor shall furnish and install locate wiring on all non-metallic water mains in accordance with the *JWSC Standard Details*. Locate wire shall be brought to grade outside a valve box or locating station box, as required, at four hundred and seventy five (475) foot intervals (maximum). In addition, all water mains shall have detection tape installed two (2) feet above the pipe. Tracer wire and detection tape shall be as specified in paragraphs 2.4.7.1 and 2.4.7.2 above.

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Installed locate wiring shall be tested by the contractor as part of the inspection process, using a qualified tester and suitable testing equipment. The contractor shall notify the JWSC Inspector at least 48 hours in advance of the locate wire field testing schedule.

2.5.3.7 Casing Spacers

All carrier pipes located within steel casings shall be installed utilizing casing spacers in accordance with the **JWSC Standard Details**. Casing spacers shall be installed one (1) foot on either side of each carrier pipe joint and at no more than ten (10) foot intervals along the pipe. A casing spacer shall also be installed within two feet of the ends of the casing pipe. See paragraph 2.4.7.4 for material specifications.

2.5.3.8 Pressure and Leakage Testing

Upon completion of backfilling operations and prior to disinfection, all completed water lines shall be subject to hydrostatic (pressure and leakage) testing in accordance with AWWA C600 or AWWA C605 as appropriate and as outlined below. Pressure and leakage testing shall be conducted simultaneously. The contractor shall test all new water lines in the presence of a JWSC Inspector.

The test pressure shall be measured at the lowest point. All required blow offs shall be installed by the contractor prior to the hydrostatic test. See also paragraph 2.5.7.10 below for required sampling locations for bacteriological testing.

The contractor shall furnish clean water as well as temporary plugs, caps, bulkheads, test pump and all other necessary equipment and labor for the test. The section of water main to be tested shall be filled with water of approved quality and all air shall be expelled from the pipe. Water for testing may be obtained from any existing fire hydrant or special wet tap of an existing water line provided that the method of backflow prevention used is approved by the JWSC Inspector.

The JWSC will operate all valves and hydrants on the existing water distribution system. If blow offs or other outlets are not available at high points for releasing air, the contractor shall make the necessary taps at such points and shall plug such holes at the completion of the test. The Table below lists the approximate amount of water which must be added to the pipe to raise line pressure from 0 to 150 PSI when no air is present.

**Figure WD-3 Water /
Pipe Ratio Table**

Pipe Diameter	Gallons/1000 LF
6"	0.73
8"	1.31
10"	2.04
12"	2.94
16"	5.22

If the actual field test quantities (additional water amount) is over 4 times greater than the amounts

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listed in the table above, severe air entrapment is likely and additional efforts should be made to expel air from the pipe prior to testing.

All piping shall be pressure and leakage tested for a minimum of 2-hours duration at 150 PSI. All valved sections shall be hydrostatically tested to ensure sealing (leak allowance) of all line valves. During the 2-hour test period, no pipe will be accepted if pressure loss is greater than 5 PSI regardless of the leakage test results. The allowable testing leakage shall not exceed 11.65 GPD/Mile/inch of nominal diameter at a pressure of 150 PSI. If the initial test results are unsatisfactory, damaged or defective pipe, fittings and valves shall be repaired or replaced and the test repeated until satisfactory results are obtained.

2.5.3.9 Disinfection of Water Mains

Upon satisfactory completion of the hydrostatic test, all new water lines and other pipe related installations which may have been contaminated by the work shall be disinfected in accordance with AWWA C651, the Rules for Safe Drinking Water as published by the Georgia Environmental Protection Division, and as outlined below. The contractor shall disinfect all new water lines in the presence of a JWSC Inspector.

Prior to disinfection, water lines shall be thoroughly flushed to remove contaminated materials from the line. The contractor is referred to AWWA C651 for precautions during construction and procedures for flushing.

Disinfection shall be accomplished by introducing chlorine into the main to be disinfected. The disinfection procedure used may be any of the methods or procedures outlined in AWWA C651. A chlorine residual of at least 25 milligrams per liter (mg/l) shall be maintained for 24 hours in the water line to be disinfected. After the 24 hour holding or contact period, the heavily chlorinated water shall be flushed from the main until the chlorine residual within the main reaches the level of chlorine normally carried in the distribution system (1.0 mg/l). De-chlorination of the flushing water may be required if the highly chlorinated water is to be discharged directly to a surface water stream or storm drain system. If the water can be sheet-flowed over a large area or discharged to a holding pond, de-chlorination may be avoided.

After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24-hours apart, shall be collected from the new main.

At least one set of samples shall be collected from every twelve-hundred (1200) linear feet of new water main, plus one set from the end of each line and at least one set from each branch. The JWSC Water Compliance Coordinator, in conjunction with the JWSC inspector, will determine the number and location of the required sampling points to meet the current standards. All required sampling taps shall be installed by the contractor, at his expense, prior to disinfection.

