

**CONTRACT DOCUMENTS
AND
TECHNICAL SPECIFICATIONS**

2017 CDBG SEWER IMPROVEMENTS

FOR THE

FORT VALLEY UTILITY COMMISSION

PEACH COUNTY, GEORGIA

JUNE 2018

C&S PROJECT NO.: F7500.053



PREPARED BY



Carter & Sloope
CONSULTING ENGINEERS

6310 PEAKE ROAD, MACON, GA, 31210, PHONE:(478) 477-3923, FAX: (770) 479-1884

**SPECIFICATIONS
AND
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**CARTER & SLOOPE, INC.
6310 Peake Road
Macon, Georgia 31210
(478) 477-3923**

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CONTRACT DOCUMENTS

SECTION 00100
ADVERTISEMENT FOR BIDS

1. **Sealed Bids:** Sealed bids for construction of the projects entitled **2017 CDBG Sewer System Improvements** will be received until 3:00 pm on Wednesday, July 25, 2018 at the Fort Valley Utility Commission offices located at 500 Anthoine Street, Ft. Valley, GA, at which time and place they will be publicly opened and read. No bid may be withdrawn after the closing time for the receipt of bids for a period of sixty (60) days.

2. **Work to be Done:** The work shall generally consist of furnishing all products and performing all labor necessary to accomplish the following (see plans and specifications for complete details & description):

Rehabilitation of existing sewer system, including approximately 1,200 L.F. of 10” SDR-35 sewer main replacement, 1,700 L.F. 8” CIPP sewer rehabilitation, 215 V.F. of manhole rehabilitation, installation of clean-outs on services that do not currently have them, and 700 L.F. of force main extensions. The work shall also include interior rehabilitation of approximately 31 sewer manholes with a calcium aluminate cementitious liner.

The work will be awarded in one (1) contract.

3. **Specifications & Contract Documents:** Plans, Specifications and Contract Documents are on file at Carter & Sloope, Inc.’s Macon office. Copies may be obtained from Carter & Sloope, Inc., 6310 Peake Road, Macon, GA 31210, Phone: 478-477-3923, Fax: 478-477-4691, upon payment of \$100.00 per set. Payment for Specifications and Contract Documents is non-refundable. Please contact Roni Dooley at macon_admin@cartersloope.com if you would like to purchase plans and specifications.

4. **Qualification of Bidders:** All Contractors bidding on the project shall submit the Qualification Documentation package found in the Specification Booklet (Section 00470) along with their bid. Bids will be rejected if not accompanied by the Qualification Documentation Package.

5. **Bonds:** Bids shall be accompanied by a bid bond or certified cashier’s check in an amount not less than 5% of the base bid. All bonds shall be by a surety company licensed in Georgia with an “A” minimum rating of performance and a financial strength of at least five (5) times the contract price as listed in the most current publication of “Best’s Key Rating Guide Property Liability”. Performance and Payment Bonds, each in an amount equal to 100% of the contract price shall be required of the successful Bidder if contract is awarded. Each Bond shall be accompanied by a “Power of Attorney” authorizing the attorney-in-fact to bind the surety and certified to include the date of the Bond.

6. **Funding:** This project is funded in part or whole by GEFA SRF monies. All Bidders must comply with 41 CFR 60-4, in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the timetables and goals set forth in 41 CFR 60-4, as applicable to the area of the project.

7. **Reservation of Rights:** Owner reserves the right to reject any or all Bids, including without limitation, the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.

Fort Valley Utility Commission

Represented By: _____

SECTION 00200

INSTRUCTIONS TO BIDDERS

INTENTION: It is intended that the Instructions to Bidders, General Conditions, Supplementary Conditions, and Technical Specifications shall cover the complete work to which they relate.

ARTICLE 1 DEFINED TERMS: In addition to the terms defined in the General Conditions, (EJCDC 1910-8)(1996), additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

- 1.1 **Bidder** – One who submits a Bid directly to Owner as distinct from a sub-bidder, who submits a bid to a Bidder.
- 1.2 **Successful Bidder** – The lowest, responsible and responsive Bidder to whom Owner (on the basis of Owner’s evaluation as hereinafter provided) makes an award.
- 1.3 **Bid** – A complete and properly signed offer to execute work for the prices stipulated in Bid Form and submitted in accordance with the Bidding Documents.
- 1.4 **Addenda** – Graphic or written documents issued by Engineer prior to the opening of Bids issued to clarify, revise, add to, or delete information in the original bidding documents or in previous addenda.

ARTICLE 2 BID FORM: All bids must be made upon the Bid Forms hereto annexed, and shall state the amount bid for each item shown, and all bids must be for materials and work called for in the specifications. **Deposits for plans and specifications are not refundable.**

- 2.1 The Bid Form is included with the Bidding Documents; additional copies may be obtained from Engineer upon request.
- 2.2 All blanks on the Bid Form must be completed by printing in black ink or by typewriter.
- 2.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

- 2.4 All names must be typed or printed in black ink below the signature.
- 2.5 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- 2.6 The address and telephone number for communications regarding the Bid must be shown.

ARTICLE 3 QUALIFICATION OF BIDDERS:

- 3.1 To demonstrate qualifications to perform the Work, each prospective Bidder must prepare and submit Section 00470 with their bid. Bids will be considered non-responsive if the qualification form is not included with bid.

ARTICLE 4 COPIES OF BIDDING DOCUMENTS:

- 4.1 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 4.2 Owner and Engineer in making copies of Bidding Documents available for a non-refundable deposit do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 5 EXAMINATION OF BIDDING DOCUMENTS, OTHER DATA, AND SITE:

- 5.1 It is the responsibility of each Bidder before submitting a bid:
 - 5.1.1 To examine and study thoroughly the Bidding Documents and other related data identified in the Bidding Documents;
 - 5.1.2 To visit the work site to ascertain by inspection pertinent location conditions such as location, character and accessibility of the site including existing surface and subsurface conditions in the work area; availability of facilities, location and character of existing work within or adjacent thereto, labor conditions, etc.
 - 5.1.3 To become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;
 - 5.1.4 To obtain and carefully study (or assume responsibility for doing so) all addition or supplementary examination

investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate any aspect of the means, methods, techniques, sequences, and procedures of construction expressly required of the bidding documents, and safety precautions and programs incident thereto;

- 5.1.5 To study and carefully correlate Bidder's knowledge and observations with the Bidding Documents and such other related data; and
 - 5.1.6 To promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Biding Documents and such other related documents;
 - 5.1.7 To agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies or data are necessary for the determination of its Bid for performance of the work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
 - 5.1.8 To become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicate din the Bidding Documents;
 - 5.1.9 To determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 5.2 The Owner shall make available to all prospective bidders, previous to receipt of bids, information that it may have as to sub-soil conditions and surface topography at the work site. Such information shall be given as the best factual information available without being considered as a representation of the Owner.
- 5.3 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 5, that without exception, the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents,

that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 6 PRE-BID CONFERENCE: A Pre-Bid Conference may be held approximately one week prior to the bid opening. Planholders will be notified via Addendum of the location, date, and time for the pre-bid conference if applicable.

ARTICLE 7 INTERPRETATIONS AND ADDENDA:

- 7.1 All questions about the meaning or intent of the Bidding Documents are to be directed to Engineer. The person submitting the request shall do so **in writing** and be responsible for its prompt delivery. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.
- 7.3 Addenda will be delivered via e-mail with read receipt. Contractor is responsible for supplying Engineer with e-mail address when purchasing plans. A read receipt will serve as proof of delivery by Engineer. Copies of Addenda will no longer be delivered by mail or fax except where specifically requested by Contractor in writing.

ARTICLE 8 BID SECURITY:

- 8.1 Each Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on form attached, if a form is prescribed) issued by a surety company licensed in Georgia with an "A" minimum rating of performance and a financial strength of at least five (5) times the contract price as listed in the most current publication of "Best's Key Rating Guide Property Liability".
- 8.2 The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and met the

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

ARTICLE 9 CONTRACT COMPLETION TIME: The number of days within which, or by which the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement. Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 10 SUBSTITUTES AND “OR EQUAL” TERMS:

- 10.1 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those Substitute or “Equal” materials and equipment approved by Engineer. Materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed Substitute or “Equal” item.
- 10.2 No item of material or equipment will be considered by Engineer as a Substitute unless written request for approval has been submitted **by Bidder** and has been received by Engineer **at least 10 days prior to the date for receipt of Bids**. Each such request shall conform to the requirements of Paragraph 6.7.1 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval to allow inclusion of a proposed item in the Bid will be final. Contractor shall refer to General Conditions (Paragraph 6.7.1), Supplementary Condition, and the Technical Specifications or further guidance on submittal procedure and approval requirements on substitutes or “or-equal” items.

ARTICLE 11 SUBCONTRACTORS, SUPPLIERS, AND OTHERS:

- 11.1 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to owner a list of all such

Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute,

- 11.2 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions would not constitute grounds for forfeiture of the bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.8.2 of the General Conditions.
- 11.3 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 12 SUBMITTAL OF BIDS:

- 12.1 Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be enclosed in a sealed opaque envelope, marked with the project title, and name and address of Bidder, and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it.
- 12.2 Each Bidder is responsible for seeing that his Bid is received by the Owner at the location specified for the bid opening not later than the advertised time set for the opening of Bids. Whenever practical, it is recommended that bids be hand-delivered. If a bid is delivered by delivery service, Contractor should verify delivery of the bid with the delivery service AND receipt of the bid with the Owner. Owner assumes no responsibility for bids delivered after the specified bid date and time or bids delivered to the incorrect location.

ARTICLE 13 ITEMS TO BE SUBMITTED WITH BID: The following items must be executed and submitted by the Bidder with their Bid. Failure to submit any of the items listed below will constitute a non-responsive bid.

- 13.1 Bid Form (Section 00410)
- 13.2 Bid Bond (Section 00460)
- 13.3 Qualifications of Bidder (Section 00470)
- 13.4 Certification of Nonsegregated Facilities (Section 00480)
- 13.5 Noncollusion Affidavit of Prime Bidder (Section 00481)
- 13.6 Section 3 Package (Only if Prime Contractor is claiming Section 3 Status)

ARTICLE 14 MODIFICATION AND WITHDRAWAL OF BIDS

- 14.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of bids.
- 14.2 If, within forty-eight hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided.

ARTICLE 15 OPENING OF BIDS: Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted. An abstract of the amount of the base Bids and major alternates (if any) will be made available to Bidders after the opening of Bids.

ARTICLE 16 ACCEPTANCE OF BIDS: Bids may not be withdrawn (except as noted in Paragraph 13) after the time set for the opening of Bids. Bids will remain subject to acceptance for sixty (60) days after the day of the Bid opening, but the Owner may, in its sole discretion, release any Bid and return the Bid security prior to expiration of the acceptance period.

ARTICLE 17 AWARD OF CONTRACT:

- 17.1 Owner reserves the right to reject any or all Bids, including without limitation, the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive, or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Owner.
- 17.2 Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder.

- 17.3 Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 17.4 In evaluating Bids, Owner will consider the qualification of Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

The Owner will also consider whether the Bidder involved:

- (a) Maintains a permanent place of business;
 - (b) Has adequate employees and equipment to do the work properly and expeditiously;
 - (c) Has suitable financial status to meet obligations incidental to the work;
 - (d) Has appropriate technical experience.
- 17.5 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 17.6 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 17.7 If the contract is to be awarded, it will be awarded to the Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.
- 17.8 If the contract is to be awarded, Owner will give Successful Bidder a Notice

of Award within sixty (60) days after the day of the Bid opening.

ARTICLE 18 MODIFICATIONS OF QUANTITIES: If the lowest bona fide Bid exceeds the money available for the Work, the Owner reserves the right to delete enough of the Work to bring the cost within the available funds. The Owner also reserves the right to delete whichever items or portions of items he considers to be in the best interest of the Owner.

ARTICLE 19 CONTRACT SECURITY: The General Conditions and Supplementary Conditions set forth Owner's requirements as to performance and payment bonds. When the Successful Bidder delivers the executed Agreement to the Owner, it must be accompanied by the required performance and payment bonds.

ARTICLE 20 SIGNING THE AGREEMENT: When the Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within fifteen (15) days thereafter, Contractor shall sign and deliver the required counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten (10) days thereafter, Owner shall deliver one fully signed counterpart to the Contractor.

ARTICLE 21 LAWS AND REGULATIONS: The Contractor shall comply with local, District, County, State and Federal laws applicable to the work.

The Contractor shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work and Safety Standards Act (PL 91-54). The regulations are administered by the Department of Labor and the Contractor shall allow access to the project to personnel from that Department.

ARTICLE 22 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE: Contractor shall not commence work under this contract until he has obtained all the insurance required by the Supplementary Conditions and provided the required certificates of insurance to the Owner.

ARTICLE 23 TERMINATION OF CONTRACT: If the Owner is made to stop construction of the work because of an order from a Court or State Department, the contract shall be terminated. Payment will be made for work completed and a proration of the work underway, materials stored, and for the overhead and profit of the completed work and work underway. Payment will not be made for anticipated profit and overhead on work not completed or underway.

END OF SECTION

SECTION 00410

BID FORM

PROJECT IDENTIFICATION:

2017 CDBG - Sewer System Improvements

CONTRACT IDENTIFICATION AND NUMBER:

F7500.053

THIS BID IS SUBMITTED TO:

Fort Valley Utility Commission
500 Anthoine Street
Ft. Valley, GA 31030

THIS BID IS SUBMITTED FROM:

Bidder: _____

Address: _____

Phone: _____

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of Owner's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

- (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Addendum Number

- (b) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- (c) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions, and accepts the determination set forth in of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.
- (d) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.
- (e) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and

conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

- (f) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

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

- (g) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with an agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

- (h) Bidder agrees to commence work under this Agreement on or before a date to be specified in a written "Notice to Proceed" of the Owner, and to fully complete the work within 120 consecutive calendar days from the "Notice to Proceed" date.

- (i) Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

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

a. BASE BID

The Contractor is directed to Section 01025 "Measurement and Payment" for the methods and limits for payments to the Contractor for the pay items listed below:

BASE BID					
Item No.	Qty.	Unit	Description	Unit Price	Total Price
1	1,200	LF	10" SDR-35 PVC Sanitary Sewer	\$	\$
2	480	LF	8" SDR-35 PVC Sanitary Sewer	\$	\$
3	1,600	LF	8" Cured-in-Place-Pipe	\$	\$
4	25	VF	Standard Manhole Construction	\$	\$
5	6	EA	Manhole Ring & Cover	\$	\$
6	34	EA	Service Reinstatement on CIPP Main	\$	\$
7	10	EA	Cut-out Protruding Service before CIPP	\$	\$
8	215	VF	Manhole Rehabilitation	\$	\$
9	21	EA	Rebuild Manhole Bench & Invert	\$	\$
10	10	VF	4'D Doghouse Manhole Construction	\$	\$
11	52	EA	Cleanout Assembly	\$	\$
12	1	LS	Plug & Grout Existing 8" Sewer Main	\$	\$
13	1	EA	8" Sanitary Sewer Point Repair (10 L.F.)	\$	\$
14	1	LS	Bypass Pumping	\$	\$
15	700	SY	Asphalt Removal & Replacement	\$	\$
16	20	LF	Curb & Gutter Removal & Replacement	\$	\$
17	1	AC	Grassing	\$	\$
18	60	CY	Unsuitable Soil Haul-off & Replace	\$	\$
19	60	TN	Trench Stabilization Stone	\$	\$
20	1	LS	Traffic Control	\$	\$
21	N/A	N/A	Supplemental Work Agreement (SWA)	\$25,000	\$25,000

Bidder agrees to furnish all labor, materials, and equipment necessary to construct the 2017 CDBG Sewer System Improvements for the Fort Valley Utility Commission for the sum of _____ Dollars (\$ _____).

7. Bidder agrees that the Work will be complete and ready for final payment in accordance with paragraph 14.13 of the General Conditions within 120 calendar days after the date when the Contract Times commence to run.

8. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.
9. The following documents are attached to and made a condition of this Bid:
 - a. Required Bid Security in the form of 5% of the Bid Total Price.
10. The undersigned further agrees that in case of failure on his part to execute the said contract and the Bond within fifteen (15) consecutive calendar days after written notice being given of the award of the contract, the check or bid bond accompanying this bid, and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure, otherwise, the check or bid bond accompanying this proposal shall be returned to the undersigned.
11. Communications concerning this Bid shall be addressed to:

Carter & Sloope, Inc.
6310 Peake Road
Macon, GA 31210
Attn: Charlie Bridges
cbridges@cartersloope.com
12. Terms used in this Bid which are defined in the General Conditions or Instructions to Bidders will have the meanings indicated in the General Conditions of Instructions.

SUBMITTED on _____, 20__.

BIDDER: _____

BY: _____

TITLE: _____

ADDRESS: _____

PHONE: _____

Seal: (if bid by a Corporation)

END OF SECTION

SECTION 00460

BID BOND

STATE OF GEORGIA

COUNTY OF PEACH

KNOW ALL MEN BY THESE PRESENTS, that we, _____, as Principal,
and _____, as Surety, are held and firmly bound unto the
Fort Valley Utility Commission for the 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 assigns, jointly and severally, firmly
by these presents.

WHEREAS, the Principal has submitted to the Owner a Proposal for construction of:

2017 CDBG Sewer System Improvements

NOW THEREFORE, the conditions of this obligation are such that if the Bid be accepted, the Principal shall within ten 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 Owner and execute a sufficient and satisfactory Performance Bond and Payment Bond payable to the Owner, each in an amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to the Owner, or in the event of the failure of the Contractor to execute and deliver the Contract Agreement and give said Performance and Payment Bonds, the Contractor shall pay the Owner the difference not to exceed the penalty hereof between the amount specified in said Proposal and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said Proposal, and execute the Special Assurances form, then this obligation shall be void; otherwise, it shall be and remain in full force and virtue in law; and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid Owner, 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. Section 36-91-40 et seq and 36-91-50 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 ____ day of _____, 20____.

PRINCIPAL: _____

Signed and sealed in
the presence of

By: _____

1. _____

Title: _____

2. _____

SURETY: _____

Signed and sealed in
the presence of:

By: _____

1. _____

Title: _____

2. _____

END OF SECTION

SECTION 00470
QUALIFICATION DOCUMENTATION SUBMITTAL
(TO BE COMPLETED AND SUBMITTED WITH BID)

All Contractors shall submit a copy of this Qualification Documentation Form along with all required attachments along with their bid. This package shall contain a history of the company as well as providing the following information:

1. The bidder shall provide Corporate experience including:

- (a) The applicant has operated under the current corporate name for the last 5 years. If the corporate name has changed provide information on the previous corporate name.
- (b) Provide name, address, and telephone number of applicant's corporate headquarters, relevant regional office(s) and subsidiaries, if any.
- (c) Provide name, title and biographical summary of all corporate officers.
- (d) The applicant has sufficient bonding capacity to provide performance and payment bonds, both in the amount of 100 percent of the contract amount. Provide a statement of bonding capacity, bonding company, insurance agent contact persons, and telephone numbers.
- (e) The applicant has access to adequate equipment to complete the project. Provide a list of major equipment proposed to perform the work and indicate whether owned or leased.
- (f) The applicant has never failed to complete a project. Provide a statement that the applicant has never failed to complete a project. If this is not the case, explain.
- (g) The applicant has a history of completing projects consistently on time and within the bid amount. Provide a statement that the applicant has not been involved in liquidated damages in the past five years or served the Owner with a claim for additional compensation prepared by an attorney or a claims consultant, excluding routing change order requests. If this is not the case, provide an explanation.
- (h) The applicant has a history of not being involved in litigation against Owners or Engineering Firms. The applicant should provide a statement that they have not been involved in litigation as a plaintiff against the Owner or Engineering Firm in the past five years. If this is not the case, explain.
- (i) The applicant has available project management personnel with at least five years experience on projects with the technical characteristics listed in paragraph 2 below to complete the project. Provide **full resumes** for proposed project manager and field superintendent who would supervise and be in charge of the project. Experience can be from previous employment but must be pertinent to technical information in Item 2 (Below). If your firm is the successful bidder, both of these key personnel must be actively involved in the day-to-day operations on the proposed project.
- (j) List all other projects currently under contract, the current contract amounts, scheduled completion dates and contact reference names for Owners on these jobs.

2. The bidder shall provide Technical Experience including:

- (a) Three (3) similar projects completed in the last five years; the projects must have a work scope of sewer line installation in a residential area with the contract amount exceeding

\$750,000.

(b) Provide a listing of your last 10 projects over \$500,000.

3. Provide the information specified below for each of the above projects:

(a) Name of project as bid; name of Owner; name of engineering firm; name, position or title, address and telephone number of contact person currently employed by each of the above; percent of labor related items performed by the applicant's own work force.

(b) A complete description of each project.

(c) The bid amount and final cost to Owner, with an explanation of cost overrun, if any, including change orders.

(d) The contract time as bid, actual time to complete project and completion date, with an explanation of time overrun, if any.