The collection of samples and bacteriological testing will be performed by the JWSC at the Contractor's expense unless noted otherwise on the construction plans. If the bacteriological tests are unsatisfactory, disinfection procedure shall be repeated until satisfactory results are obtained.

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2.5.4 Valves and Appurtenances2.5.4.1 Valves

All buried valves shall be carefully mounted in their respective positions free from distortion and strain. Valves shall be placed as shown on the drawings. Unless noted otherwise in line valve spacing shall be every eight-hundred (800) feet (maximum) in residential/rural locations and every five-hundred (500) feet (maximum) in commercial and industrial areas. Gate valves shall be installed as near as possible to tee and cross fittings. The contractor shall check all exposed bolts on all valves to ensure that they are tight prior to installation.

Where required, extension stems shall be furnished and located as directed by the JWSC.

Adjustable valve boxes shall be installed with each buried valve, placed vertically and concentric with the valve stem. Any valve box which has been moved from its original position by trench settlement or other causes, and which prevents the use of a valve wrench for opening and closing of the valve, shall be reset by the Contractor prior to final acceptance. The entire assembly shall be plumb.

In unpaved areas, a poured in place reinforced concrete valve pad shall be installed around all valve boxes. The concrete thickness shall be four (4) inches for poured in place collars. The top of poured in place collar shall be level with the top of the cast iron valve box and level with the *final grade*. A typical buried valve installation is shown on the *JWSC Standard Details*.

2.5.4.2 Fire Hydrants

Immediately before installation of the fire hydrant, the hydrant shall be thoroughly inspected and cleaned; and shall be opened and closed to determine if all parts are in working order with valves seating properly and drain valve operating freely. All fire hydrants shall have a minimum cover of 36-inches over the branch supply line and shall be restrained as shown on the *JWSC Standard Details*. The hydrant assembly includes the hydrant tee, six (6) inch hydrant supply pipe, six (6) inch gate valve and valve box, tie rods and all other appurtenances as shown on the aforementioned detail.

Hydrant drainage shall be provided by installing at least seven (7) cubic feet of No.57 gravel around the hydrant and below the top of the hydrant supply pipe. The barrel of the hydrant shall be set plumb with the lowest discharge outlet at least fifteen (15) inches and no more than twenty four inches above *final grade*.

The minimum spacing for fire hydrants shall be 500 feet unless directed otherwise by the JWSC. No fire hydrant shall be installed within ten (10) feet of any private or commercial driveway unless directed by the JWSC.

2.5.5 System Connections

Unless otherwise approved, all connections and ties to the existing public water system shall be performed by the JWSC upon payment of applicable fees.

2.5.5.1 Water Main Connections

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No taps shall be made within 5 pipe diameters or five (5) feet (whichever is smaller) of a joint. The contractor/developer shall coordinate the tap with the JWSC and pay all applicable fees.

The contractor/developer shall furnish and install the required tapping saddle and tapping valve in accordance with JWSC Standards, after which JWSC personnel will make the actual tap to the main. A typical water main connection is shown on the *JWSC Standard Details*.

2.5.5.2 Water Service Connections

(5/8-inch Meter):

All water service connections to mains within new developments under construction and not yet accepted by the JWSC shall be performed in accordance with the JWSC Standards and shall include service tap, corporation stop, service tubing, curb stop and meter box. Water meters will be installed by the JWSC. Water service connections to existing mains shall be made by the JWSC upon payment of all operational, impact and account setup fees. No service taps shall be made within 5 pipe diameters or 5-feet (whichever is smaller) of a joint. Service tubing shall be as specified in paragraph 2.4.1.3 above. Typical residential water service details for single, double or multiple service lines are shown on the *JWSC Standard Details*.

(1-1/2-inch and larger):

Water service connections to existing mains shall be made by the JWSC. The contractor/developer shall coordinate the tap with the JWSC and pay all applicable fees. The contractor/developer shall furnish and install the required tapping saddle and tapping valve in accordance with JWSC standards, after which JWSC personnel will make the actual tap to the main. No service taps shall be knowingly made within five (5) pipe diameters or five (5) feet (whichever is smaller) of a joint. Water meters will be obtained from the JWSC but may be installed by a licensed plumber or utility contractor. Unless otherwise approved, meters shall be installed in vaults below ground. Above ground installations may be approved on a case by case basis. Meters one and one-half (1 ½) inches and larger shall be installed with a bypass. Typical large meter installation details are shown on the *JWSC Standard Details*.

2.5.5.3 Backflow Prevention Devices

Backflow prevention devices shall be installed in accordance with applicable state and local ordinances. Double check valve assemblies shall be used in low to medium (non-health) hazard locations such as restaurants, lawn sprinkler systems, swimming pools, fire sprinkler systems, etc.

For high (health) hazard locations such as hospitals, medical clinics, car wash facilities, wastewater treatment plants, pumping stations, etc., a reduced pressure zone (RPZ) assembly shall be used. Fire suppression systems utilizing reclaimed water or other chemicals and additives are also considered high hazard locations. Typical installation requirements are shown on the *JWSC Standard Details*.