The applicant's qualification package should be signed by an officer of the company. If the bid is submitted by a joint venture, all parties to the joint venture must individually satisfy the qualification requirements. Final determination of the applicant's qualification is the approval by the Fort Valley Utility Commission. No oral interpretation of this document will be made by the Contractor. Incomplete or indecipherable information will automatically disqualify the Contractor's bid.

The undersigned authorizes and requests any person, firm, or corporation to furnish any information requested by the _____, Georgia in verification of the recitals comprising

the Statement of Bidder's Qualifications. Dated at _____ this ____ day of _____, 20____.

(Name of Bidder)

By _____

Title _____

State of _____

County of _____

_____, being duly sworn deposes and says that he is _____ of _____ (name of organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this ____ day of _____, 20____.

(Notary Public)

My Commission expires:

_____, 20____

END OF SECTION

SECTION 00481

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of Georgia

County of Peach

_____, being first duly sworn, deposed and says that:

(1) He is

_____ of
(owner, partner, officer, representative, or agent)

_____, the Bidder that has submitted the attached Bid;

- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner directly or indirectly sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the **Fort Valley Utility Commission** or any person interested in the proposed Contract and;
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

By: _____

Title: _____

Subscribed and sworn to before me this ____ day of _____, 20____.

(Notary Public)

My commission expires _____, 20____.

SECTION 00500

AGREEMENT

THIS AGREEMENT is dated as of the ____ day of _____ in the year 20__,
by and between the Fort Valley Utility Commission (hereinafter called OWNER) and _____
_____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

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

Rehabilitation of existing sewer system, including approximately 1,200 L.F. of 10" SDR-35 sewer main replacement, 1,700 L.F. 8" CIPP sewer rehabilitation, 215 V.F. of manhole rehabilitation, installation of clean-outs on services that do not currently have them, and 700 L.F. of force main extensions. The work shall also include interior rehabilitation of approximately 31 sewer manholes with a calcium aluminate cementitious liner.

Article 2. ENGINEER.

The Project has been designed by **CARTER & SLOOPE, INC.** who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME.

- 3.1. CONTRACTOR agrees to commence Work under this Agreement on or before a date to be specified on a written "Notice to Proceed" of the OWNER and to fully complete the Work within 120 consecutive calendar days from the "Notice to Proceed" date.
- 3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not

completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Five Hundred Dollars (\$500.00) for each day that expires after the time specified in paragraph 3.1.

Article 4. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current as follows:

_____ Dollars (\$ _____)

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments; Retainage. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or about the 25th day of each month during performance of the Work as provided in paragraphs 5.1.1, 5.1.1.2 and 5.2 below. All such payments will be measured by the schedule of values established in paragraph 14.1 of the General Conditions.

5.1.1 For Cost of Work: Progress payments on account of the Cost of the Work will be made:

5.1.1.1 Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, including but not limited to liquidated damages, in accordance with paragraph 14.2 of the General Conditions.

90% of the work completed (with balance being retainage). If Work has been 50% completed as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and ENGINEER, OWNER, on recommendation of ENGINEER, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage on account of Work completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100% of the Work completed.

90% of the Cost of the Work (with the Balance being retainage) applicable to materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.2 of the General Conditions).

5.1.1.2 Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less 200 percent of the Market value of the Work remaining and less such amounts as Engineer shall determine in accordance with Paragraph 14.7 of the General Conditions.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.7 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.13.

Article 6. CONTRACTOR'S REPRESENTATIONS.

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

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

6.2 CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions, and accepts the determination set forth in the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to reply.

6.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 6.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has reviewed and checked all information and data shown or

indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

- 6.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 6.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. CONTRACT DOCUMENTS.

- 7.1 This Agreement
- 7.2 Exhibits to this Agreement
- 7.3 Performance and other Bonds
- 7.4 Notice of Award
- 7.5 General Conditions
- 7.6 Supplementary Conditions
- 7.7 Specifications bearing the title A-C Water Main Replacement to serve the Davis & Ponderosa Subdivisions and consisting of divisions as listed in table of contents thereof.
- 7.9. Addenda numbers __ to __, inclusive.
- 7.10. CONTRACTOR's Bid
- 7.11. Documentation submitted by CONTRACTOR prior to Notice of Award.
- 7.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraphs 3.4 and 3.5 of the General Conditions.

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

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.4 and 3.5 of the General Conditions.

Article 8. MISCELLANEOUS

- 8.1. Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.
- 8.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 8.3. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.
- 8.4. Any provision or part of the Contract documents held void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- 8.5. No delay or failure by OWNER to exercise any right under this Agreement, no custom or practice of the parties at variance with the terms hereof shall constitute a waiver, and no partial or single exercise of such right, shall constitute a waiver of that or any other right, unless otherwise expressly provided herein.

Article 9. OTHER PROVISIONS.

IN WITNESS WHEREOF. OWNER and CONTRACTOR have signed this Agreement in four (4) counterparts. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20__.

OWNER

CONTRACTOR

By _____

BY _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest _____

Attest _____

Address for giving notices

Address for giving notices

Fort Valley Utility Commission

500 Anthoine Street

Fort Valley, GA 31030

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

License No. _____

(If CONTRACTOR is a corporation, attach evidence of authority to sign)

END OF SECTION

SECTION 00610

PERFORMANCE BOND

STATE OF GEORGIA

COUNTY OF PEACH

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as
Principal (hereinafter known as "CONTRACTOR"), and
we, _____,
(Name and Address of Surety)

as Surety, do hereby acknowledge ourselves indebted and firmly bound and held unto the

Fort Valley Utility Commission
(Name of Owner)

for the use and benefit of those entitled thereto, in the sum of
_____ Dollars (\$ _____)
(Contract Sum)

for the payment of which well 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 OWNER has engaged the said CONTRACTOR for the sum of
_____ Dollars (\$ _____)
(Contract Sum)

for the construction of: 2017 CDBG Sewer System Improvements
(Name of Contract/Project)

as more sully appears in a written Agreement bearing the date of _____,
20____, a copy of which Agreement is by reference hereby made a part hereof.

NOW, THEREFORE, if said Contractor shall fully and faithfully perform all the undertakings and obligations under the said agreement or contract hereinbefore referred to and shall fully indemnify and save harmless the said OWNER 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 said 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 the 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.

This bond is given pursuant to and in accordance with the provisions of O.C.G.A. Section 36-91-40 et seq and 36-91-70 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 CONTRACTOR 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 ___ day of _____, 20___. Executed in 4 counterparts.

CONTRACTOR: _____

Signed and sealed in the presence of: _____ By: _____

1. _____ Title: _____

2. _____ (SEAL)

SURETY: _____

Signed and sealed in the presence of: _____ By: _____

1. _____ Title: _____

2. _____ (SEAL)

- NOTE:
1. Date of bond must not be prior to date of contract. If CONTRACTOR is a PARTNERSHIP, all partners should execute bond.
 2. Surety companies executing bonds must appear on the Treasure Department's most current list (circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

SECTION 00615

PAYMENT BOND

STATE OF GEORGIA

COUNTY OF PEACH

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal
(hereinafter known as "CONTRACTOR"), and
we, _____,
(Name and Address of Surety)

as Surety, do hereby acknowledge ourselves indebted and firmly bound and held unto the

Fort Valley Utility Commission
(Name of Owner)

for the use and benefit of those entitled thereto, in the sum of
_____ Dollars(\$ _____)
(Contract Sum)

for the payment of which well 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 OWNER has engaged the said CONTRACTOR for the sum of

_____ Dollars(\$ _____)
(Contract Sum)

for the construction of: 2017 CDBG Sewer System Improvements
(Name of Contract/Project)

as more fully appears in a written Agreement bearing the date of _____,
20____, a copy of which Agreement is by reference hereby made a part hereof.

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 Contractor 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 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 is 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 or Surety or either of them (but not later than one year after the final settlement or 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 the _____, as the agent of each them to receive and accept service of process or other pleading issued 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 provisions of O.C.G.A. Section 36-91-40 et seq and 36-91-90 et seq and all the provisions of 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 CONTRACTOR 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 __ day of _____, 20____. Executed in 4 counterparts.

CONTRACTOR: _____

Signed and sealed in the presence of: _____ By: _____

1. _____ Title: _____

2. _____ (SEAL)

SURETY: _____

Signed and sealed in the presence of: _____ By: _____

1. _____ Title: _____

2. _____ (SEAL)

- NOTE:
1. Date of bond must not be prior to date of contract. If CONTRACTOR is a PARTNERSHIP, all partners should execute bond.
 2. Surety companies executing bonds must appear on the Treasure Department's most current list (circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

END OF SECTION

SECTION 00621

NOTICE OF AWARD

PROJECT DESCRIPTION:

2017 CDBG Sewer System Improvements

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of _____ Dollars (\$ _____).

You are required by the Instructions to Bidders to execute the Agreement and furnish the required CONTRACTOR’S Performance BOND, Payment BOND, and Certificates of Insurance within fifteen (15) calendar days from the date of the Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within fifteen (15) days from the date of this notice, said OWNER will be entitled to consider all your rights arising out of the OWNER’S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE of AWARD to the OWNER.

Dated this ____ day of _____, 20__.

FORT VALLEY UTILITY COMMISSION
OWNER

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____
_____ this ____ day of _____, 20__.

By: _____

Title: _____

SECTION 00622

NOTICE TO PROCEED

To: _____ Date: _____

_____ Project: 2017 CDBG Sewer System
Improvements

You are hereby notified to commence WORK in accordance with the Agreement dated _____, on or before _____, and you are to complete the WORK within 120 consecutive calendar days thereafter. The date of completion of all WORK is therefore _____.

FORT VALLEY UTILITY COMMISSION
OWNER

By: _____
Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE
TO PROCEED is hereby
acknowledged by

_____,
this the _____ day of _____, 20____

By _____
Title _____

SECTION 00700
GENERAL CONDITIONS

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SECTION 00700

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda - Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

Agreement - The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress for final payments and which is to include such supporting documentation as is required by the Contract Documents.

Bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bonds - Bid, performance and payment bonds and other instruments of security.

Change Order - A document recommended by ENGINEER, 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 Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR'S Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued pursuant to paragraphs 3.4 and 3.5 on or after the Effective Date of the Agreement.

Contract Price - The moneys payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

Contract Time - The number of days (computed as provided in paragraph 17.2) or the date stated in the Agreement for the completion of the Work.

CONTRACTOR - The person, firm or corporation with whom OWNER has entered into the Agreement.

Defective - An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or 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 14.8 or 14.10).

Drawings - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER - The person, firm or corporation named as such in the Agreement.

Field Order - A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Time.

General Requirements - Sections of Division 1 of the Specifications.

Laws and Regulations; Laws or Regulations - Laws, rules, regulations, ordinances, codes and/or orders.

Notice of Award - The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

Notice to Proceed - A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

OWNER - The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

Partial Utilization - Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

Project - The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Resident Project Representative - The authorized representative of ENGINEER who is assigned to the site or any part thereof.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor - An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

Supplementary Conditions - The part of the Contract Documents which amends or supplements these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman or vendor.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials; electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work - Work to be paid for on the basis of unit prices.

Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

Work Directive Change - A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering and addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.22. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in paragraph 10.2.

Written Amendment - A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly Work-related aspects of the Contract Documents.

ARTICLE 2 - PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional Copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Time; Notice to Proceed:

2.3. The Contract Time will commence to run on the thirtieth day after the Effective Date of the Agreement, 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 thirty days after the Effective Date of the Agreement. In no event will the Contract Time commence to run later than the seventy-fifth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

Starting the Project:

2.4. CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

Before Starting Construction:

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.6. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1. a preliminary Progress Schedule;

2.6.2. a preliminary Schedule of Submittals; and

2.6.3. 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.

2.7. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.3 and 5.4., and OWNER shall deliver to CONTRACTOR certificates (and other evidence of insurance requested by CONTRACTOR) which OWNER is required to purchase and maintain in

accordance with paragraphs 5.6 and 5.7.

Preconstruction Conference:

Initial Acceptance of Schedules:

2.8. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.6. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

2.8.1 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.

2.8.2 Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

2.8.3 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 component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

Intent:

3.1. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. 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. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in

accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

3.3. If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonable have known thereof.

Amending and Supplementing Contract Documents:

3.4. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

- 3.4.1. a formal Written Amendment,
- 3.4.2. a Change Order (pursuant to paragraph 10.4), or
- 3.4.3. a Work Directive Change (pursuant to paragraph 10.1).

As indicated in paragraphs 11.2 and 12.1, Contract Price and Contact Time may only be changed by a Change Order or a Written Amendment.

3.5. In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the followings ways:

- 3.5.1. a Field Order (pursuant to paragraph 9.5),
- 3.5.2. ENGINEER's approval of a Shop Drawing or sample (pursuant to paragraphs 6.26 and 6.27), or
- 3.5.3. ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:

3.6. Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall 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; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

ARTICLE 4 - AVAILABILITY OF LANDS;
PHYSICAL CONDITIONS; REFER-
ENCE POINTS

Availability of Lands:

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefore as provided in Article 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Physical Conditions:

4.2.1. *Explorations and Reports:* Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon nontechnical data, interpretations or opinions contained therein or for the completeness thereof for

CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2. *Existing Structures:* Reference is made to the Supplementary Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at our contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3. *Report of Differing Conditions:* If CONTRACTOR believes that:

4.2.3.1. any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2. any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.22), notify OWNER and ENGINEER in writing about the inaccuracy or difference.

4.2.4. *ENGINEER's Review:* ENGINEER will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise OWNER in Writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

4.2.5. *Possible Document Change:* IF ENGINEER concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or a change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6. *Possible Price and Time Adjustments:* In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy of difference. If OWNER and CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefore as provided in Articles 11 and 12.

Physical Conditions - Underground Facilities:

4.3.1. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness or any such information or data; and,

4.3.1.2. CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

4.3.2. *Not Shown or Indicated.* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.22), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the extent to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, CONTRACTOR may make a claim therefore as provided in Articles 11 and 12.

Reference Points:

4.4. 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 (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever a reference point 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 by professionally qualified personnel.

ARTICLE 5 - BONDS AND INSURANCE

Performance and Other Bonds:

5.1. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Law or Regulation or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within five days thereafter substitute another Bond and Surety, both of which must be acceptable to OWNER.

Contractor's Liability Insurance:

5.3. CONTRACTOR shall purchase and maintain such comprehensive general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract

Documents, whether it is to be performed or furnished by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable.

5.3.1. Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury occupational sickness or disease, or death on CONTRACTOR's employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

5.3.4. Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (b) by any other person for any other reason;

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting there from;

5.3.6. Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

5.3.7. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph 5.3 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER and ENGINEER by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with paragraph 13.12. In addition, CONTRACTOR shall maintain such completed operations insurance for at least two years after final payment and furnish OWNER and with evidence of continuation of such insurance at final payment

and one year thereafter.

5.4. The comprehensive general liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.30 and 6.31.

Owner's Liability Insurance:

5.5. OWNER shall be responsible for purchasing and maintaining OWNER's own liability insurance and, at OWNER's option, may purchase and maintain such insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

Property Insurance:

5.6. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insured or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

5.7. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insured or additional insured parties.

5.8 All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or

renewal refused until at least thirty days' prior written notice has been given to OWNER by certified mail and will contain waiver provisions in accordance with paragraph 5.11.2.

5.9 OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. The risk of loss within the deductible amount, will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. If OWNER requests in writing that other special insurance be included in the property insurance policy, CONTRACTOR shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, CONTRACTOR shall in writing advise OWNER whether or not such other insurance has been procured by CONTRACTOR.

Waiver of Rights:

5.11.1. OWNER and CONTRACTOR waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to paragraphs 5.6 and 5.7 and any other property insurance applicable to the Work, and also waive all such rights against the Subcontractors, ENGINEER, ENGINEER's consultants and all other parties names as insured in such policies for losses and damages so caused. As required by paragraph 6.11, each subcontract between CONTRACTOR and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of OWNER, CONTRACTOR, ENGINEER, ENGINEER's consultants and all other parties named as insured. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

5.11.2 OWNER and CONTRACTOR intend that any policies provided in response to paragraphs 5.6 and 5.7 shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall 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 of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by ENGINEER or ENGINEER's consultant OWNER will obtain the same, and if such waiver forms are required of any Subcontractor, CONTRACTOR will obtain the same.

Receipt and Application of Proceeds:

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with OWNER and made payable to OWNER as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. OWNER as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, OWNER as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of such duties.

Acceptance of Insurance:

5.14. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.3 and 5.4 on the basis of its not complying with the Contract Documents, OWNER shall notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.7. If CONTRACTOR has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 on the basis of their not complying with the Contract Documents, CONTRACTOR shall notify OWNER in writing thereof within ten days of the date of delivery of such certificates to CONTRACTOR in accordance with paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request. Failure by OWNER or CONTRACTOR to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

Partial Utilization - Property Insurance:

5.15. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the

insurers providing the property insurance have acknowledge notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.

**ARTICLE 6-CONTRACTOR'S
RESPONSIBILITIES**

Supervision and Superintendence:

6.1. CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

Labor, Materials and Equipment:

6.3. CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER.

6.4. Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full

responsibility for all 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 furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

Adjusting Progress Schedule:

6.6 CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.9) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

Substitutes or "Or-Equal" Items:

6.7.1. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. In the case where the name is followed by words indicating that substitutions/"or equals" are permitted, materials or equipment of other Suppliers may be accepted by ENGINEER if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by ENGINEER will include the following as supplemented in the General Requirements. Requests for review of substitute items of material and equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed

substitute will not prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use 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 work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs for redesign and claims of other contractors affected by the resulting change, all of which shall be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

6.7.2. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in paragraph 6.7.1 as applied by ENGINEER and as may be supplemented in the General Requirements.

6.7.3. ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute. ENGINEER will record time required by ENGINEER and ENGINEER's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's consultants for evaluating each proposed substitute.

Concerning Subcontractors, Suppliers and Others:

6.8.1. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or

organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute, the Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject *defective* Work.

6.9 CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organization performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.10. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER and contains waiver provisions as required by paragraph 5.11. CONTRACTOR shall pay each Subcontractor a just share of any insurance moneys received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.6 and 5.7.

Patent Fees and Royalties:

6.12. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees and court and arbitration costs) arising out of 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, and shall defend all such claims in connection with any alleged infringement of such rights.

Permits:

6.13. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening the Bids, or if there are no Bids on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

Laws and Regulations:

6.14.1. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.14.2. If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If

CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising there from; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

Taxes:

6.15. 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.

Use of Premises:

6.16. CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises which construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims damages, losses and expenses (including, but not limited to fees or engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR's performance of the Work.

6.17. During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18. 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 property to stresses or pressures that will endanger it.

Record Documents:

6.19. CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

Safety and Protection:

6.20. CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1 all employees on the Work and other persons and organizations who may be affected thereby:

6.20.2 all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body (Including OSHA) having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by

CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (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 either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR). CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.21. CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

Emergencies:

6.22. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

Shop Drawings and Samples:

6.23. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.9), or for other appropriate action if so indicated in the Supplementary Conditions, five copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop

Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

6.24. CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.25.1 Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.25.2. At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

6.26. ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER's review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. 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.

6.27. ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.25.2 and ENGINEER has given written approval of each such

variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.25.1.

6.28. Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to ENGINEER's review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

Continuing the Work:

6.29. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

Indemnification:

6.30. To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting there from and (b) is caused in whole or in part by an negligent act or omission of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

6.31. In any and all claims against OWNER or ENGINEER or any of their consultants, agents or employees by any employee of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability

benefit acts or other employee benefit acts.

6.32. The obligations of CONTRACTOR under paragraph 6.30 shall not extend to the liability of ENGINEER, ENGINEER's consultants, agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications.

ARTICLE 7 - OTHER WORK

Related Work at Site:

7.1. OWNER may perform other work related to the Project at the site by OWNER's own forces, have other work performed by utility owners or let other direct contracts therefore which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the extent thereof, CONTRACTOR may make a claim therefore as provided in Articles 11 and 12.

7.2. CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR's failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or nonapparent defects and deficiencies in the other work.

Coordination:

7.4. If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided in the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither OWNER nor ENGINEER shall have any authority or responsibility in respect of such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.1. OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer against whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER. Any dispute in connection with such appointment shall be subject to arbitration.

8.3 OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

8.5. OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.8.

8.6. OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1 Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

Owner's Representative:

9.1. 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 Documents and shall not be extended without written consent of OWNER and ENGINEER.

Visits to Site:

9.2. ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections 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 to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

Project Representation:

9.3. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

Clarifications and Interpretation:

9.4. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably

inferable from the overall intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, CONTRACTOR may make a claim therefore as provided in Article 11 or Article 12.

Authorized Variations in Work:

9.5. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER, and also on CONTRACTOR who shall perform the Work involved promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefore as provided in Article 11 or 12.

Rejecting Defective Work:

9.6. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be *defective*, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Shop Drawings, Change Orders and Payments:

9.7. In connection with ENGINEER's responsibility for Shop Drawings and samples, see paragraphs 6.23 through 6.29 inclusive.

9.8. In connection with ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.

9.9. In connection with ENGINEER's responsibilities in respect of Applications for Payment, etc., see Article 14.

Determinations for Unit Prices:

9.10. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR 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 decisions thereon will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other party to

the Agreement and to ENGINEER written notice of intention to appeal from such a decision.

Decisions on Disputes:

9.11. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraphs 9.10 and 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

Limitations on ENGINEER's Responsibilities:

9.13. Neither ENGINEER's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.14. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of

ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

9.15. ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.16. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

ARTICLE 10 - CHANGES IN THE WORK

10.1. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Written Amendment, a Change Order, or a Work Directive Change. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2. If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefore as provided in Article 11 or Article 12.

10.3. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.4 and 3.5, except in the case of an emergency as provided in paragraph 6.22 and except in the case of uncovering Work as provided in paragraph 13.9.

10.4. OWNER and CONTRACTOR shall execute appropriate Change Orders (or Written Amendments)

10.4.1. changes in the Work which are ordered by OWNER pursuant to paragraph 10.1, are required because of acceptance of *defective* Work under paragraph 13.13 or correcting *defective* Work under paragraph 13.14, or are agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Time which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11;

provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice 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 Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount

involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1. through 11.9.3, inclusive).

11.3.2. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2.1.).

11.3.3. On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's Fee for overhead and profit (determined as provided in paragraphs 11.6 and 11.7).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. 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. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and

Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids will be accepted. If a 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 shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used by not consumed which remain the property of CONTRACTOR.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms

of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is not longer necessary for the Work.

11.4.5.4. Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5. 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.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses will be included in the Cost of Work for the purpose of determining CONTRACTOR's Fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by OWNER in accordance with paragraph 5.9.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), 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 a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4 - all of which are to be considered administrative costs covered by the CONTRACTOR's Fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

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

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9. above).

11.5.5. Cost 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.

11.5.6. Other overhead or general expenses costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

CONTRACTOR's Fee:

11.6. The CONTRACTOR's Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or if none can be agreed upon,

11.6.2. a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2., the CONTRACTOR's Fee shall be fifteen percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the CONTRACTOR's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to CONTRACTOR on account of overhead and profit of all Subcontractors shall be fifteen percent;

11.6.2.3. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.4 the amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in cost will be the amount of the actual net decreases plus a deduction in CONTRACTOR's Fee by an amount equal to ten percent of the net decrease; and

11.6.2.5 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's Fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1. through 11.6.2.4, inclusive.

11.7. Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 or 11.5, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8. 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 done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to ENGINEER. CONTRACTOR agrees that:

11.8.1. The 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

11.8.2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

Unit Price Work:

11.9.1. 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 established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. 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. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Paragraph 9.10.

11.9.2. 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.

11.9.3. Where the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if CONTRACTOR believes that CONTRACTOR has incurred additional expenses as a result thereof, CONTRACTOR may make a claim for an increase in the CONTRACTOR may make a claim for an increase in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the amount of any such increase.

ARTICLE 12 - CHANGE OF CONTRACT TIME

12.1 The Contract Time may only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefore as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts of neglect by OWNER or others performing additional work as contemplated by Article 7, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 12 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) for delay by either party.

ARTICLE 13 - WARRANTY AND GUARANTEE;
TESTS AND INSPECTIONS;
CORRECTION, REMOVAL OR
ACCEPTANCE OF DEFECTIVE
WORK

Warranty and Guarantee:

13.1 CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be *defective*. Prompt notice of all defects shall be given to CONTRACTOR. All *defective* Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

13.2 ENGINEER and ENGINEER's representatives, other representative of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

Tests and Inspection:

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspection, tests or approvals.

13.4. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval.

CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by OWNER (unless otherwise specified).

13.5. All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR (or by ENGINEER if so specified).

13.6. If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by ENGINEER nor inspections, tests or approvals by others shall relieve CONTRACTOR with CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

Uncovering Work:

13.8 If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observations and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, 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, furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals), and OWNER shall be entitled to an appropriate decrease in the CONTRACT Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly

attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefore as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10. If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

Correction or Removal of Defective Work:

13.11. If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with *nondefective* Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

One Year Correction Period:

13.12. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instruction, either correct such *defective* Work, or, if it has been rejected by OWNER, remove it from the site and replace it with *nondefective* Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. 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 or by Written Amendment.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER's evaluation of and determination to accept such *defective* Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefore as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

OWNER May Correct Defective Work:

13.14. If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct *defective* Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and 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, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site 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 such access to the site as many be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefore as provided in

Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's *defective* Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

Schedule of Values:

14.1 The schedule of values established as provided in paragraph 2.8 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment:

14.2. At least twenty days before each progress payment is scheduled (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Supplementary Conditions.

CONTRACTOR's Warranty of Title:

14.3. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of

payment free and clear of all Liens.

Review of Applications for Progress Payment:

14.4. ENGINEER will, within ten days after receipt of each Application for Payment, 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. Thirty days after presentation of the Application for Payment with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the Work in progress as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of ENGINEER's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation); and that CONTRACTOR is entitled to payment of the amount recommended. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

14.6. ENGINEER's recommendation of final payment will constitute an additional representation by ENGINEER to OWNER that the conditions precedent to CONTRACTOR's being entitled to final payment as set forth in paragraph 14.13 have been fulfilled.

14.7. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extents as may be necessary in ENGINEER's opinion to protect OWNER from

loss because:

14.7.1. the Work is *defective*, or completed Work has been damaged requiring correction or replacement.

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3. OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4. of ENGINEER's actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.9 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling OWNER to a set-off against the amount recommended, but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action.

Substantial Completion:

14.8. 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 (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, 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 therefore. If ENGINEER considers the Work substantially complete ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefore. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be

completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9 OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

Partial Utilization:

14.10. Use by OWNER of any finished 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 useable part of the Work that can be used by OWNER without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. 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 therefore. If ENGINEER considers that part of the Work to be substantially complete, the provisions

of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division or responsibility in respect thereof and access thereto.

14.10.2. OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such list to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

14.10.3. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

Final Inspection:

14.11. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will 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 is incomplete or *defective*. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

Final Application for Payment:

14.12. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered

all maintenance and operating instruction, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents - all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.16), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together which complete and legally effective releases of waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or leases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor of Supplier fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

Final Payment and Acceptance:

14.13. 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 - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.16. Otherwise, ENGINEER will return the Application 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. Thirty days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

14.14. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion

of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Contractor's Continuing Obligation:

14.15. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13, nor any correction of *defective* Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.16).

Waiver of Claims:

14.16. The making and acceptance of final payment will constitute:

14.16.1. a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from *defective* Work appearing after final inspection pursuant to paragraph 14.11 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.16.2. a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

Owner May Suspend Work:

15.1. OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefore as provided in Articles 11 and 12.

Owner May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.2. if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.3. if CONTRACTOR makes a general assignment for the benefit of creditors;

15.2.4. if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge or property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR's creditors;

15.2.5. if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

15.2.6. if CONTRACTOR persistently fails 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

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

progress schedule established under paragraph 2.9 as revised from time to time);

15.2.7. if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.8. if CONTRACTOR disregards the authority of ENGINEER; or

15.2.9. if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if there be one) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), 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 finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by ENGINEER and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR when existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

Contractor May Stop Work or Terminate:

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this under paragraph 6.29 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 METHODS AND PROCEDURES

In an effort to resolve any conflicts that arise during the construction of the project or following the completion of the project, the OWNER and the CONTRACTOR agree that all disputes between them arising out of or relating to this Agreement shall be submitted to nonbinding mediation, unless the parties mutually agree otherwise.

The OWNER and the CONTRACTOR further agree to include a similar mediation provision in all agreements with independent contractors and consultants retained for the project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with subcontractors, subconsultants, suppliers or fabricators so retained, thereby providing for mediation as the primary method for dispute resolution between the parties to those agreements.

ARTICLE 17 - MISCELLANEOUS

Giving Notice:

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time:

17.2.1. When any period of time is referred to in the Contract Documents 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.

17.2.2. A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

General:

17.3. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.4 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.30, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, 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 Documents, and 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. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

SECTION 00800
SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

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

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SC-2.3. Delete Paragraph 2.3 in its entirety and insert the following in its place:

The Contract Time will commence to run 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 Agreement.

SC-2.4. Delete Paragraph 2.4 in its entirety and insert the following in its place:

The Contractor shall start to perform the Work within 10 calendar days of the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run without authorization from Owner.

SC-2.5. Add the following to the end of Paragraph 2.5:

Any known discrepancy that Contractor adjusts without requesting interpretation or clarification from the Engineer shall be made at the risk of the Contractor, and Contractor shall bear all expenses arising from complications from such adjustment.

SC-2.7. Add the following to the end of Paragraph 2.7:

Failure of the Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of the Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.

SC-4.2.1 Add the following to the end of Paragraph 4.2.1

In the preparation of Drawings and Specifications, Engineer has relied upon the following reports of explorations and test of sub-surface conditions at the site of the Work:

4.2.1.1 None

SC-4.3.3 Add a new Paragraph immediately after Paragraph 4.3.2:

4.3.3 In the preparation of Drawings and Specifications, Engineer has relied upon the following drawings of physical conditions in or relating to existing surface and sub-surface structures (except Underground Utilities) which are contiguous to the site of the Work:

4.3.3.1 None

SC-5.4. Delete Paragraph 5.4 and the heading entitled “Contractual Liability Insurance:” in its entirety and insert the following in its place:

5.4 The limits of liability for insurance required by Paragraph 5.3 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.4.1. Workers’ Compensation, and related coverages under Paragraphs 5.3.1 and 5.3.2 of the General Conditions:

5.4.1.1. State: Statutory

5.4.1.2. Applicable Federal
(e.g., Longshoremen’s) Statutory

5.4.1.3. Employer’s Liability \$ 200,000

5.4.1.4. Contractor shall show Owner as additional insured.

5.4.2. Contractor's Comprehensive General Liability under Paragraphs 5.3.3 through 5.3.6 of the General Conditions:

5.4.2.1 Combined Single Limit for Bodily Injury and Property Damage

\$1,000,000	Each Occurrence
Or combined single limit	\$2,000,000
General Aggregate	\$2,000,000
Operations Aggregate	\$2,000,000

5.4.2.2. Property Damage liability insurance will provide Explosion, Collapse and Underground coverages where applicable.

5.4.2.3. Personal Injury, with employment exclusion deleted

\$1,000,000	Annual Aggregate
\$1,000,000	Each Occurrence

5.4.3. Comprehensive Automobile Liability under Paragraph 5.3.7 of the General Conditions:

5.4.3.1. Bodily Injury:

\$1,000,000	Each Person
\$2,000,000	Each Occurrence

5.4.3.2 Property Damage:

\$1,000,000	Each Occurrence
Or combined single limit	\$2,000,000

5.4.4 Builders Risk Insurance (Fire and Extended Coverage):

5.4.4.1 100% completed value based on the insurable portion of the project

5.4.4.2 Policy must protect the interests of the Owner, Contractor, and Sub-Contractors against loss by fire, vandalism, malicious mischief, and all hazards included in a standard "All Risk" Coverage endorsement. Policies shall be in the name of the Owner and Contractor.

5.4.5 The comprehensive general liability insurance will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.30 and 6.31 of the General Conditions. Contractual Liability coverage shall provide coverage for not less than the following amounts:

5.4.5.1. Bodily Injury:

\$500,000 Each Occurrence

5.4.5.2 Property Damage:

\$100,000 Each Occurrence
\$ N/A Annual Aggregate

SC-6.3 Add the following language at the end of paragraph 6.3

Unless approved by owner, work hours will be Monday – Friday from 8:00 am to 6:00 pm.

SC-6.4 Add the following language at the end of paragraph 6.4:

Contractor shall arrange for all necessary services through the local agencies at his own expense.

SC-6.7.3. Delete Paragraph 6.7.3 in its entirety and insert the following in its place:

6.7.3 ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. Complete written applications as detailed in Section 6.7 of the General Conditions must be received by ENGINEER at least ten (10) calendar days prior to the date for receipt of Bids. The burden of proof of the merit of the substitute item is upon the Bidder. ENGINEER will be the sole judge of acceptability, and ENGINEER'S decision of approval or disapproval of an item will be final. If ENGINEER approves any substitute item, such approval will be set forth in an Addendum issued to prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

SC-6.7.4-6 Add new paragraphs immediately after Paragraph 6.7.3:

6.7.4 Submittals for substitute items shall include illustrative drawings, specifications, descriptive brochures, installation lists, weights, metal thickness of principal components, drive arrangements, torques, power requirements, performance curves, installation requirements, availability of spare parts, local service capability, and other items necessary for the ENGINEER to determine that the intent of the Specifications is to be met. Submittal must also include an enumeration of any and all changes required in the contract documents for incorporation of the proposed substitute.

6.7.5 A three (3) year warranty shall be required on all substitute equipment, materials, or systems in the form of a bond or other equivalent surety. Such warranty/surety shall be in the amount of the Contractor's purchase order, including installation and service for the substitute. Should the substitute fail to perform satisfactorily, either in mechanical integrity or in performance, the Owner can require modification or replacement or if the supplier fails to remedy the defects, the Owner may use any or all of the bond/surety to modify or replace the system or portions thereof include modifications to another process.

6.7.6 The price bid for substitute equipment shall not be used in the base bid but shall be bid as a deductible alternate and listed on the forms provided in the Bid Form. The contract will be awarded on the basis of the lowest qualified base bid including any substitute selected by the Owner. The Owner reserves the right to accept or reject any and all substitutes that may be offered. The alternate price bid for the substitute equipment shall include the cost of all re-design, the cost of structural, mechanical, and electrical changes as prescribed in Paragraph 6.7.1 of the General Conditions.

SC-6.8.3 Add a new paragraph immediately after Paragraph 6.8.2:

6.8.3. The Contractor shall not award work valued at more than fifty (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC-6.21 Add the following language at the end of paragraph 6.21:

The Contractor shall provide, at the site, such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work. The Contractor must report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which causes death, personal injury or property damages, giving full details and statement of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Contractor and any subcontractor so that Contractor may promptly report the facts to the Engineer, giving full details of the accident. The Contractor shall advise his superintendent and foreman, who are on the site of the work, the name of the hospital and phone number and the name and phone number of the doctor he proposes to use in case of an accident.

SC-6.33 Add a new paragraph immediately after Paragraph 6.32:

6.33 Contractor shall require any and all subcontractors to conform to the obligations under paragraph 6.30 prior to commencing any work.

SC-9.3 Add the following language at the end of paragraph 9.3:

The Owner reserves the right to provide Resident Project Representative services for this project through the services of the Engineer. The Duties, Responsibilities, and Limitations of Authority of the Resident Project Representative will be as stated in the Agreement Between Owner and Engineer, executed for this specific Project.

SC-11.9.2 Add the following language at the end of paragraph 11.9.2:

Direct payment will only be made items specifically listed in the Bid Form, and the cost of any other work will be included in the unit price for the item to which it relates.

SC-12.2 Add the following sub-Paragraphs to Paragraph 12.2

12.2.1 For the purposes of this contract, abnormal weather conditions shall be defined as wet weather conditions that exceed the normal, reasonably expected adverse weather days for that particular place at that particular time of year. Extension of time for abnormal weather conditions will be granted for those days where precipitation is one-eighth (0.125) inches or greater and where the number of such days exceed the normal, reasonably expected adverse weather days in that particular month. No reduction in Contract Time will be required for calendar months with less than the normal adverse weather days.

12.2.2 The determination of normal adverse weather days will be based on the average number of calendar days over the last five years in which more than one-eighth (0.125) inches of rain fell as measured by the Fort Valley, Georgia “Georgia Automated Environmental Monitoring Network” station for that particular month. This data may be accessed via the following website:

<http://weather.uga.edu>

12.2.3 For this purposes of this contract, normal adverse weather days, as calculated by the method described in 12.2.2 are listed below by month:

January	5	July	8
February	6	August	7
March	5	September	5
April	7	October	2
May	5	November	3
June	7	December	7

12.2.4 Requests for extension of Contract Time due to abnormal weather conditions must be submitted to Engineer with the monthly pay request for the month in which the delays occurred. Failure to request such extension with the pay request may invalidate the Contractor’s right to an extension for these delays.

SC-12.3.1 Add the following sub-Paragraph to Paragraph 12.3:

12.3.1 If the Contractor fails to prosecute the work with such diligence as will insure the completion of each portion of the work within the Contract Time, plus any extensions made in accordance with Article 12 of the General Conditions, and if the Owner does not exercise his reservations as set forth in Article 13 of the General Conditions, the Contractor shall continue the work, in which event, liquidated damages for the delay will be impossible to determine. In lieu thereof, liquidated damages in the amount of \$500 per calendar day for each day that the work is delayed beyond the contract completion will be assessed to the Contractor until the work is completed.

SC-13.2 Delete Paragraph 13.2 in its entirety and insert the following in its place:

Engineer and Engineer's representatives, other representative of Owner, testing agencies, the Georgia Department of Natural Resources, the Environmental Protection Division, the Georgia Department of Community Affairs, the Department of Labor, and any other governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide proper and safe conditions for such access.

SC-17.5 Add the following new Paragraphs immediately after Paragraph 17.4:

- 17.5 The Contractor acknowledges the requirement of the High Voltage Act of the General Assembly of Georgia by execution of the Agreement.
- 17.6 The Contractor shall comply with the Department of Labor Safety and Health Regulation for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work and Safety Standards Act (PL 91-54). These regulations are administered by the Department of Labor and the Contractor shall allow access to the project to personnel from that Department.
- 17.7 The Contractor shall occupy the status of an Independent Contractor and the Contractor's employees are not employees of the Owner.

Mandatory Section 3 Solicitation Package

This mandatory solicitation package has been developed in accordance with DCA's Section 3 Policy for Covered HUD Funded Activities. DCA encourages all sub-recipients, contractors, and sub-contractors to review this policy prior to completion of the solicitation package. For those solicitations that meet the applicable Section 3 thresholds, this package must be returned in its entirety to the contracting entity. The Section 3 Clause, required forms, and instructions are included in this package.

The following Section 3 forms must be completed and returned as instructed:

- Section 3 Self Certification and Action Plan
- Previous Section 3 Compliance Certification
- Assurance of Compliance Certification

Additionally, if the contractor is claiming certification as a 51% Resident Owned Business (ROB) or is certifying as a 30% employer, the Resident Self-Certification and Skills Data Form must be returned for all employees who meet the low- or very low-income requirement as well as the appropriate Section 3 Business Certification.

Section 3 Solicitation Overview and Instructions for Contractors

The DCA Section 3 Policy requires that, when the **Section 3 regulation is triggered**, every effort within the contractor's disposal must be made, to the greatest extent feasible, to offer all available employment and contracting opportunities to Section 3 residents and Section 3 businesses based on the compliance methods below.

All Contracts and All Contractors must meet Section 3 compliance by:

- A. Giving notice of any and all opportunities for employment and contracting to residents of the local Public Housing Authority (PHA), and other low and very low income area residents and businesses, by posting the opportunity in community sources generally available to low income residents and the general public. Exercising a **minimum of three (3)** of the following listed sources must be completed prior to offering employment to anyone not covered by Section 3 requirements:
 - 1. The local community newspaper
 - 2. The most widely distributed newspaper
 - 3. Company or agency website
 - 4. The management office of the local housing authority/homeless service agency/local low income housing community
 - 5. Local Workforce Board (i.e. Department of Labor)
 - 6. Local office of the Georgia Division of Family and Children Services
 - 7. Dodge Room <http://www.construction.com/dodge/dodge.asp>
 - 8. Other locations as approved by DCA
- B. Clearly stating in notices that the position is a "Section 3 covered position under the HUD Act of 1968 and that Section 3 Residents and Business Concerns are encouraged to apply."
- C. Placing the Section 3 Clause provided in Appendix A in ALL solicitations.
- D. When possible, other activities may be done to demonstrate effort to comply with the Safe Harbor Limits. These other efforts are listed in the appendix to part 135 of the Code of Federal Regulations—24 CFR Part 135 and include:
 - 1. Distributing or posting flyers advertising positions to be filled;
 - 2. Contacting the local government or housing authority for a list of residents who have expressed interest in Section 3 employment;
 - 3. Holding job informational meetings for residents, contractors, etc...;
 - 4. Contacting agencies administering HUD YouthBuild programs and requesting their assistance in recruiting HUD YouthBuild program participants for training and employment positions.

- E. Linking residents or businesses to local resources that may be available to help prepare them for applying for and achieving the opportunity.
- F. Working with DCA, the subrecipient or contractor as applicable in developing a communication and follow up process to track and report all Section 3 applications and hiring activities to ensure the reporting of compliance efforts, and that contracting and sub-contracting are accurate. Provide preference in hiring and contracting to Section 3 applicants and contractors when employment or contracting opportunities are offered and all requirements are met and remain equal. Contractors must:
 - 1. Provide this package to all sub-contractors when soliciting bids for all contracts or sub-contracts;
 - 2. Meet all the same processes in A-E; and
 - 3. Provide Preference to all sub-contractors meeting the definitions as stated in Section VI of DCA's Section 3 Policy for Covered HUD Funded Activities.
- G. In order for Preference as a Section 3 Contractor to be factored into the award decision, all elements of the solicitation criteria must be equal between contracts. This means price and all other factors must be equal. Then the contractors that elect Preference on the Certification and Action Plan form that meet that Preference criterion will be provided Preference in the award of the contract as provided in Part VI., Preferences and Eligibility of DCA's Section 3 Policy for Covered HUD Funded Activities.

Example:

Bill's electrical and Sue's Electrical bid a job where the housing authority has a budget of \$500,000. Bill bids \$480,000 and elects a Preference as a Section 3 business concern because he qualifies as a 51% Resident Owned Business. Sue bids \$450,000 but does not elect any Preference. Both companies met all the other requirements. Sue will be awarded the contract because Bill's bid was higher.

Important items to remember about receiving Preferences in contract award:

All contractors and/or subcontractors that elect a Preference and are awarded a contract must be in compliance prior to the issuance of a Notice to Proceed by DCA, the subrecipient, or the contractor based on the policies established for the applicable DCA funding program. The contractor and/or subcontractor must maintain the elected Preference standard during the entire contract or risk having the contract terminated for failure to comply. **See Appendix B for further details.**

When a contractor and/or subcontractor that elected a Preference is unable to identify a Section 3 resident or a Section 3 business for employment or contracting opportunities, the contractor then **must** offer employment related training to the Section 3 residents in the county. The training must be provided according to Part VII – Other Economic Opportunities in DCA's Section 3 Policy.

Appendix A

Section 3 Clause

Training and Employment Opportunities for Residents in the Project Area (Section 3, HUD Act of 1968; 24 CFR 135)

(a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.

(c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of Section 3 apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.

(e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.

(f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

Appendix B

Section 3 Contract Non-Compliance Cure /Termination Processes

This language is a component of contract compliance with the work to which you are responding in this solicitation. The full requirements are provided in the Section 3 Clause found elsewhere in this package and in DCA's Section 3 Policy for Covered HUD Funded Activities.

Any subrecipient or contractor claiming Preference **must be in compliance prior to issuance of a notice to proceed by DCA, subrecipient, or contractor based on the policies established for the applicable DCA funding program. This preference can be met by any of the three qualifications:**

1. Resident Owned Businesses (ROBs) owned and operated at 51% by Section 3 Residents.
2. Businesses that employ Section 3 residents at no less than 30% of the contractors aggregate full time staff.
3. Contractors that at the time of bid show evidence (meaning the specific name and preference met) of their intent to award no less than 25% of their total award to Section 3 business concerns.

The subrecipient or contractor must maintain compliance throughout the life of the contract. The contractor understands and agrees that a compliance management firm may be used to conduct routine and certified payroll reviews to ensure compliance. The Contractor agrees to provide the payroll data in an Excel or Word format each time the payroll is processed throughout the contract.

Failure to meet the Section 3 requirements will result in penalties up to and including contract termination. Any contractor triggering the regulation by doing any hiring or contracting once they are awarded the contract through execution must comply with the Section 3 requirements by executing the efforts on their Certification and Action Plan in accordance with DCA's Section 3 Policy.

DCA, the subrecipient or contractor shall execute these remedies to achieve compliance in this order:

NON-COMPLIANCE CURE PROCESS

- A. Based on the first observation or report of non-compliance with Section 3, the subrecipient or contractor will be sent an e-mail by the compliance manager notifying them of their non-compliance issue. The subrecipient or contractor will have until the next payroll or 10 business days, whichever is less, to bring the contract into compliance and/or justify in writing why they cannot meet compliance requirements.
- B. DCA, the subrecipient or contractor must render a response to the violating party within 10 business days of receipt of the violating party's letter of reason for non-compliance. If DCA, the subrecipient, or the contractor deems the reason to be unacceptable, at its

option, DCA, the subrecipient, or the contractor can extend the response period one time for up to 5 business days to allow the violating party to identify and secure other compliance options.

NON-COMPLIANCE TERMINATION PROCESS

If the violating party fails to take any corrective action to bring the contract into compliance within the allotted time, or DCA, the subrecipient, or the contractor rejects any of the corrective plans and justifications for non-compliance, DCA, the subrecipient, or the contractor will either terminate the contract immediately or impose liquidated damages equal to the number of days out of compliance divided by the total contract period multiplied by the contract amount. For example, if a violating party is out of compliance for 30 days of a total contract period of 120 days and as part of total contract of \$600,000, then the liquidated damages will equal 25% (30/120) of the total contract amount (\$600,000), or \$150,000. At DCA's determination, any liquidated damages received must be paid to the subrecipient or DCA, at DCA's determination, and be used to promote economic opportunities for Section 3 Residents and Business Concerns.

DCA, the sub-recipient, or the contractor will hold **all funds due to the violating party until such time that a financial workout is completed.**

Additionally the violating party may be banned by DCA, the sub-recipient, and the contractor on future HUD funded projects.

Appendix C
Section 3 Forms

I am Certifying as a Section 3 Business Concern and requesting Preference accordingly (Select only One Option):

Option 1

- A business claiming status as a Section 3 Resident-Owned Business Concern (ROB) entity:

_____ Initial here to confirm selection of this option

Option 2

- A business claiming Section 3 status, because at least 30% of the existing or newly hired workforce for this specific contract will be Section 3 residents throughout the entire contract period. If a Prime or General Contractor is electing this option, the 30% employment requirement will be for the entire project including all the sub-contractors' employees:

Check all methods you will employ to secure Section 3 Residents/Persons

Posting the position in community sources that are generally available to low income residents and the general public is a standard requirement. **Check at least three (3) methods you will employ:**

- The local community newspaper
- The most widely distributed newspaper
- Company or agency website
- The management office of the local housing authority, or homeless service agency, or local low income housing community
- Local Workforce Board (i.e., Department of Labor)
- Local office of the Georgia Division of Family and Children Services
- Local office of the Georgia Department of Public Health
- Dodge Room <http://www.construction.com/dodge/dodge.asp>
- Other locations identified below and subject to DCA approval:

_____ Initial here to confirm selection of this option

I anticipate my total number of employees for this contract to be ____ and ____ will be qualified Section 3 Residents/persons.

Option 3

- A business claiming Section 3 status by subcontracting 25% of the dollar award to qualified Section 3 Business:

Attach a list of intended subcontract Section 3 business(es) with subcontract amount.

Attach certification & all supporting documentation for each planned subcontract Section 3 Business.

_____ Initial here to confirm selection of this option

I am NOT Requesting Preference under Section 3:

- I am **NOT** certifying as a qualified Section 3 Business Concern and I am not requesting a preference. However **if** I do trigger the regulation by doing any sub-contracting or hiring, I will comply by meeting all requirements of DCA's Section 3 policy and am committing to do the outreach as specified below.

Check all methods you will employ to secure Section 3 Residents/Businesses

Posting the position/contract opportunity in community sources that are generally available to low income residents and Section 3 Businesses and the general public is a standard requirement. **Check at least three (3) methods you will employ:**

- The local community newspaper
- The most widely distributed newspaper
- Company or agency website
- The management office of the local housing authority, or homeless service agency, or local low income housing community
- Local Workforce Board (i.e., Department of Labor)
- Local office of the Georgia Division of Family and Children Services
- Local office of the Georgia Department of Public Health
- Dodge Room <http://www.construction.com/dodge/dodge.asp>
- Other locations identified below and subject to DCA approval:

_____ Initial here to confirm selection of this option

Signature: _____

Printed/Typed Name: _____

Title: _____

Date: _____

Notarial Affidavit

Sworn to and subscribed before me this _____ day of _____, 20_____.

Signature of Notary Public

Printed Name of Notary Public

Commission Expiration Date: _____

(Notarial Seal)

Required Submittal - Assurance of Compliance Certification
Section 3 Action Plan
Housing and Urban Development Act of 1968
(12 U.S.C. 1701 U)

Contract/Solicitation Name or Number: _____

DCA Funding Program: _____

Entity Receiving DCA Funding Award: _____

Purpose: To ensure that regulations promulgated under 24 CFR Part 135 Employment Opportunities for Businesses and Lower Income Persons in Connection with Assisted Projects and the Section 3 Policy of DCA, its subrecipients and contractors to the greatest extent feasible is adhered to, and to serve as the “assurance of compliance” certification and action plan as required in the bid documents, supplemental general conditions, and required forms for the contract for any HUD work funded by DCA.

Description of the project’s work detail: The project work will be as listed in the final scope of work in the contract with DCA, its subrecipients and contractors including any change orders. **List all known subcontractors below:**

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Subcontractor(s): _____

Use an additional sheet if required.

Note: If subcontractors are unknown at this time, print UNKNOWN on the line above. Also, the contractor must notify DCA or subrecipient if subcontractors are added or changed during the contract.

Any changes to this certification requires a resubmission of this form to DCA or subrecipient.

Preliminary Statement for Work Force Needs:

DCA intends to meet Section 3 compliance at the highest level and it is our intent to identify any short-term and long-term employment or contracting opportunities for qualified Section 3 persons and Business Concerns during the course of the contract funded by DCA via its subrecipients and contractors. Please list the status of all planned employment positions and opportunities for this contract. **Preference for all opportunities must be given to low and very low-income residents if they qualify. If awarded a contract, regardless of whether your firm has elected a preference, you are required to provide a list of your aggregate workforce on this project. Any changes to that workforce during the project will constitute NEW hires. You must notify DCA, its subrecipient or contractor (respectively) overseeing your contract of any new hire opportunities that arise during the life of your contract.** *The anticipated workforce list may be provided on a separate sheet or in a different format.*

<u>List All Employees</u>	<u>Date Hired</u>	<u>Section 3 Resident (Yes/No)</u>	<u>Job Title/Trade</u>	<u>Salary Range</u>
Name: Address: City, ZIP:				
Name: Address: City, Zip Code:				
Name: Address: City, Zip Code:				
Name: Address: City, Zip Code:				

Use additional pages as needed.

“To the Greatest Extent Feasible”:

The Contractor has identified ___ # of **OPEN** positions with respect to this contract. The positions are filled by the _____ (Position title) of the Contractor.

Should the scope of work or duties of the contractor change to a degree requiring a modification of the work force needs, the contractor shall put forth a reasonable effort to fill vacant positions with eligible Section 3 residents.

Documentation of “To the Greatest Extent Feasible”:

The contractor will work with DCA, its subrecipients, and contractors staff to notify residents of any opportunities afforded under the contract. The contractor will partner with DCA, its subrecipients, and contractors by giving preference of any employment opportunities to the Section 3 persons or businesses.

The contractor shall recruit or attempt to recruit from the Section 3 area the necessary number of low-income and very low-income residents and Section 3 businesses, as applicable. The contractor must also document their recruiting efforts and any impediments to compliance with DCA’s Section 3 policy and the requirements of this solicitation package. This documentation must be submitted to the recipient or sub-recipient.

1. DCA, its subrecipients and contractors shall: Maintain a list of all low-income area residents who have applied, either on their own or from referral from any source, and employ such person if otherwise eligible and if a trainee vacancy exists.
2. Conduct solicitation in accordance with DCA’s Section 3 policy and the requirements outlined in the solicitation package.

The contractor shall review all employment applications and determine if low-income and very low-income residents or Section 3 businesses meet minimum hiring or contracting qualifications. If these applicants meet such minimum qualifications, but are not hired due to lack of employment opportunities or for other reasons, they will be placed on a priority list and offered positions/contracts upon the occurrence of the first available appropriate opening.

Utilization of Section 3 Businesses Located Within the County:

The subrecipient or contractor does ___ does not ___ intend to subcontract any of the work identified in the scope of work cited in the bid specifications, scope of work or General Conditions. Should the scope of work or needs of the contractor change, the contractor shall, to the greatest extent feasible, assure that subcontracts be awarded to business concerns within the Section 3 covered area, or to business concerns owned in the substantial part (at least 51%) by persons residing in the Section 3 covered area.

Record Keeping:

The subrecipient, contractor or subcontractor, as applicable, shall maintain on file all records related to employment and job training of low-income and very low-income residents or other such records, advertisements, legal notices, brochures, flyers, publications, assurances of compliance from sub-contractors, etc, in connection with this contract. If a report is needed in the future, the subrecipient,

contractor or subcontractor, as applicable, agrees to provide all records upon request. The contractor shall, upon request, provide such records or copies of records to HUD, DCA, their subrecipients, contractors, staff, or agents. Records shall be maintained for at least three (3) years after the close of the contract.

Reports:

The subrecipient or contractor shall provide reports as required in connection with the contractor specifications. All certified and regular payrolls shall clearly detail which employees qualify under Section 3.

Certification:

The subrecipient or contractor will certify that any vacant employment positions, including training positions that filled:

- 1) After the subrecipient or contractor is selected but before the contract is executed, and
- 2) With persons other than those to who the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the subcontractor's obligations under 24 CFR Part 135.

Grievance and Compliance:

The subrecipient, contractor or subcontractor hereby acknowledges that they understand that any low-income and very low-income resident of the project area, for him/her or as representatives of persons similarly situated, seeking employment or job training opportunities in the project area, or any eligible business concerns seeking contract opportunities may file a grievance if efforts to the greatest extent feasible were not executed. The grievance must be filed with HUD not later than one hundred eighty (180) calendar days from the date of the action (or omission) upon which the grievance is based.

I attest that the information on the preceding pages is true and correct.

Signature

Date

Print Name

Title

**RESIDENT SECTION 3 SELF-CERTIFICATION
AND SKILLS DATA FORM**



The purpose of this form is to comply with HUD Section 3 administration and certification regulations.

Certification for Section 3 Residents or other Low-Income Persons Seeking Employment, Training or Contracting

I, _____, am a legal resident of the United States and meet the income eligibility and federal guidelines for a Section 3 Resident as defined within this Certification.

My home address is: _____
Must be a **Street** address not a P O Box #
Apt Number

City _____ State _____ Zip _____ Home # _____ Cell # _____

County of Residence _____

Graduated High School or GED (month/year): _____ I Read and Speak English Fluently: Yes or No

Attended College, Trade, or Technical School: Yes or No Graduated? Yes or No Year Graduated: _____

Check the Skills, Trades, and/or Professions in which you have been employed or contracted to do for others:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Drywall Hanging | <input type="checkbox"/> Drywall Finishing | <input type="checkbox"/> Interior Painting | <input type="checkbox"/> Framing |
| <input type="checkbox"/> HVAC | <input type="checkbox"/> Electrical | <input type="checkbox"/> Interior Plumbing | <input type="checkbox"/> Exterior Plumbing |
| <input type="checkbox"/> Siding | <input type="checkbox"/> Cabinet Hanging | <input type="checkbox"/> Door Replacement | <input type="checkbox"/> Trim/Carpentry |
| <input type="checkbox"/> Stucco | <input type="checkbox"/> Window/Door Replacement | <input type="checkbox"/> Construction Cleaning | <input type="checkbox"/> Exterior Framing |
| <input type="checkbox"/> Data Entry | <input type="checkbox"/> Receptionist | <input type="checkbox"/> Sales | <input type="checkbox"/> Telephone Customer Service |
| <input type="checkbox"/> Administrative | <input type="checkbox"/> Teaching/Training | <input type="checkbox"/> Personal Care Aide | <input type="checkbox"/> Landscaping |
| <input type="checkbox"/> CDL License | <input type="checkbox"/> Roofing | <input type="checkbox"/> Concrete/Asphalt Work | <input type="checkbox"/> Heavy Equipment Operator |
| <input type="checkbox"/> Fencing | <input type="checkbox"/> Metal/Steel Work | <input type="checkbox"/> Welding | |
| <input type="checkbox"/> Other | | <input type="checkbox"/> Other | |

I am certifying as a Section 3 Resident: **Person seeking Training** or **Person seeking employment**

(Check all that apply):

I am a public housing or section 8 Leaseholder I live in the service area

My total annual household income is \$ _____. There are a total of _____ people living in my household.

I certify that all of the information given on this Certification is true and correct. If found to be inaccurate, I understand that I may be disqualified as an applicant and/or a certified Section 3 individual which may be grounds for termination of training, employment, or contracts that resulted from this certification. I attest under penalty of perjury that my total household income annually, based on my total household size as listed above is at or below the income amount for that specific size at the time of this document is being signed and notarized. I understand that proof of this statement may be requested in the future.

Signature _____ Date _____

Printed Name: _____

Purpose:

The purpose of Section 3 of the Housing and Urban Development of 1968 (12 U.S.C. 1701u) (Section 3) is to ensure that employment and other economic and business opportunities generated by HUD Financial Assistance shall be directed to the Authority Residents and other low- and very low-income persons, particularly those who are recipients of government housing assistance and to business concerns which provide economic opportunities to Residents and other low- and very low-income persons.

Section 3 resident means:

- (1) A public housing resident; or
- (2) An individual who resides in the metropolitan area or non-metropolitan county in which the section 3 covered assistance is expended, and who is:
 - I. A low-income person, as this term is defined in section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2)). Section 3(b)(2) of the 1937 Act defines this term to mean families (including single persons) whose incomes do not exceed 80% of the median family income for the area, as determined by the Secretary, with adjustments for smaller and larger families, except that the Secretary may establish income ceilings higher or lower than 80% of the median for the area on the basis of the Secretary's findings that such variations are necessary because of prevailing levels of construction costs or unusually high or low-income families; or
 - II. A very low-income person, as this term is defined in section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2)). Section 3(b)(2) of the 1937 Act (42 U.S.C. 1437a(b)(2) defines this term to mean families (including single persons) whose incomes do not exceed 50% of the median family income for the area, as determined by the Secretary with adjustments made for smaller or larger families, except that the Secretary may establish income ceilings higher or lower than 50% of the median for the area on the basis of the Secretary's findings that such variations are necessary because of unusually high or low family incomes.
- (3) A person seeking the training and employment preference provided by section 3 bears the responsibility of providing evidence (if requested) that the person is eligible for the preference.

Service area means the geographical area in which the persons benefiting from the Section 3-covered project reside.

The figures below represent very low-income families; bottom figures represent low-income families. The most recent income limits established for each county may be found at:

<http://www.hud.gov/offices/cpd/affordablehousing/programs/home/limits/income/>.

Subrecipient or Contractor to Insert 2015 Income Limits for Project Location

FY 2015 Income Limit Area	Median Income	FY 2015 Income Limit Category	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Upson County	45,000	Very Low (50%) Income Limits	16,150	18,450	20,750	23,050	24,900	26,750	28,600	30,450
Upson County	45,000	Low (80%) Income Limits	25,850	29,550	33,250	36,900	39,900	42,850	45,800	48,750

**RESIDENT SECTION 3 SELF-CERTIFICATION
AND SKILLS DATA FORM
AFFADAVIT**

STATE OF _____

County of _____

I, _____, a Notary Public of the City/County of _____,
State of _____, do hereby certify that, _____, whose
name is signed to the writing above bearing date on the _____ Day of _____,
20____, has acknowledged the same before me in my State aforesaid.

Given under my hand and official seal, this the _____ day of _____, 20____.

Signature of Notary Public

Printed Name of Notary Public

Commission Expiration Date: _____

(Notarial Seal)

SECTION 3 BUSINESS CONCERN SELF CERTIFICATION

The Georgia Department of Community Affairs (DCA) is seeking to extend the benefits of and to promote compliance with Section 3 by identifying Section 3 Business Concerns and targeting Section 3 Business Concerns for business opportunities, events and educational programs.

In an effort to comply with Federal Section 3 Regulations which promote contract, employment and training opportunities for State of Georgia residents, DCA has instituted a Section 3 Self Certification process.

Businesses seeking certification must complete and submit the attached Section 3 Business Concern Self Certification forms as follow:

1. If your company is qualified because it is owned (51% or more) by one or more Section 3 residents, then complete **Form A, "Section 3 Business Concern – Resident Business Owner(s) Verification"**;

OR

2. If your company is qualified because 30% or more of its full time permanent workforce are Section 3 Residents*, then complete **Form B, "Section 3 Business Concern – 30% + Workforce"**.

OR

3. If more than 25% of all subcontract work to be awarded shall be performed by Section 3 business concerns as described above, then complete **Form C, "Section 3 Business Concern-Subcontractor"**.

Please answer all questions, sign the completed forms, and notarize the affidavit.

Completed packets must be returned to the subrecipient or contractor as follows:

Name of subrecipient/contractor: _____

Attn: _____

Mailing Address: _____

If you have any questions or require assistance, please contact:

Name: _____

Phone Number: _____

Email Address: _____

Form A
SECTION 3 BUSINESS CONCERN
Resident Business Owner(s) Verification

A business can be certified as a Section 3 Business Concern if the business is owned (51% or more) by Georgia Section 3 Resident(s).

Name of Owner: _____

Home Street Address: _____

Home City, County, & Zip Code: _____

Name of Business: _____

Percentage of Ownership: _____ %

Low- to – Moderate Income (80% of Median)

Check the appropriate box for your family size and income *if your total household income is equal to or less than the Gross Household Income Maximum amount listed for your appropriate household size:*

Check Box	# of Persons in Household	Gross Household Income Maximum
	1 Individual	
	2 Individuals	
	3 Individuals	
	4 Individuals	
	5 Individuals	
	6 Individuals	
	7 Individuals	
	8 Individuals	

(Effective _____, 2013)

If the business is owned by more than one Section 3 resident, list each owner below and each should submit a separate Resident Business Owner Verification Form (Form A).

Please list additional Section 3 Resident owners of the business below:

Name	Position	% Percentage of Ownership

I certify that I am a resident of the State of Georgia and my total household income last year was not more than the amount shown above for my family size. I further certify the information provided is true and accurate and agree to provide upon request, documents verifying the information submitted to qualify as a Section 3 Business Concern.

Print: _____ **Signature:** _____ **Date:** _____

Form B
SECTION 3 BUSINESS CONCERN
30% + Workforce

A business can be certified as a Section 3 Business Concern if at least 30% of its permanent, full-time employees are Section 3 residents, or were Section 3 residents within three years of the date of the first employment with the business. You may also certify as a Section 3 Business Concern if, for this award, you will hire Section 3 residents for at least 30% of your permanent, full-time employees for this specific project. For your firm to be eligible UNDER THIS CRITERIA, you must provide the following information for **all permanent, full-time employees**.

You may attach additional copies of this chart, if necessary.

List All Employees	Date Hired	Section 3 Resident	Job Title/Trade	Salary Range
Name: Address: City/Zip:				
Name: Address: City/Zip:				
Name: Address: City/Zip:				
Name: Address: City/Zip:				
Name: Address: City/Zip:				
Name: Address: City/Zip:				
Total Number of Employees:	Full-Time: _____	Part-Time: _____	Contract: _____	
Number of Section 3 Residents:				
Section 3 % of Total Workforce:				

I certify that the information provided is true and accurate and agree to provide upon request, any/all documents verifying the information submitted to qualify as a Section 3 Business Concern.

Print Name: _____

Title: _____

Company Name: _____

Signature: _____

Date: _____

Form C
SECTION 3 BUSINESS CONCERN
Subcontractor Awarded

A business can be certified as a Section 3 Business Concern if the firm makes a commitment to subcontract in excess of twenty-five percent (25%) of the total amount of subcontracts to be awarded to: A) Section 3 Resident Owned Businesses; or B) Businesses for which 30% or more of their permanent full-time workforce is comprised of Section 3 Residents.

List all work performed by Section 3 Business Concerns Identified (This Form is to be updated as Section 3 Business Concerns are awarded through the completion of the project):

Name of Business	Qualifying Conditions	Total Contract Award

All identified Section 3 Business Concerns listed above are required to complete a Section 3 Self Certification Application (Forms A – C as appropriate) or provide proof of Section 3 Certification status. Attach all required documents to this form.

I certify that the information provided is true and accurate and agree to provide upon request, any/all documents verifying the information submitted to qualify as a Section 3 business concern.

Print Name: _____

Title: _____

Company Name: _____

Signature: _____

Date: _____

General Decision Number: GA180073 02/09/2018 GA73

Superseded General Decision Number: GA20170073

State: Georgia

Construction Type: Heavy

Heavy Construction, Includes Water and Sewer Lines, and Heavy Construction on Treatment Plant Sites and Industrial Sites (Refineries, Power Plants, Chemical and Manufacturing Plants, Paper Mills, Etc.)

Counties: Baldwin, Bleckley, Dodge, Dooly, Laurens, Macon, Peach, Pulaski, Schley, Stewart, Sumter, Talbot, Taylor, Troup, Upson, Webster, Wilcox and Wilkinson Counties in Georgia.

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	01/19/2018
2	02/09/2018

* ELEC0613-020 12/01/2017

SCHLEY, STEWART, TALBOT, TAYLOR, TROUP, & WEBSTER COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 31.40	31%

ELEC1316-016 01/01/2017		

BALDWIN, BLECKLEY, DODGE, LAURENS, MACON, PEACH, PULASKI, UPSON, & WILKINSON COUNTIES

Rates	Fringes
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ELECTRICIAN.....\$ 24.46 11.89

ELEC1531-009 01/01/2018

DOOLY, SUMTER, & WILCOX COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 22.70	4%+12.30

SUGA2012-091 08/11/2012

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 15.21	0.00
CEMENT MASON/CONCRETE FINISHER...	\$ 14.11	1.78
LABORER: Common or General.....	\$ 10.69	0.00
LABORER: Pipelayer.....	\$ 11.48	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 18.86	1.76
OPERATOR: Grader/Blade.....	\$ 18.88	1.32
OPERATOR: Loader.....	\$ 15.92	0.00
TRUCK DRIVER: Dump Truck.....	\$ 12.00	2.14

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within

the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

DETAILED SPECIFICATIONS

SECTION 01020 ALLOWANCES

PART 1 – GENERAL

- A. The Contractor shall include in his bid proposal the allowances stated herein. These allowances shall cover manufactured equipment or services that will be provided to the contractor by others. The contractor shall cause the work covered by these allowances to be provided by such suppliers as the Owner may select. The Contractor's cost for handling, coordinating and any other costs that are necessary to complete these items but not specifically covered in the allowance shall be included in the Contractor's lump sum bid. The final amount of any allowance item listed herein shall be adjusted accordingly by change order to reflect actual cost.

PART 2 – PRODUCT

- A. The Contractor shall allow the sum of \$25,000 for Supplemental Work Additions (SWA's). SWA shall be utilized to incorporate cost changes for any additional authorized work into the scope of work up to the amount budgeted above. Contract change orders shall be enforced for contract changes over and above this amount. These SWA's shall authorize the Contractor to perform additions to work, but the Contractor shall perform no work until written authorization has been delivered to the Contractor by the City. Contractor should not expect that any SWA's will be issued; SWA's shall be issued at the discretion of the City only.

The value of any work covered by a SWA shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the item involved (subject to the provisions of General Conditions, paragraphs 11.9.1 through 11.9.3, inclusive).
2. By mutual acceptance of a lump sum by Contractor and the City.
3. On the basis of invoices plus a 10% Contractor's Fee for overhead and profit.
4. On the basis of time and materials.

PART 3 – EXECUTION

- A. Amounts stated shall include all taxes, coordination and handling that may be required to provide the equipment to the owner. Owner may choose to delay the purchase of equipment to the end of the contract.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. This Section describes the methods by which measurement will be made of the quantities for which payment will be made for the Project.
- B. The project is to be bid as one contract.
- C. Defect assessment and non-payment for rejected work.
- D. Supplemental Work Addition Description

1.02 MEASUREMENT OF WORK

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Work shall be measured by the Engineer or his representative with assistance from the Contractor prior to preparation of a payment request by the Contractor.
- C. Unit quantities that are measured in place shall be measured monthly. The Contractor shall give the Engineer a minimum of two days' notice for making all required measurements.
- D. Materials that must be measured as delivered shall be measured at the time of delivery by the Engineer or his representative; the Contractor shall provide sufficient advance notice so that such measurements can be made.
- E. Work completed shall be measured for completion against the schedule of values provided by the Contractor in accordance with the General Conditions. No work that is shown or inferred on Plans or in Specifications will receive additional payments to the lump sum bid price given on the BID FORM. The Contractor is responsible for providing a total and complete system and shall provide a price for said system on the Bid Form.

1.03 ESTIMATED QUANTITIES

- A. All estimated quantities for unit price items, stipulated in the BID FORM, or other

Contract Documents, are approximate and are to be used as a basis 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.

- B. The basis of payment for work and materials will be the actual amount of work done and materials furnished.
- C. The Contractor agrees to make no claim for damages, anticipated profits or otherwise on account of any difference between the amounts of work actually furnished and the estimated amounts included in the BID FORM.
- D. The Contractor will not be paid for any work which exceeds the quantity set forth in the BID FORM without a change order issued before the work is performed unless specifically ordered in writing by the Engineer.
- E. The Contractor will provide assistance to Engineer to check quantities and elevations when so requested.

1.04 MEASUREMENT OF QUANTITIES

- A. Measurement by Weight – Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- B. Measurement by Volume – Measured by cubic dimension using mean length, width and height or thickness.
- C. Measurement by Area – Measured by square dimension using mean length and width or radius.
- D. Linear Measurement – Measured by linear dimension, at the item centerline or mean chord.
- E. Stipulated Sum/Price Measurement – Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.05 PROGRESS PAYMENTS

- A. Progress payments shall be based on percentage of work complete on a lump sum project. Payment will be made based on percent complete of lump sum breakdowns in the BID FORM.
- B. Work to be paid for as a “Lump Sum” shall be measured for completion against the “Schedule of Values” provided by the Contractor. The “Schedule of Values” shall

be submitted at the Preconstruction conference and shall include quantities and prices of items aggregating the total “Lump Sum” and will subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction.

1.06 ALLOWANCES

- A. The Contractor shall allow the sum of \$25,000 for Supplemental Work Additions (SWA’s). SWA shall be utilized to incorporate cost changes for any additional authorized work into the scope of work up to the amount budgeted above. Contract change orders shall be enforced for contract changes over and above this amount. These SWA’s shall authorize the Contractor to perform additions to work, but the Contractor shall perform no work until written authorization has been delivered to the Contractor by the City. Contractor should not expect that any SWA’s will be issued; SWA’s shall be issued at the discretion of the City only.

The value of any work covered by a SWA shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the item involved (subject to the provisions of General Conditions, paragraphs 11.9.1 through 11.9.3, inclusive).
2. By mutual acceptance of a lump sum by Contractor and the City.
3. On the basis of invoices plus a 10% Contractor’s Fee for overhead and profit.
4. On the basis of time and materials.

PART 2 – PRODUCTS

2.01 STORED MATERIALS

- A. Partial payment shall be made for approved materials stored at the project site, provided invoices for said materials are furnished in accordance with payment request submittal and shop drawings for said materials have been approved.

PART 3 – EXECUTION

NOTE TO CONTRACTOR: The contractor is expected to provide all Items not described

specifically below or in the **BID FORM**, but that are shown, described, or inferred in the **Plans and Specifications**. Such items are deemed “**incidental**” and should be included in the item of the Contractor’s choice or in the item to which it pertains. “**Incidental**” items include but are not limited to all required bonds, removal and replacement of driveway pipes, removal & replacement of fence, and removal & replacement of mailboxes and signs. Items that are not considered “**incidental**” are called out and described below.

3.01 MANHOLE REHABILITATION

- A. Measurement: Manhole rehabilitation shall be measured from the invert of the outlet sewer pipe to the top of manhole casting.
- B. Payment: Payment for manhole rehabilitation will be on the basis of the unit price per vertical foot. Payment shall include all materials, labor, and equipment necessary for a completely rehabilitated manhole, including but not limited to surface preparation, application of materials, and curing.

3.02 SANITARY SEWER POINT REPAIR

- A. Measurement: Measurement for sanitary sewer point repairs will be made based on the number of repairs for each size pipe.
- B. Payment: Payment for sanitary sewer point repair will be made at the unit price given in the **BID FORM** and will include all labor, materials, and equipment necessary for installation complete. Specifically, payment shall include but not be limited to excavation, dewatering, cutting and removal of damaged pipe section, disposal costs, bedding stone, new sewer pipe, any fittings or couplings required to make connection to existing sewer main, and backfill. Payment for pavement removal and replacement (if applicable) will be made separately.

3.03 CURED-IN-PLACE PIPE (CIPP)

- A. Measurement
 - a. Cured-in-Place Pipe (CIPP): Measurement for cured-in-place pipe will be on the basis of the length in linear feet of pipe of various size classifications. Measurement will be made along the centerline of the pipe from center of manhole to center of manhole.
 - b. Service Reinstatement on CIPP Main: Measurement for service reinstatement on CIPP Main will be on the basis of each existing service that must be reconnected to the CIPP main robotically.
 - c. Cut-out Protruding Service: Measurement for cutting-out protruding services will be on the basis of each existing service that must be cut from the interior

of the existing pipe (robotically) prior to installing the cured-in-place pipe.

B. Payment

- a. Cured-in-Place Pipe (CIPP): Payment for cured-in-place pipe will be made at the unit price per linear foot given in the BID FORM for the appropriate size classification. Payment shall include all materials, labor, tools, equipment, cleaning and preparation of the existing pipeline, excavation and all other work necessary to install and cure the liner.
- b. Service Reinstatement on CIPP Main: Payment for service reinstatement will be made at the unit price given in the BID FORM for each service connection that must be reinstated. Payment shall include all materials, labor, tools, and equipment necessary to robotically reinstate the services from the interior of the new pipe with no disturbance to the ground above the pipe.
- c. Cut-Out Protruding Service: Payment for cutting-out protruding services will be made at the unit price given in the BID FORM for each service that must be cut. Payment shall include all materials, labor, tools, and equipment necessary to robotically cut the protruding service from the interior of the pipeline prior to installing the cured-in-place pipe.

3.04 GRANULAR AGGREGATE BASE (GAB)

- A. Measurement: Measurement for Granular Aggregate Base (GAB) shall be on the basis of square yardage of GAB used.
- B. Payment: Payment for Granular Aggregate Base (GAB) shall be on the basis of the unit price in the BID FORM. Payment shall include all labor, materials, tools and equipment necessary for complete installation as detailed on the plans.

3.05 ASPHALT REMOVAL & REPLACEMENT

- A. Measurement: Measurement for Asphalt Removal & Replacement shall be on the basis of the square yardage of asphalt removed and replaced.
- B. Payment: Payment for Asphalt Removal & Replacement shall be on the basis of the unit price bid in the BID FORM. Payment shall include all materials, labor, and equipment necessary for the sawcutting and removal of asphalt for construction purposes and replacement upon completion. Finished asphalt should match existing conditions. Any hauling and disposal costs shall also be included under this pay item.

3.06 CURB & GUTTER REMOVAL & REPLACEMENT

- A. Measurement: Measurement for curb and gutter removal and replacement shall be on the basis of the linear feet of curb and gutter removed and replaced as measured along the center line of gutter.
- B. Payment: Payment for removal and replacement of curb and gutter shall be on the basis of the unit price bid in the BID FORM regardless of the width of curb and gutter removed or replaced. Payment shall include all labor, equipment, materials, bedding, concrete, forms, and appurtenances necessary to sawcut and remove the existing curb and gutter and replace it as specified in the plans and specifications. Payment shall also include all hauling, disposal fees, excavation, and backfill required.

3.07 ASPHALT OVERLAY (1 ½")

- A. Measurement: Measurement for asphalt overlay (1 ½") shall be on the basis of the tons of asphalt used.
- B. Payment: Payment for asphalt overlay (1 ½") shall be on the basis of unit price in the BID FORM. Payment shall include all labor, materials, tools and equipment necessary for complete installation as detailed on the plans.

3.08 TOP HAT SERVICE REHABILITATION

- A. Measurement: Measurement for top hat service rehabilitation shall be on the basis of each installed.
- B. Payment: Payment for top hat service rehabilitation shall be on the basis of the unit price in the BID FORM. Payment shall include installing the top hat service and any necessary equipment for a proper installation.

3.09 TRAFFIC CONTROL

Payment for traffic control shall be at the lump sum price given in the BID FORM and shall include all labor, materials, and equipment required to adhere to the latest MUTCD standards published by the DOT during construction.

3.10 GROUT (TO FILL ABANDONED SEWER MAIN)

- A. Measurement: Measurement for grout shall be on the basis of the cubic feet of grout used.
- B. Payment: Payment for grout will be made at the unit price per cubic foot given in the BID FORM. Payment shall include all labor, materials, and equipment necessary to pump grout into the abandoned sewer main.

3.11 PLUG EXISTING SEWER PIPE

- C. Measurement: Measurement for plugging existing sewer mains shall be on the basis of the number of locations for each size pipe.
- D. Payment: Payment for plugging an existing sewer pipe shall be made at the unit price given in the BID FORM and shall include all materials, labor, and equipment required to plug the existing sewer pipe permanently.

3.12 CLEANOUT

- A. Measurement: Cleanouts shall be measured on the basis of each installed for the various sizes shown in the BID FORM.
- B. Payment: Payment for cleanouts will be on the basis of the unit price per each given in the BID FORM. Payment shall include all materials, labor, and equipment necessary to excavate existing sewer service at the right-of-way line, cut existing line, install the necessary fittings (as detailed in the plans), and backfill service line. Payment shall also include any hauling and disposal costs and any coordination with homeowners.

3.13 BYPASS PUMPING

Bypass pumping will be paid for on a lump sum basis. Contractor is expected to bypass pump sewage flow as needed to keep sanitary sewer system active in project area. It will be the contractor's responsibility to assure that the project does not result in a disruption of sanitary sewer service for the duration of the project.

3.14 DOGHOUSE MANHOLE CONSTRUCTION

- A. Measurement: Doghouse manhole depth shall be measured from the invert of the outlet sewer pipe to the top of manhole casting.
- B. Payment: Payment for installing doghouse manholes will be on the basis of the unit price per vertical foot. Payment shall include installing base, barrels, cone, manhole steps, pipe connections, invert construction, grouting, excavation, soil testing, bedding, dewatering, and backfilling necessary to install the manhole.

3.15 MANHOLE RING & COVER

- A. Measurement: Manhole rings and covers shall be measured on the basis of each installed.

- B. Payment: Payment for installing manhole rings and covers will be on the basis of the unit price in the BID FORM. Payment shall include installing the ring and cover, including grouting as necessary for a proper installation.

3.16 REBUILD MANHOLE BENCH & INVERT

- A. Measurement: Measurement for rebuilding manhole bench & invert shall be based on the number of manholes that have their inverts rebuilt.
- B. Payment: Payment for rebuilding manhole bench and invert will be made at the unit price bid per manhole and shall include all materials, labor, and equipment necessary to rebuild the manhole invert, including but not limited to demolition of existing invert, removal and disposal of existing invert, cleaning, rebuilding, and grouting.

3.17 GRASSING

- A. Measurement: Grassing will be measured based on the total area (in acres) that must be grassed.
- B. Payment: Grassing will be paid for at the unit price per acre given in the BID FORM. Payment shall include all costs for grassing and mulching, including soil amendments, establishment of temporary grassing, establishment of permanent grassing, mulching with straw, watering, mowing, maintenance, etc

3.18 UNSUITABLE SOIL REPLACEMENT

- A. Measurement: Measurement for unsuitable soil will be made on the basis of cubic yardage of unsuitable soil hauled-off and replaced. The cubic yardage will be calculated by multiplying the width of the replaced material (in feet) by the length of the replaced material (in feet) by the depth of the replaced material (in feet) and dividing by 27 to convert from cubic feet to cubic yards. The presence of unsuitable material in the excavation shall be verified in the field by the Engineer prior to proceeding with the work and approved in writing.
- B. Payment: Payment for unsuitable soil replacement will be made at the unit price bid per cubic yard for the actual cubic yardage of unsuitable material replaced. Payment shall include all labor, materials, and equipment necessary to remove the unsuitable material and replace it with appropriate fill material. Payment includes but is not limited to excavation, removal, hauling, disposal, replacement material, backfilling, and compaction.

3.19 TRENCH STABILIZATION

- A. Measurement: Measurement of trench stabilization will be on the basis of the number of tons of gravel placed as determined by the Engineer. This item will be paid only when the Engineer directs its use and is approved in writing before this

work occurs. All other excess excavation and borrow material used by the Contractor shall be at his expense.

- B. Payment: Payment for furnishing and placing trench stabilization and removing unsuitable material shall be on the basis of the unit price per ton in the BID FORM. Payment shall include removal and disposal of unsuitable material and furnishing, placing and compacting trench stabilization. Contractor must include weigh tickets with monthly pay request in order to be paid for trench stabilization.

END OF SECTION

**SECTION 01200
PROJECT MEETINGS**

PART 1 – GENERAL

1.01 GENERAL

- A. Project meetings will be held on site as often as deemed necessary by the Engineer or his representative throughout the construction period. Meetings will normally be held monthly around the first of each month. Contractor's representatives shall attend.

The purpose of the meetings will be to discuss schedule, progress, coordination, submittals, and job-related problems and to approve Contractor's Pay Estimate.

PART 2 – PRODUCTS: - NOT USED

PART 3 – EXECUTION: - NOT USED

END OF SECTION

**SECTION 01300
SUBMITTALS**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Submittal Procedures
- B. Construction Progress Schedules
- C. Product Data
- D. Shop Drawings
- E. Samples
- F. Design Data
- G. Test Reports
- H. Certificates
- I. Manufacturer's Instructions
- J. Manufacturer's Field Reports
- K. Erection Drawings

1.02 RELATED SECTIONS

- A. Section 01701 – Contract Closeout Procedures– Contract warranties, manufacturers' certificates, and closeout submittals.

1.03 SUBMITTAL PROCEDURES

- A. Deliver submittals to Engineer in acceptable form.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix. Resubmit as specified for initial submittal. Indicate on revised drawings all changes which have been made other than those requested by the Engineer.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail

number, and specification section number, as appropriate.

- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction work and coordination of information is in accordance with the requirements of the work and Contract Documents. Submittal without the Contractor's stamp will be returned to Contractor without Engineer's review.
- E. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal. Coordinate submission of related items. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed work.
- G. Provide space for Contractor and Architect/Engineer review stamps.
- H. When revised for resubmission, identify all changes made since previous submission.
- I. Distribute copies of reviewed submittals to concerned. Instruct recipients to promptly report any inability to comply with requirements.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in triplicate within 15 days after date established in Notice to Proceed.
- A. After reviewed by the Engineer, revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a computer generated or horizontal bar chart with separate line for each major portion of work or operation, identifying first workday of each week.
- A. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- B. Indicate estimated percentage of completion for each item of work at each

submission.

- C. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by Allowances.

1.05 PRODUCT DATA

- A. Product Data for Review:
 - 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, provide copies and distribute in accordance with Submittal Procedures article above.
- B. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Engineer.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, distribute in accordance with the Submittal Procedures article above.

1.06 SHOP DRAWINGS

- A. Contractor shall submit a minimum 6 copies of each shop drawing to the Engineer for review.
- B. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents. Review of shop drawings by Engineer shall not relieve Contractor of his responsibility for the accuracy of the shop drawings for the furnishing of all materials and equipment required by the contract even though such items may not be indicated on the shop drawings reviewed by Engineer.
- C. Shop drawings shall include applicable technical information, drawings, diagrams, performance curves, schedules, templates, calculations, instructions, measurements

and similar information as applicable to the specific item for which the shop drawing is prepared.

- D. Do not use Engineer's Drawings for shop or erection purposes.
- E. Each shop drawing copy shall bear a Contractor's stamp showing they have been checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor without review.
- F. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the Contractor's responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the Engineer.
- G. Schedule of Submittals – Within 30 days of Contract award and prior to any shop drawing submittal, the Contractor shall submit a schedule showing the estimated submittal date and the desired approval date for each shop drawing anticipated. Time lost due to unacceptable submittals shall be the Contractor's responsibility.

1.07 SAMPLES

- A. Samples for Review -
 - 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above.
- B. Samples for Information –
 - 1. Submitted for the Engineer's knowledge as contract administrator or for the Owner.
- C. Include identification on each sample, with full Product information.
- D. Submit the number of samples specified in individual specification sections; one of which will be retained by Engineer.
- F. Review samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.08 DESIGN DATA

- A. Submit for the Engineer's knowledge as contract administrator or for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.09 TEST REPORTS

- A. Submit for the Engineer's knowledge as contract administrator or for the owner.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified for product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTION

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Engineer's benefit as contract administrator or for the Owner.
- B. Submit report in duplicate within 15 days of observation to Engineer for information.
- C. Submit for information for the limited purpose of assessing conformance with

information given and the design concept expressed in the contract documents.

1.13 ERECTION DRAWINGS

- A. Submit drawings for the Engineer's benefit as contract administrator or for the Owner.
- B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- C. Data indicating inappropriate or unacceptable work may be subject to action by the Engineer or Owner.

1.14 REVIEWED SHOP DRAWINGS

- A. Engineer Review –
 - 1. Acceptable submittals will be marked "Approved." A minimum of three copies will be retained by the Engineer for Engineer's and the Owner's use and the remaining copies will be returned to the Contractor.
 - 2. Submittals requiring minor corrections before the product is acceptable will be marked "Furnish as Corrected." The Contractor may order, fabricate and shop the items included in the submittals provided the indicated corrections are made.
 - 3. Submittals marked "Revise and Submit" must be revised to reflect required changes and the initial review procedure repeated.
 - 4. The "Rejected" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.
 - 5. Only two copies of items marked "Revise and Submit" and "Rejected" will be reviewed and marked. One copy will be retained by the Engineer and the other copy with all remaining unmarked copies will be returned to the Contractor for resubmittal.
- B. No work or products shall be installed without a drawing or submittal bearing the "Approved" or "Furnish as Corrected" notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.
- C. Substitutions – In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the Contract Documents,

the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.

- D. Use of the "Approved" or "Furnish as Corrected" notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Contractor of the responsibility of errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

PART 2 – PRODUCTS: - NOT USED

PART 3 – EXECUTION: - NOT USED

END OF SECTION

**SECTION 01516
TEMPORARY SANITARY FACILITIES**

PART 1 GENERAL

1.01 SCOPE

- A. This section is intended to include requirements for temporary sanitary facilities provided by Contractor, including provisions for Contractor's use of existing and permanent facilities.

1.02 REQUIREMENTS INCLUDED

- A. Temporary Sanitary Facilities
- B. Maintenance and Service
- C. Removal
- D. Cleaning

1.03 USE OF EXISTING FACILITIES

- A. Use of the Owner's existing or new facilities is prohibited. The Contractor will be required to provide their own portable facilities.

1.04 USE OF PORTABLE FACILITIES

- A. Contractor shall provide portable sanitary facilities at such places as approved by the Owner.
- B. Contractor shall pay all costs for installation, maintenance, and removal of temporary sanitary facilities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials may be new or used, adequate to the purpose, which will not create unsanitary conditions.

2.02 TOILET FACILITIES

- A. Enclosed portable self-contained units or temporary water closets and urinals, secluded from public view.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Provide facilities at time of site mobilization.
- B. Modify and extend service as work progresses.

3.02 MAINTENANCE AND SERVICE

- A. Clean areas of facilities weekly and maintain in a sanitary condition.
- B. Provide toilet paper, paper towels, and soap in suitable dispensers.

3.03 REMOVAL

- A. Remove portable units when other facilities are available or prior to Substantial Completion.

END OF SECTION

**SECTION 01560
ENVIRONMENTAL CONTROLS**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall furnish all material and labor for the installation and maintenance of the environmental control measurements throughout the project.

1.02 SITE MAINTENANCE

- A. The Contractor shall keep the work site clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

1.03 TEMPORARY DAMS

- A. Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as they are no longer necessary.
- B. Dams shall not interfere with the existing storm drainage system.

1.04 AIR POLLUTION CONTROL

- A. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. The Contractor shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods.

1.05 NOISE CONTROL

- A. Between 7:30 PM and 7:00 AM, noise from Contractor's operations shall not exceed limits established by applicable laws or regulations and in no event shall exceed 86 dBA at a distance of 50 feet from the noise source.

1.06 EROSION CONTROL

- A. All points of concentrated runoff from rainfall shall be visually monitored to determine that no eroded material from the construction site is being deposited in the adjacent ditches, lakes and streams. Measures shall be taken to promptly eliminate such a deposition if occurring, including the installation of detention ponds.
- B. Comply with all applicable requirements of Section 02370 – Soil Erosion and Sediment Control of these Specifications.

PART 2 PRODUCTS: - NOT USED

PART 3 EXECUTION: - NOT USED

END OF SECTION

**SECTION 01570
TRAFFIC CONTROL**

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall furnish all materials and labor for the installation and continuous maintenance of traffic control devices throughout the project.
- B. This item of work shall include furnishing, installing, maintaining, relocating and removing all traffic control devices used for the purpose of regulating, warning or directing traffic during the construction or maintenance of this project.
- C. Upon completion of work, warning devices are to be removed by the Contractor. If devices remain on site longer than ten (10) days after project completion, they shall be removed by the Owner and become his property.

1.02 SAFETY

- A. The governing factor in the execution and staging of work for this project is to provide the public with the safest possible travel conditions along the roadway through the construction zone. The contractor shall arrange his operation to keep the closing of any lane of a roadway to an absolute minimum.
- B. No work shall be started on any phase of the project until all appropriate traffic control devices are in place and in operation.
- C. Contractor is to take all practical precautions to maintain traffic flow, and provide safety of workers and the general public.
- D. At the end of each workday, contractor is to clear the roadway of all dirt and debris and add additional safety devices to maintain safe travel lanes.
- E. When not in use, all traffic control devices shall be removed, placed or covered so as not to be visible to traffic.

1.03 REFERENCES

- A. Manual for Uniform Traffic Control Devices (MUTCD) (latest edition).
- B. GDOT Standard Specifications for Construction of Roads and Bridges (latest edition), Section 150.
- C. GDOT Standard Construction Details (latest edition).

- D. GDOT Construction Permits

PART 2 – PRODUCTS

2.01 PRODUCTS

- A. Traffic Control Devices include – signs and their supports, signals, pavement markings, barricades with sand bags, channelizing devices, warning lights, arrowboards, flaggers, or any other device used for the purpose of regulating, warning or guiding traffic through the construction zone.
- B. All Traffic Control Devices used on this project shall conform to the plans, GDOT Construction Permit requirements, DOT Construction Details and Specifications, and MUTCD. No modifications will be allowed without prior written approval of the Engineer.
- C. Traffic Control Devices shall be in proper, acceptable condition when in use. Devices which are unclear, damaged, or not correctly positioned shall be promptly restored to fully operational condition.

PART 3 – EXECUTION

3.01 EXECUTION

- A. Contractor is to either prepare and provide a traffic control plan for the Engineer’s review prior to the Preconstruction Meeting, or utilize the prepared traffic control plan when provided with the drawings or when provided in the D.O.T. permit.
- B. The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices. Special attention shall be given to advance warning signs during construction operations in order to keep lane assignment consistent with barricade placement at all times. The Contractor shall cover all Traffic Control Devices which are inconsistent with detour or lane assignment patterns during the transition from one construction stage to another.
- C. Construction signs referring to daytime lane closures during working hours shall be removed or covered during non-working hours.
- D. When applicable the Contractor shall coordinate all traffic control work on this project with adjoining or overlapping projects, including barricade placement necessary to provide a uniform traffic detour pattern. When directed by the Engineer, the contractor shall remove all Traffic Control Devices which were

furnished, installed and maintained by him under this contract, and such devices shall remain the property of the Contractor.

- E. The Contractor shall ensure all Traffic Control Devices installed by him are operational 24 hours a day, including weekends and holidays. Provide additional inspections at regular intervals.
- F. When traveling in lanes open to public traffic, the Contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner which will not be hazardous to, or interfere with, traffic and shall not park or stop except within designated work areas. Personal vehicles shall not park within the right of way except in specific areas designated by the Engineer.
- G. Private driveways and parking areas shall be accessible at all times unless temporary closings are necessary for construction work and the contractor has notified the affected individuals and has approval from them.
- H. If trenches are to remain open overnight, or for an extended period of time, Contractor is to provide heavy-duty cover plates to allow vehicles access.
- I. Delays to the Contractor caused by complying with these requirements will be considered incidental to the item for traffic control and protection, and no additional compensation will be allowed.
- J. Where flaggers are required, they are to be adequately trained and qualified for the job.

END OF SECTION

**SECTION 01701
CONTRACT CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Administrative provisions for Substantial Completion and for final acceptance.

1.02 RELATED REQUIREMENTS

- A. Section 01720 – Project Record Documents

1.03 SUBSTANTIAL COMPLETION

- A. When the Contractor considers the work substantially complete, he shall prepare a punch list of uncompleted items and send to the Engineer for review. At the same time, the Contractor shall request in writing that the Engineer schedule a pre-final inspection.
- B. The Engineer will review the punch list submitted by the Contractor and determine if the project is substantially complete.
- C. If the Engineer determines that the project is not substantially complete, he will notify the Contractor in writing which items need to be finished before the project can be considered substantially complete. The Contractor shall continue working to complete all punch list items and resubmit a revised punch list when he considers the work is substantially complete.
- D. When the Engineer determines that the work is substantially complete, he will schedule a pre-final inspection with the Owner, Contractor and Engineer. A final punch list will be prepared at this time.
- E. After all punch list items have been completed, the Contractor shall send a request in writing to the Engineer to schedule a final inspection. When all punch list items are complete, the Engineer will issue a certificate of substantial completion.

1.04 FINAL COMPLETION

- A. When the Contractor considers that all of the work is complete, he shall submit the following certificates:

1. All work has been completed and inspected for compliance with the Contract Documents and all deficiencies listed with the certificate of substantial completion have been corrected.
 2. All equipment and systems have been tested, adjusted and are fully operational.
 3. Owner's personnel have been fully instructed in the operation of all equipment (include sign off for each system).
 4. Work is complete and ready for final inspection.
- B. Should Engineer's inspection find work incomplete, he will promptly notify Contractor in writing listing observed deficiencies. **See Paragraph 1.05 regarding reinspection fees.**
- C. Contractor shall remedy deficiencies and send a request for another final inspection.
- D. When Engineer finds work is complete, he will process final pay request documents.

1.05 REINSPECTION FEES

- A. Should status of completion of work require reinspection by Engineer due to failure of work to comply with Contractor's claims on pre-final or final inspection, the Owner will back charge the Contractor for each extra reinspection required of the Engineer. The Contractor shall reimburse the Owner by certified check prior to final payment of retainage.

1.06 CLOSEOUT SUBMITTALS

- A. Evidence of Compliance with Requirements of Governing Authorities –
1. Certificate of Occupancy as required by local codes.
 2. Certificates of Inspection approvals required for plumbing, mechanical and electrical systems as required by local codes if applicable.
 3. Completed "Project Close Out" form as presented at the end of this section.

- B. Project Record Documents – Under provisions of Section 01720.
- C. Keys and Keying Schedule.
- D. Evidence of Payment and Release of Liens – In accordance with Conditions of the Contract.
- E. Consent of Surety to Final Payment – Consent of Surety is to be sent by Surety directly to Carter and Sloope to the attention of the Project Engineer.

1.07 APPLICATION FOR FINAL PAYMENT

- A. Prior to application for final payment, the Contractor shall give the Engineer a list of all additions or deletions not previously approved by change order.
- B. The Engineer will review this list and prepare a final closeout change order for the items that are justified by the terms of the contract or approved by field order.
- C. After approval of the final closeout change order the Contractor may submit his application for final payment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SECTION 01720
PROJECT RECORD DOCUMENTS**

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintenance of Record Documents and Samples.
- B. Submittal of Record Documents and Samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. In addition to requirements in General Conditions, Maintain at the site for Owner, two record copies of:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Approved Change Orders, field orders or other modifications to the Contract
 - 5. Approved shop drawings, product data, and samples
 - 6. Field test records
 - 7. Inspection Certificates
 - 8. Manufacturer's certificates
- B. Store Record Documents and samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples. Records should be stored in a clean dry area with easy access.
- C. Document Files –
 - 1. Contract Drawings shall be maintained in a hanging stickfile.

2. Specifications, addenda and Change Orders shall be filed in a “Banker Box” type file with hanging file folders.
 3. Shop drawings shall be filed in “Banker Box” hanging file with a separate file folder for each item. The Contractor shall maintain an index of shop drawings in the first folder. Each folder shall be labeled with the name of the item and the specifications and/or drawing number.
 4. Field tests and inspection certificates shall be maintained in separate file folders.
 5. All labels or indexes shall be typed or printed.
- D. Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and samples available for inspection by Engineer.

1.03 RECORDING

- A. Record information on clean sets of blue line opaque drawings and contract specifications. Label each sheet of the Project Record Drawings in the lower right corner with the neatly printed words “PROJECT RECORD DRAWINGS.”
1. Two (2) sets of Contract Documents and Drawings will remain clean without mark-up for record purposes. Contractor shall use an additional set for marking measurements, on-site changes, items of construction that are actually used, and other conditions as they are encountered during the course of the Work. This marked-up set of Contract Documents and Drawings shall consist of red-lined copies of plans and shop drawings, shall indicate actual field dimensions, shall represent the work as actually constructed, and shall be recorded on a daily basis. Failure to produce these records on request of Engineer or Owner shall constitute grounds to halt construction with no time extension until steps are taken to see that these records are being properly made.
- B. Provide colored pens or pencils for marking each description of work.
1. The Contractor shall provide colored pencils for marking record copies of Contract Drawings and Specifications. Use a different colored pencil for each of the following:

(Example)

- | | | |
|-----|-------------------------|--------|
| (a) | Architectural Work | Red |
| (b) | Plumbing work | Green |
| (c) | HVAC Work | Blue |
| (d) | Electrical Work | Orange |
| (e) | Other written notations | Brown |

2. Establish a color code denoting what trade will use what color, and show this on a schedule on the front sheet of the ‘PROJECT RECORD DOCUMENTS’.

C. Record information concurrently with construction progress. **DO NOT CONCEAL ANY WORK UNTIL REQUIRED INFORMATION IS RECORDED.**

D. Contract Drawings and Shop Drawings – Legibly mark each item to record actual construction, including:

1. Measured depths of elements of foundation in relation to finish first floor or benchmark.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Use stations and offsets or coordinates.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
4. Field changes of dimension and detail.
5. Changes made by Modifications.
6. Details not on original Contract Drawings.
7. References to related shop drawings and Modifications.

E. Prior to final construction inspection, Contractor shall furnish to Engineer two (2) neatly marked sets of construction plans which accurately depict the conditions and records all changes made during construction. Engineer shall promptly notify Contractor in writing if additional information is required.

- F. Other Documents – Maintain manufacturer’s certifications, inspection certifications, and field test records, required by individual Specification sections.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02315
EXCAVATION, TRENCHING AND BACKFILL FOR UTILITY SYSTEMS

PART 1 GENERAL

1.01 SCOPE

- A. Furnish all labor, materials, equipment and incidentals necessary to perform all excavation, trenching and back fill required to complete the work shown on the Drawings and specified herein. The work shall include, but is not limited to, excavation for manholes, vaults, electrical manholes, hand holes, conduits, cables, raceways and ducts and pipes; all backfilling, embankment and grading; disposal of waste and surplus materials; and all related work such as sheeting, bracing and dewatering.
- B. Obtain materials required for backfill, fill, or embankments in excess of that available on the site from other sources. Include all costs of obtaining off-site materials in the contract price for the work to which it pertains.

1.02 RELATED WORK

- A. Section 02530 – Sanitary Sewer Collection System
- B. Section 02920 – Grassing

1.03 REFERENCES

- A. American Society for Testing and Materials.

1.04 TESTING SERVICES

- A. The Contractor shall obtain the service of a certified testing service to perform all compaction tests specified herein. The cost of these services shall be at Contractor's expense and shall be factored into his unit prices as outlined in the Bid Schedule.
- B. Soil testing shall be performed by an accredited testing laboratory selected by the Contractor and approved by the Owner in accordance with Section 01410. Tests shall be performed in accordance with applicable ASTM or AASHTO standard methods, unless otherwise specified.
- C. All materials to be used in the work shall be tested prior to the use to show conformance with the requirements of these specifications. Test reports shall be

delivered to the Engineer in duplicate prior to use of any material in the work.

- D. Materials being used in the work, which have been tested previously, may be subjected to further tests from time to time and may be rejected if found defective. Rejected materials shall be removed from the project immediately, notwithstanding the results of former tests to which they have been subjected.
- E. Soil tests shall be performed on subgrades prior to the placement of fill or backfill materials. Tests shall also be performed immediately after the placement of each layer of fill or backfill materials to show conformance with the field density and optimum moisture requirements of these specifications. No additional layers shall be placed until the density of each layer has been approved.
- F. If the Engineer determines, based on tests reports and inspections, that subgrades or layers which have been placed are below the specified density, the Contractor shall provide additional compaction and testing at no additional expense to the Owner.

1.05 PROTECTION

A. Sheeting and Bracing

- 1. Furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of excavations, to prevent any movement which could in any way diminish the ridge of the excavation below that necessary for proper construction, and to protect adjacent structures from undermining or other damage. If the Engineer is of the opinion that at any points sufficient or proper supports have not been provided, he may order additional supports put in at the expense of the Contractor, and compliance with such order shall not relieve or release the Contractor from his responsibility for the sufficiency of such supports. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed. Where soil cannot be properly compacted to fill a void, lean concrete shall be used as backfill at no additional expense to the Owner. Sheeting and Bracing requirements are further defined in OSHA Standards, Subpart P, Part 1926 of the Code of Federal Regulations.
- 2. The Contractor shall construct the sheeting outside the neat lines of the foundation unless indicated otherwise to the extent he deems it desirable for his method of operation. Sheeting shall be plumb and securely braced and tied in position. Sheeting and bracing shall be adequate to withstand all pressures to which the trench will be subjected. Any movement or

bulging which may occur shall be corrected by the Contractor at his own expense so as to provide the necessary clearances and dimensions.

3. Where sheeting and bracing is required to support the sides of excavations, the Contractor shall engage a Professional Engineer, registered in the State of Georgia to design the sheeting and bracing. The sheeting and bracing installed shall be in conformity with the design, and certification of this shall be provided by the Professional Engineer.
4. The Contractor shall leave in place to be embedded in the backfill all sheeting and bracing not shown on the Drawings but which the Engineer may direct him in writing to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities, or property, whether public or private. The Engineer may direct that timber used for sheeting and bracing be cut off at any specified elevation. The contractor will be paid for such sheeting directed by the Engineer to be left in place in accordance with the General Conditions. All timber sheeting to be left in place shall be treated.
5. All sheeting and bracing not left in place shall be carefully removed in such manner as not to disturb utilities, or property. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, or otherwise as acceptable to Engineer and Owner.
6. The right of the Engineer to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders, and his failure to exercise his right to do so shall not relieve the Contractor from liability for damages to persons or property occurring from or upon the work on the part of the Contractor to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.
7. No sheeting is to be withdrawn if driven below mid-diameter of any pipe, and under no circumstances shall any sheeting be cut off at a level lower than 1 ft above the top of any pipe. The cost of said sheeting shall be part of the base bid.

B. Dewatering and Drainage

1. The Contractor shall at all times during construction provide and maintain proper equipment and facilities to remove all water entering excavations, and shall keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fills, structures or

pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural levels. The Contractor shall engage a Geotechnical Engineer, Registered in the State of Georgia where required, to design the dewatering system. The Contractor shall submit to the Engineer for review the design of the dewatering systems prior to commencing work.

2. The Contractor shall furnish, install, maintain, operate and remove a temporary dewatering system consisting of trenches, sump pits, deep wells, well points, or other methods as required to lower and control the groundwater level so that the pipes may be installed in the dry. The Contractor shall assume full responsibility for the design and installation of an adequate dewatering system. The Contractor shall, at his own expense, correct all damage resulting from inadequacy of the dewatering system or from flooding of the construction site from other causes.
3. The Contractor shall maintain the water level below the excavated area for the various phases of the work continuously and shall make such provisions as may be necessary to avoid interruptions due to weather, labor strikes, power failures, or other delays. He shall provide and have ready for immediate use at all times diesel or gasoline powered standby pumping units to serve the system in case of failure of the normal pumping units.
4. Piping and boiling, or any form of uncontrolled seepage, in the bottom or sides of the excavation shall be prevented at all times. If for any reason the dewatering system is found to be inadequate to meet the requirements set forth herein, the Contractor shall at his own expense make such additions, changes and/or replacements as necessary to provide a satisfactory dewatering system.
5. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation. Well or sump installations shall be constructed with proper sand filters to prevent drawing of finer grained soil from the surrounding ground.
6. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and pumped from the excavation to maintain a bottom free from standing water.
7. The Contractor shall take all additional precautions to prevent uplift

during construction. The Contractor shall maintain the groundwater level below the pipe so flotation is prevented.

8. Drainage water shall be disposed of through a desilting basin which will prevent the discharge of sediment into any surface waters or existing drains, and to prevent flow or seepage back into the excavated area.
9. Flotation shall be prevented by the Contractor by maintaining a positive and continuous operation of the dewatering system. The Contractor shall be fully responsible and liable for all damages which may result from failure of this system.
10. Removal of dewatering equipment shall be required; the material and equipment constituting the system shall be removed by the Contractor.
11. The Contractor shall take all necessary precautions to preclude the accidental discharge of fuel, oil, etc. in order to prevent adverse effects on groundwater quality.

C. Culverts and Ditches

1. Protect drainage culverts from damage. If damaged, restore to satisfactory condition at no cost to the Owner.
2. If it is necessary to remove a culvert, do not replace until the proposed pipeline is installed and trench backfilled and compacted to the subgrade of the culvert. Replace culverts to the line and grade established by the Owner.
3. Backfill minor drainage ditches so that the upper one-foot of material between ditch banks is topsoil, loam, or clay.
4. Compact this material for the full ditch width to a minimum of 95% of maximum density as determined by ASTM D 1557.
5. Ditches steeper than 2:1 slope shall be protected and reinforced with a synthetic fiber or grid material. Contractor has the option not to use reinforcement for slopes 2:1 or flatter. Correct any ditch erosion occurring as a result of pipeline construction at no cost to the Owner.

D. Water, Gas, Telephone, Power, Cable

1. Protect all other utilities from damage. Notify utility owner prior to start of excavation as directed in section 4.04 of the General Conditions. If, during the work, the utility is damaged, notify the utility company and the Owner immediately. Do not attempt to repair or replace damaged utilities unless so directed by the utility company and approved by the Engineer. Payment for restoration of damaged utilities shall be the Contractor's responsibility.

1.06 JOB CONDITIONS

A. Soils

1. The contractor shall examine the site and review the available test borings or undertake his own soil borings prior to submitting his bid, taking into consideration all conditions that may affect his work. The Owner and Engineer will not assume responsibility for variations of subsoil quality or conditions at locations other than places shown and at the time the investigation was made. The Contractor shall accept the site in its existing condition, and shall assume the risk of encountering whatever materials as may occur. Refer also to the paragraph of Differing Site Conditions, in the Supplementary Conditions. The soil borings, if furnished, are indicative of the soils encountered at the particular location of the borings at the time the borings were taken. The Contractor shall make his own determination of the soil structure and site conditions as it may affect the work.

B. Existing Utilities

1. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
2. Should uncharted, or incorrectly charted, piping appear in the excavation, consult the Engineer and the Owner of such piping or utility immediately for directions.
3. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
4. Demolish and completely remove from site existing underground utilities indicated on the Drawings to be removed.

C. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.
2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1.07 SUBMITTALS

- A. Submit to the Engineer for review in accordance with Section 01300 the proposed methods of construction, including dewatering, excavation, filling, compaction, and backfilling for the various portions of the work. Review shall be for method only. The Contractor shall remain responsible for the adequacy and safety of the methods.
- B. Submit to the Engineer for review in accordance with Section 01300 representative samples of each type of proposed fill material weighing approximately 50 lbs at least 15 days prior to the date of anticipated use of such material.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Backfill materials shall be natural or processed mineral soils, blasted and crushed rock, or masonry rubble. Fill materials shall be free of all organic material, trash, snow, ice, frozen soil or other objectionable materials. Clay soils having a natural in-place water content in excess of 30 percent are considered unsuitable for stockpiling and/or future use. Fill materials to be used have been classified under categories specified below.
- B. Embedment materials listed here include a number of processed materials plus the soil types defined by the USCS Soil Classification Systems in ASTM D2487. These materials are grouped into categories according to their suitability for this application:
 1. Class I: Angular 6 to 40 mm (1/4 to 1-1/2 inches), graded stone including a number of fill materials that have regional significance such as coral, slag, cinders, crushed stone, and crushed shells. Latest revision of ASTM C33 – Gradation #57 (ASTM #57) is acceptable.

2. Class II: Coarse sands and gravels with maximum particle size of 40 mm (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.
3. Class III: Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil types GM, GC, SM and SC are included in this class.
4. Class IV: Silt, silty clays and clays including inorganic clays and silts of medium to high plasticity and liquid limits. Soil types MH, CH and CL are included in this class. These materials are not to be used for bedding, haunching or initial backfill.
5. Class V: This class includes the organic soils OL, OH and PT as well as soils containing frozen earth, debris, rocks larger than 40 mm (1-1/2 inches) in diameter, and other foreign materials. These materials shall not be used for bedding, haunching or initial backfill.

C. Granular Fill, shall be sound, hard, durable crushed stone meeting the following gradation requirements and shall conform to ASTM C33, Size No. 57.

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
1-1/2-in	100
1-in	90-100
1/2-in	26-60
No. 4	0-7
No. 8	0-3

D. Riprap shall be sound, durable rock which is roughly rectangular shape and of suitable quality to insure permanence in the condition in which it is to be used. Rounded stones, boulders, sandstone or similar soft stone will not be acceptable. Material shall be free from overburden, spoil, shale, and organic material. Each load of riprap shall be reasonably well graded from the smallest to the maximum size specified and shall conform to State of Georgia Department of Transportation Standard Specifications Section 805. Riprap shall consist of a durable field or quarry stone shaped roughly as rectangular blocks. Riprap shall weigh between 50-100 lbs. each with at least 60 percent weighing over 100 lbs. and no more than 10 percent shall weigh 50 lbs. or less. One dimension of each exposed riprap shall be not less than 12-in. The joints in the riprap shall be filled with spalls of suitable size to construct a solid, stable slope, free from large voids and defects.

- E. Sand shall conform to ASTM Standard C33 for concrete sand.

PART 3 – EXECUTION

3.01 EXCAVATION

- A. It is the responsibility of those performing excavation and trenching to conform to all State and Federal Laws and Regulations, and local ordinances in relation to safety, life, health and property including but not limited to OSHA regulations, 29 CFR PART 1926, Subpart P, Paragraph 1926.650 through 1926.652 during all excavations and trenching. All excavations shall be adequately guarded with barricades and light in compliance with all OSHA and Georgia Department of Transportation requirements so as to protect the public from hazard. Excavations adjacent to existing or proposed buildings and structures or in paved streets or alleys shall be sheeted, shored and braced adequately to prevent undermining or subsequent settlement of such structures or pavements. Underpinning of adjacent structures shall be done when necessary to maintain structures in safe condition.
- B. The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures in the trench zone may be determined before being damaged. He shall be held responsible for the repair or replacement of such structures when broken or otherwise damaged because of his operations.
- C. The Contractor shall make explorations and excavations at no additional charge to the Owner to determine the location of existing underground structures.
- D. Utilities and other piping shall be laid in open trenches as shown and specified. Trenches shall be excavated to the designated lines and grades, beginning at the outlet end and progressing toward the upper end in each case. Trenches for pipe shall be shaped to the lower 1/3 of the pipe and provide uniform and continuous bearing. Bell holes shall be dug to allow ample room for working fully around each joint.
- E. Trenches shall be of minimum width to provide ample working space for making joints and shall be not less than the outside diameter plus 8-inches or more than the outside pipe diameter plus 24-inches. Sides of trenches shall be closely vertical to top of pipe and shall be sheet piled and braced where soil is unstable nature. Above the top of the pipe, trenches may be sloped. The ridge of the trench above this level may be wider for sheeting and bracing and the performance of the work.

- F. Trenches shall be excavated on the alignments shown on the Plans, and to the depth and grade necessary to accommodate the pipes at the elevations shown. Where elevations of the invert or centerline of a pipe are shown at the ends of a pipe, the pipe shall be installed at a continuous grade between the two elevations.
- G. Excavation in excess of the depth required for proper shaping shall be corrected by bringing to grade the invert of the ditch with compacted coarse, granular material at no additional expense to the Owner. Bell holes shall be excavated to relieve bell of all load, but small enough to ensure that support is provided throughout the length of the pipe barrel.
- H. Excavation in excess of the depths required for manholes and other structures shall be corrected by placing a subfoundation of 1500 psi concrete, at no additional expense of the Owner.
- I. If trenches are excavated to widths in excess of those specified, or if the trench walls collapse, the pipe shall be laid in accordance with the next better class of bedding at the expense of the Contractor.

3.02 TRENCHES

- A. Trenches shall be maintained in a safe condition to prevent hazardous conditions for persons working in or around the trench. It is the responsibility of those performing excavation and trenching to conform to all State and Federal Laws and Regulations, and local ordinances relating to safety, life, health and property including but not limited to OSHA regulations, 29 CFR PART 1926, Subpart P, Paragraph 1926.650 through 1926.652 during all excavations and trenching. All excavations shall be adequately guarded with barricades and light in compliance with all OSHA and Georgia Department of Transportation requirements so as to protect the public from hazard. Excavations adjacent to existing or proposed buildings and structures or in paved streets or alleys shall be sheeted, shored and braced adequately to prevent undermining of subsequent settlement of such structures or pavements. Underpinning of adjacent structures shall be done when necessary to maintain structures in safe condition.
- B. The top portion of the trench may be excavated with sloping or vertical sides to any width which will not cause damage to adjoining structures, roadways, utilities, etc. The bottom of the trenches shall be graded to provide uniform bearing and support each section of the pipe on undisturbed soil every point along its entire length, except for the portions of the pipe sections excavated for bell holes and for the sealing of pipe joints. Bell holes and depressions for joints shall be dug after the trench bottom has been graded and in order that the pipe rests

upon the trench bottom for its full length and shall be only of such length, depth and width for making the particular type of joints. The bottom of the trench shall be rounded so that at least the bottom one-third of the pipe shall rest on undisturbed earth for the full length of the barrel as jointing operations will permit. This part of the excavation shall be done manually only a few feet in advance of the pipe laying by workmen skilled in this type of work.

- C. The sides of all trenches and excavation for structures shall be held by stay bracing, or by skeleton or solid sheeting and bracing according to conditions encountered, to protect the excavation, adjoining property and for the safety of personnel. Bracing and shoring may be removed when the level of the backfilling has reached the elevation to protect the pipe work and adjacent property. When sheeting or shoring above this level cannot be safely removed, it may be left in place. Timber left in place shall be cut off at least 2 feet below the surface. No sheeting below the level of the top of the pipe may be removed.
- D. Trenches shall be kept free of water. No structure shall be built or pipe shall be laid in water, and water shall not be allowed to flow over or rise upon any concrete, masonry, or pipe until the same has been inspected and the concrete or joint materials has thoroughly set. All water pumped, bailed, or otherwise removed from the trench or other excavation shall be conveyed in a proper manner to a suitable place of discharge where it will not cause injury to the public health or to public or private property or to work completed or in progress, or to the surface of the streets or cause any interference with the use of same by the public.

3.03 PILING EXCAVATED MATERIALS

- A. All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing roadways.

3.04 LIMIT TO LENGTH OF OPEN TRENCH

- A. Pipe trenches shall not be excavated more than 400 feet in advance of pipe laying and all work shall be performed to cause the least possible inconvenience to the public. Adequate temporary bridges or crossings shall be constructed and maintained where required to permit uninterrupted vehicular and pedestrian traffic.

3.05 BEDDING OF PRESSURE PIPE

- A. A pipe for water lines and forcemains shall be laid on foundations prepared in accordance with ANSI/AWWA C600 for ductile iron pipe and AWSI/AWWA

C605 for PVC Pipe as modified herein, and in accordance with the various classes of bedding required by the trench width and trench depth for the size of pipe to be laid. The minimum bedding allowed will be Type 2 for both PVC and Ductile Iron Pipe. Bedding shall be included in the appropriate unit price bid for the work in which it pertains. Blocking shall not be used to bring the pipe to grade.

- B. Bell Holes: Bell holes shall be provided in all classes of bedding to relieve pipe bells of all load, but small enough to ensure that support is provided throughout the length of the pipe barrel.
- C. Class I materials as defined in Paragraph 2.01 shall be used for bedding and haunching for both PVC and D.I. waterlines and forcemains when rock is encountered, over excavation occurs or subgrade stabilization is required. A minimum of 6" of granular crushed stone shall be used as bedding.
- D. Overwidth Excavation: If trenches are excavated to widths in excess of those specified or if trench walls collapse, pipe shall be laid in accordance with the requirements for at least the next better class of bedding at the expense of the Contractor.
- E. Borrow Backfill: Borrow backfill will be required if there is not sufficient suitable material available from other parts of the work to backfill the trenches. Borrow backfill from approved borrow pits shall be used. Only those soils in the borrow pits that meet the specified requirements for suitable material shall be used.
- F. Compaction of foundation, bedding, haunching and initial backfill shall extend to the trench wall.
- G. Embedment material in the area around the pipe shall be installed with care. Care shall be used to ensure that sufficient material has been worked under the haunch of the pipe to provide adequate side support. Precautions must be taken to prevent movement of the pipe during placing of the material through the pipe haunch.
- H. Avoid contact between the pipe and compaction equipment. Compaction of haunching, initial backfill and backfill material shall be done in such a way so that compaction equipment will not have a damaging effect on the pipe.
- I. The trench depth shall be as shown on the plans or as required to provide the minimum depth of cover as required by the pipe manufacturer.

3.06 REMOVAL OF UNSUITABLE MATERIAL

- A. Should overdepth excavation be necessary to remove unsuitable material and to replace with satisfactory material, the Contractor will be paid for this work in accordance with Section 01025 for removal and replacement of unsuitable material, based on the following requirements:
1. When the trench is excavated to the plan depth or as required by these Specifications, and soft or other material not suitable for bedding purposes is encountered in the trench, the Contractor shall immediately notify the Engineer for inspection and measurement of the unsuitable material to be removed.
 2. No overdepth excavation or backfilling of the overdepth excavated trench shall start until proper measurements of the trench have been taken by the Engineer for the determination of the quantity in cubic yards of unsuitable material excavated. Backfill material and backfilling shall conform to the requirements specified in 3.07 below.
 3. No payment will be made for any overdepth excavation of soft unstable material due to the failure of the Contractor to provide adequate means to keep the trench dry.
 4. No payment will be made for any overdepth excavation of the unsuitable material and replacement not inspected and measured by the Engineer prior to excavation.

3.07 BACKFILLING

- A. Backfilling consists of placing suitable materials removed during the excavation into the excavated areas, placing embedment materials and compacting the same to a density equal to or greater than what exists before excavation or as specified herein.
- B. All backfill material shall be free of stones, concrete and clay lumps larger than 1/3 cubic foot. Roots, stumps and rubbish which will decompose will not be permitted in the backfill. Backfill material shall have its moisture content corrected, as may be necessary before being placed in the trench to bring the moisture content to approximately "optimum" for good compaction. Any rock, stone, concrete, clay lumps larger than 1/3 cubic foot in volume, rubbish and debris shall be removed from the site and disposed of by the Contractor in a lawful manner.

- C. **Select Backfill:** Select backfill material shall be placed below, around each side, and over the top of the pipe in approximately horizontal layers not exceeding 8-inches in thickness to a minimum height of 12-inches above the pipe crown or greater as detailed herein and on the Drawings. This initial backfill shall be placed immediately after the pipes are laid and joints have been observed by the Engineer to anchor and protect the pipe from damage by subsequent backfill and ensure the uniform distribution of the loads over the top of the pipe. Select Material shall include Class I, II, III and other approved materials. If suitable select materials are not available from trench excavation, the Contractor will be required to obtain select materials elsewhere at no additional cost to the Owner. The Contractor shall backfill both sides of the pipe simultaneously to prevent side pressures and each layer shall be compacted thoroughly with mechanical tamping equipment in such manner as not to damage the pipe, pipe joints or shift the pipe alignment. Workmen shall not be permitted to walk over the pipe until at least 12 inches of compacted fill has been placed over the pipe. The Contractor shall not use water to obtain compaction except for adding water to the backfill material before placing in the trench to bring the moisture content to approximately "optimum" for good compaction.
- D. **General Backfilling:** After initial, select backfill material has been placed and tamped, the remainder of the trench may be backfilled with general excavated material, except that no rock, unless in small shattered fragments, will be permitted to be mixed with other backfill material.
1. **Backfilling under buildings and structures:** Backfilling a pipe trench under structures and buildings consists of placing structural fill in the trench in 4 inch maximum loose lifts (if hand tamped) and 6" maximum loose lifts (if machine tamped) and compacting an area from the undercut level to the slab support level to 100% of the standard Proctor maximum dry density (ASTM D 698). No water shall be used to secure compaction except for adding water to the backfill material before placing in the trench to bring moisture content approximately "optimum" for good compaction. Each loose lift shall be tamped before additional backfill material is placed in the excavated area.
 2. **Street and Road Right – of – Way, Parking Areas, Yards and Other Traveled Areas:** Backfill shall consist of placing structural fill in the trench in uniform layers not exceeding eight inches (8") in thickness, with each layer thoroughly compacted to 95% of the standard Proctor maximum dry density (ASTM D 698) with heavy duty mechanical tampers ("Whacker" or equal) to a height of at least thirty-six inches (36") or forty-eight inches (48") above the top of the pipe barrel.

3. The remainder of the ditch may be backfilled and tamped in the same manner, or if the Contractor so elects, he may place backfill in layers not exceeding twelve inches (12") and use wheel loading or heavy duty mechanical tamping equipment ("Hydra-Hammer" or equal). Pipe shall have at least thirty-six inches (36") of cover before wheel loading and at least forty-eight inches (48") of cover before using heavy duty tamping equipment ("Hydra-Hammer" or equal). The density of the backfilled material after compaction shall be equal to 95 percent of the maximum density obtainable at optimum moisture content as determined by the Standard Proctor Test (ASTM D698). Except in the upper 12 inches, water shall be added to backfill material only before being placed in the trench in order to bring the moisture content to approximately "optimum" for good compaction.
4. In other areas, including woodlands, fields, pastures, areas not open to vehicular travel, and areas where no structures are proposed or anticipated in the future, the remainder of the ditch may be backfilled by placing fill in ditch and "walking-in" with wheel loaded equipment. Backfill material may be windrowed and maintained in a suitable manner so as to concentrate and pond rainfall runoff over the trench. After sufficient settlement has been obtained, the Contractor shall complete surface dressing, remove surplus material and clean up in accordance with these Specifications. Wherever trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off and finally made to conform to the surface of the ground. Backfilling shall be carefully performed and the original surface restored as specified herein. Compaction in these areas shall not be less than 90% of the standard Proctor maximum dry density. Surplus material shall be disposed of by the Contractor.

3.08 PROTECTION OF WATER SUPPLY PIPES

- A. Horizontal Separation: Sewers and force mains shall be laid at least 10 feet horizontally from any existing or proposed watermain. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, such deviation may allow installation of the sewer or force main closer to the watermain, provided that the watermain is in a separate trench or on a undisturbed earth shelf located on the side of the sewer or force main and at an elevation so the bottom of the watermain is at least 18 inches above the top of the sewer or force main.
- B. Crossings: Sewers and force mains crossing water mains shall be laid to provide

a minimum vertical distance of 18 inches between the outside of the watermain and the outside of the sewer or force main. This shall be the case where the watermain is either above or below the sewer or force main. The crossing shall be arranged so that the sewer or force main joints will be equidistant and as far as possible from the watermain joints. Where a watermain crosses under a sewer or force main, adequate structural support shall be provided for the sewer or force main to prevent damage to the watermain.

- C. Special Conditions: When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the sewer or force main shall be designed and constructed equal to water pipe, and shall be pressure tested to assure water tightness prior to backfilling.

3.09 UTILITY CONSTRUCTION IN OTHER EXCAVATION

- A. Where utilities are required to be constructed in areas also requiring excavation and backfill for other work, coordinate the work so that the parts come together properly and the construction of the various parts can be done without damage to other parts. Place bedding which will form bearing for pipes, using suitable material and shaping to the lower 1/3 of the pipe to provide uniform and continuous bearing. Compaction of backfill material which will form bearing shall be equal to that specified hereinbefore under “Backfilling”.

3.10 TESTING

- A. General: The Contractor shall select a qualified independent testing laboratory for the purpose of identifying soils, checking densities, and classifying soils materials during construction. All testing will be paid for by the Contractor. Copies of all test results shall be furnished to the Engineer in duplicate.
- B. Moisture-Density Tests: Testing shall be in accordance with ASTM Methods D698 and D1557. A test shall be performed on each type of material used in the work regardless of source. Tests will be accompanied by particle-size analyses of the soils tested (ASTM Methods D421 and D422). Changes in color, gradation, plasticity or source of fill material will require the performance of additional tests. Copies of all test results shall be furnished to the Engineer.
- C. Field Density Tests: Tests shall be made in accordance with ASTM Method D1556. Tests shall be made in accordance with the following minimum schedule or as required by the soils technician or as may be directed by the Engineer:
 - 1. In street and road right-of-way, parking areas, yards, & other traveled areas, one test per 100 linear feet of trench for each 4' of depth.

2. Under buildings and structures, each lift of backfill shall be tested from undercut level up to slab support level for each 50 linear feet of trench.
3. In unpaved areas, woodland, fields, pastures, areas not open to vehicular traffic, & areas where no structures are proposed, one test per 500 linear feet of trench for each 4' of depth.

D. Submittals

1. The soils technicians will submit formal reports of all compaction tests and retests. The reports are to be furnished to the Owner and the Engineer as soon as possible upon completion of the required tests.
2. This report information is to include but not be limited to the following:
 - a. Date of the test and date submitted.
 - b. Location of test.
 - c. Wet weight, moisture content and dry weight of field sample.
 - d. Description of soil.
 - e. Maximum dry density and moisture content of the lab sample which best matches the field sample in color, texture, grain size and maximum dry density.
 - f. Ratio of field dry density to maximum lab dry density expressed as a percentage.
 - g. Comments concerning the field density passing or failing the specified compaction.
 - h. Comments about recompaction if required.

E. Compaction Results

1. If any compaction tests reveal that fill or backfill is not compacted as specified, the Contractor shall scarify and recompact as required to achieve the specified density. Additional compaction tests shall be made to verify proper compaction. These additional tests, required due to failure of the original test shall be paid for by the Contractor without reimbursement by the Owner.
2. The soils technician is to advise the Engineer and the Contractor's Superintendent immediately of any compaction tests failing to meet the specified minimum requirements. No additional lift is to be placed on a lift with any portion failing.

3.11 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

- A. Excavation, Trenching and Backfilling Operations: Excavation, trenching and backfilling along highways, streets and roadways shall be in accordance with the applicable regulations of the State Department of Transportation with reference to construction operations, safety, traffic control, road maintenance and repair.
- B. Protection of Traffic: Provide suitable signs, barricades and lights for protection of traffic, in locations where traffic may be endangered by construction operations. All signs removed by reason of construction shall be replaced as soon as condition which necessitated such removal has been cleared. No highway, street or roadway shall be closed without first obtaining permission from the proper authorities. See Section 01570 for further traffic control requirements.
- C. Construction Operations: The Contractor shall construct all work along highways, streets and roadways using the following sequence of construction operations, so as to least interfere with traffic:
 - 1. Stripping: Where the pipe line is laid along road shoulders, sod, topsoil and other material suitable for shoulder restoration shall be stripped and stockpiled for replacement.
 - 2. Trenching, Laying and Backfilling: Excavate trenches, install pipe line and backfill. The trench shall not be opened any further ahead of pipe laying operations than is necessary for proper laying operations. Trenches shall be progressively backfilled and consolidated and excess material removed immediately.
 - 3. Shaping: Immediately after completing backfilling operation, reshape any damage to cut and fill slopes, side ditch lines, and shall replace top soil, sod and any other materials removed from shoulders.
- D. Excavated Material: Excavated material shall not be placed along highways, streets, and roadways in such manner as to obstruct traffic. Roadways and pavement will be maintained free of earth material and debris.
- E. Drainage Structures: All side ditches, culverts, cross drains and other drainage structures shall be kept clear of excavated material and be free to drain at all times.
- F. Maintaining Highways, Streets, Roadways and Driveways
 - 1. The Contractor shall furnish a road grader which shall be available for use

at all times for maintaining highways, streets and roadways. All such streets, highways and roadways shall be maintain in suitable condition until completion and final acceptance of the work.

2. Repair all driveways that are cut or damaged. Maintain them in suitable condition until completion and final acceptance of the work.

3.12 REMOVING AND RESETTING FENCES

- A. Where existing fences must be removed to permit construction, the Contractor shall remove such fences. As construction progresses, reset the fences in their original location and to their original condition. All costs of removing and re-setting fences and such temporary works as may be required shall be included in the prices for the utility line.

3.13 PROTECTING TREES, SHRUBBERY AND LAWNS

- A. Trees and shrubbery along trench lines shall not be disturbed unless absolutely necessary. Trees and shrubbery necessary to be removed shall be properly heeled-in and re-planted. Heeling-in and re-planting shall be done under the direction of an experienced nurseryman.
- B. Where utility trenches cross established lawns, sod shall be cut, removed, stacked and maintained in suitable condition until replaced. Topsoil underlying lawn areas shall likewise be removed and kept separate from general excavated materials. Removal and replacement of sod shall be done under the direction of an experienced nurseryman.

3.14 CLASS "A" PAVEMENT REPLACEMENT

- A. Pavement and base course which must be removed for constructing sewers, manholes, forcemains, water lines, and all other appurtenances in streets shall be replaced as specified.
 1. Whenever Class "A" Pavement Replacement is indicated on the Plans, the edges of the pavement shall be smooth saw cuts, and the pavement must be replaced as specified below. Asphalt pavement must be patched with an 8" Class "A" cement concrete base and 2" Type "E" asphaltic top coat equal or better than the original pavement. A bituminous tack coat must be applied before placement of the asphaltic top coat. Patches must be thoroughly rolled or tamped with a mechanical roller or tamper. Rolling of patches with truck tires will not be permitted.

2. The top 18 inches of subgrade material immediately under the paving base and also road shoulder shall be carefully removed and kept separate from the rest of the excavated material. This material shall be placed in the top 18 inches of the backfill. Further compaction shall be accomplished by leaving the backfilled trench open to traffic while maintaining the surface with crushed stone or gravel. Settlement in trenches shall be refilled with crushed stone or gravel, and such maintenance shall continue until replacement of pavement.
3. Where utility lines are constructed on unpaved streets, roads or easements, the top 18 inches of soil shall be stripped and windrowed separate from the excavation from trenches. After the line has been installed and the backfill completed within 18 inches of the original grade, the salvaged surfacing shall be replaced. This work shall be considered as general clean up along with the removal of surplus excavated materials from the site and the restoring of the surface outside trench limits to its original condition, the cost of which shall be included in the price bid for the utility line.

3.15 WALKS, DRIVES, CONCRETE CURB AND GUTTER

- A. Walks and drives removed or damaged during the course of construction shall be replaced with Class "A" Concrete at the same thickness as removed. They will be cut to a neat edge with a masonry saw after backfilling and compacting trench in 6 inch layers to a density not less than 98 percent at + 2 percent of optimum moisture content as determined by the Standard Proctor Test.
- B. Concrete curb and gutter sections removed or damaged during the course of construction shall be replaced in full sections with concrete having a compressive strength of at least 3,000 psi.

3.16 MEASUREMENT AND PAYMENT

- A. The work specified in this Section will not be measured for direct payment except those items specifically stated in this Section and for which bid prices are requested in the Bid Proposal.

END OF SECTION

SECTION 02530

SANITARY SEWER COLLECTION SYSTEM

PART 1 – GENERAL

1.01 SCOPE

A. This section of the Specifications describes products to be incorporated into the sanitary sewer and requirements for the installation and use of these items. The contractor shall furnish all products and perform all labor necessary to fulfill the requirements of these Specifications. It includes, but is not limited to the construction of the following items.

- 1. Sewer Pipes
- 2. Manholes

1.02 RELATED WORK

A. Other work required for the construction of the sanitary sewer collection system is specified in the following of the specifications:

Section No.	Title
02315	Excavation, Trenching and Backfilling for Utilities

1.03 REFERENCES

- A. ASTM D 3740-94a – Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ASTM E 329-93b – Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
- C. ASTM D 3034-94 – Type PSM PVC Sewer Pipe and Fittings.
- D. ASTM D 2321-89 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Installations.
- E. ANSI/AWWA C 150/A-21.50-96 – Thickness Design of Ductile Iron Pipe.
- F. ANSI/AWWA C 151/A-21.51-91 – Ductile Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
- G. ASTM A 746-95 – Ductile Iron Gravity Sewer Pipe.

- H. ASTM D 3212-92 – Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- I. ASTM F 477-95 – Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- J. ASTM D 3139-95 – PVC Pressure-Rated Pipe (SDR-Series).
- K. ASTM D 3139-95 – Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seams.
- L. ASTM D 139-93a – Electric-Fusion (Arc) Welded Steel Pipe (NPS 4 and over).
- M. ASTM C 478-94 – Precast Reinforced Concrete Manhole Sections.
- N. ASTM C 443-94 – Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- O. ACI 318-89 – Building code Requirements for Reinforced Concrete.
- P. ASTM C 39-94 – Compressive Strength of Cylindrical Concrete Specimens.
- Q. ASTM C 890-91 – Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
- R. ASTM C 891-90 – Installation of Underground Precast Concrete Utility Structures.
- S. ASTM C 913-89 – Precast Concrete Water and Wastewater Structures.
- T. ASTM A 615/A 615 M-95b – Deformed and Plain Billet – Steel Bars for Concrete Reinforcement.
- U. ANSI/AWWA C-500-93 – Metal-Seated Gate Valves for Water Supply Service.
- V. ANSI/AWWA C-509-94 – Resilient-Seated Gate Valves for Water Supply Service.
- W. AASHTO T 191-91 – Density of Soil in-Place by the Sand-Cone Method.
- X. ASTM D 2922-91 – Test Methods for Density of Soil and Soil Aggregate in Place By Nuclear Methods (Shallow Depths).
- Y. ASTM D 1557-91 – Laboratory Compaction Characteristics of Soil Using Modified Effort.

- Z. ASTM D 1556-90 – Density and Unit Weight of Soil in Place by the Sand Cone Method.
- AA. ASTM D 714-87 (Re-approved 1994) – Evaluation Degree of Blistering Paints.
- BB. ASTM D 2794-93 – Resistance of organic Coatings to the Effects of Rapid Deformation (Impact).
- CC. ASTM E 96-95 – Water Vapor Transmission of Materials.
- DD. ANSI/AWWA C 111/A 21.11-95 – Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
- EE. ASTM A 377-95 – Index and Specifications for Ductile Iron pressure Pipe and Fittings.
- FF. ANSI/AWWA C 600-93 – Installation of Ductile Iron Water Mains and their appurtenances.
- GG. ASTM C890-73 (Latest Revision) – Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete for Water and Wastewater Structures.
- HH. ASTM C891-78 (Latest Revision) – Standard Practice for Installation of Underground Precast concrete Utility Structures.
- II. ASTM C913-79 (Latest Revision) – Precast Concrete Water and Wastewater Structures.
- JJ. *1990 Edition of the Recommended Standards for Wastewater Facilities, Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Manages, Section 38.31.*
- KK. ASTM C969 (Latest Revision) – Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
- LL. ASTM F1417 (Latest Revision) – Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
- MM. ASTM C1244 (Latest Revision) – Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
- NN. ASTM F1216 (Latest Revision) – Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

- OO. ASTM F1743 (Latest Revision) – Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resing Pipe (CIPP)
- PP. ASTM D5813 (Latest Revision) – Cured-in-Place Thermosetting Resin Sewer Pipe
- QQ. ASTM D790 (Latest Revision) – Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- RR. ASTM D2990 (Latest Revision) – Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

1.04 OPTIONS

- A. The specifications describe several materials. Where manufacturer's and models of equipment are named in the specification, it is intended that these are to describe the quality and function required. The Contractor may use equipment or materials of other manufacturers provided they are reviewed and accepted by the Engineer and the Owner as meeting the specifications.
- B. The Contractor will furnish the Engineer and the Owner a description of all materials before ordering. The Engineer will review the Contractor's submittals and provide in writing an acceptance or rejection of material. However, an acceptance of any material by the Engineer does not relieve the Contractor of this responsibility to meet the requirements of the construction plans or these specifications.

1.05 QUALITY ASSURANCE

- A. Material and equipment shall be the standard product of a manufacturer who has manufactured them for a minimum of 2 years and who provides published data on the quality and performance of the project.
- B. A Subcontractor for any part of the work must have experience on similar work and if required, furnish the Engineer with a list of projects and the Owners or Engineers who are familiar with his competence.
- C. Devices, equipment, structures, and systems not designated by the Engineer that the Contractor wishes to furnish shall be designed either by a registered professional engineer or by someone the Engineer approved as qualified. If required, complete design calculations and assumptions shall be furnished to the Engineer or the Owner before acceptance.
- D. All testing of the piping shall be made by the Contractor with equipment qualified by the Owner, Engineer, or utility company and in the presence of the Engineer,

Owner and utility company. The Engineer or his representative reserves the right to accept or reject testing equipment.

- E. Soil testing shall be done by a testing laboratory regularly engaged in soil testing, and shall be approved by the Engineer prior to engagement. Mill certificates of test on materials made by manufacturers will be accepted provided the manufacturer maintains an adequate testing laboratory, make regularly scheduled tests that are spot checked by an outside laboratory, and furnishes satisfactory certificates with the name of the one making the test.
- F. The details of all welded joints shall comply with all of the requirements for joints, which are accepted without qualification test under the “Code of Arc and Gas Welding in Building Construction of the American Welding Society”. Workmanship shall conform to A.I.S.C. Specifications for Fabrication and Erection. All work shall be executed by skilled workmen under experienced supervision. All welding shall be done by welders who have been previously qualified by tests as prescribed in the “American Welding Society Standard Qualification Procedure” to perform the type of work required. Welders shall have passed the qualification test (Qualification tests using procedures covered in AWSS B3.0 Part II) within the preceding 12 months.

1.06 ALTERNATIVES

- A. The intention of these specifications is to produce the best system for the Owner. If the Contractor suggests that alternate material, equipment or procedures will improve the results at no additional costs, the Engineer and the Owner will examine the suggestion and if it is accepted, it may be used. The basis upon which acceptance of an alternate will be given is its value to the Owner, and not for the convenience of the Contractor.

1.07 GUARANTEE

- A. The contractor shall guarantee the quality of the materials, equipment, and workmanship for 12 months after acceptance of the completed Project. Defects discovered during that period shall be repaired by the Contractor, at no cost to the Owner. The Performance bond shall reflect this guarantee.
- B. The manufacturers of equipment, valves, pumps, controls, measuring devices and special equipment shall test the equipment shall test the equipment at field conditions for compliance with the specifications. The manufacturer shall guarantee his product to be free from defects in material and factory workmanship for a period of 1 year from date of acceptance of the completed project, provided the product is properly installed, serviced and operated under normal conditions according to the manufacturer’s instructions. The manufacturer shall furnish the service of a representative of the Engineer with a certificate that the equipment

meets the specifications and will perform as required. The manufacturer shall furnish four field trips to the plant by a service representative during the first year after completion of the Project at no cost to the Owner.

1.08 EXISTING UTILITIES

- A. All known utility facilities are shown schematically on plans, and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines are unknown facilities not shown on plans will not relieve the contractor of his responsibility under this requirement. "Existing Utilities Facilities" means any utility that exists on the projects 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 shown on the plans. The Contractor shall contact all utility companies prior to beginning work and request an accurate field location of their respective utility lines.
- B. Damage to any part of the existing water system facilities by the Contractor or Subcontractors, that is required by the user's and Owner's forces, shall be charged to the Contractor on the basis of time and material, plus 30% for overhead and administration.

1.09 ACCEPTANCE OF PORTIONS OF WORK

- A. The Owner reserves the right to accept and use any portion of the work whenever it is considered in the public interest to do so.

1.10 RECORD DATA

- A. It will be required of the Contractor to keep accurate, legible records of the location of any deviations from the construction drawings, any additional items or structures to the construction drawings. These records will be made available to the Engineer before his inspection for incorporation into the Engineer's Record Drawings.

1.11 SUBMITTALS

- A. Follow all requirements of Section 01300 – Submittals.

PART 2 – PRODUCTS

Products and materials used in the work shall conform to the following:

2.01 SANITARY SEWER PIPE

A. Gravity Sewer

1. Ductile Iron Pipe – Shall conform to ANSI A21.50 (AWWA C-150) latest revision, ANSI A21.51 (AWWA C-151) latest revision, and ASTM A746. All pipe, except specials, shall be furnished in nominal lengths of 18 to 20 feet. All ductile iron pipes and fittings shall be bituminous coated on the outside. Where an interior coating is required on the plans, the pipe shall be lined with Protecto 401 Ceramic Epoxy or equal. Otherwise, the pipe shall be cement lined in accordance with AWWA C104. The size of the pipe shall be as indicated on the drawings. All pipe shall have a Pressure Class 350 pressure rating.
 - a. Coating on the outside shall be an asphaltic coating approximately 1 mil thick. The finished coating shall be continuous, smooth, neither brittle when cold or sticky when exposed to the sun, and shall be strongly adherent to the iron.
 - b. Protecto 401 Ceramic Epoxy or equivalent interior lining is a two component, modified epoxy formulated for corrosion control and shall conform to the following requirements:
 - i. Conform to ASTM E96, ASTM D714, ASTM D2794, and ASTM G53.
 - ii. The ability to build at least 50 mils dry in one coat.
 - iii. The material shall be recoatable with itself for at least seven days with no additional surface preparation when exposed to direct summer sun and a temperature of 90 degrees F.
 - iv. The material shall contain at least 20 percent by volume of ceramic quartz pigment.
 - v. A test and service history demonstrating the ability of the material to withstand the service expected.
 - vi. Posses a minimum solids volume content of 88 percent, \pm one percent.
 - vii. Possess a maximum drying time to allow recoating as follows: 50 degrees F-72 hours; 75 degrees F-18 hours; 90 degrees F-8 hours. If recoating cannot be accomplished within seven days, a light brush blast shall be performed to improve intercoat adhesion.
2. Polyvinyl Chloride (PVC) Pipe – Shall be unplasturized polyvinyl chloride with integral wall bell and spigot joints with a rubber ring gasket. Pipe and fittings shall meet the requirements of ASTM-D 3034 SDR 35 ASTM F679 for use as a gravity

sewer conduit, except for depths of cover greater than ten feet (10') where ductile iron pipe must be used. All pipe must be installed in accordance with ASTM D 2321, with additional bedding as required in these specifications or project details. Sizes and dimensions shall be as shown in the following table.

Nominal Size	Outside Diameter		Minimum Wall Thickness
	Average	Tolerance	
8"	8.400	±0.010	0.240
10"	10.500	±0.013	0.300
12"	12.500	±0.016	0.360
15"	15.300	±0.017	0.437
18"	18.700	±0.019	0.719
24"	24.803	±0.032	0.954

- a. Minimum pipe stiffness (F/Y) at 5% deflection shall be 46 psi for all sizes when tested in accordance with ASTM D2412.
- b. PVC gravity sewer pipe shall be supplied in lengths no longer than 13 feet.
- c. Each length of pipe shall be marked with the manufacturer's name, trade name, nominal size, class, hydrostatic test pressure, manufacturer's standard symbol to signify it was tested, and date of manufacture. Each rubber ring shall be marked with the manufacturer's identification, the size, the year of manufacture, and the classes of pipe with which it can be used.

B. Force Main

1. HDPE Pipe – HDPE force main shall be PE4710, DIPS, DR 13.52 PE4710 shall meet or exceed the ASTM D3350 cell classification of PE445574C/E, Type III, Grade PE47.
2. Ductile Iron Pipe (D.I.) – Shall conform to ANSI A21.50 (AWWA C-150) latest revision, ANSI A21.51 (AWWA C-151) latest revision, and ASTM A746. All pipe, except specials, shall be furnished in nominal lengths of 18 to 20 feet. All pipes 12" and smaller shall have a Pressure Class 350 pressure rating.
 - a. Coating on the outside shall be an asphaltic coating approximately 1 mil thick. The finished coating shall be continuous, smooth, neither brittle when cold or sticky when exposed to the sun, and shall be strongly adherent to the iron.
 - b. Lining on the inside shall be a ceramic epoxy lining nominal 40 mils thick. Lining shall be holiday free when high voltage holiday tested to 4000 volts per ASTM standards. All surface preparation shall be per manufacturer's recommendations which will include proper grinding and blasting to ensure a 3 mil anchor profile is achieved throughout the area to be lined.

Ceramic epoxy lining shall be Tnemec Series 431 Perma Shield PL or preapproved equal. All ductile iron force main shall receive this lining system.

3. Fittings – All fitting shall be ductile iron, compact in weight and size, meeting the requirements of AWWA C110/ANSI A21.10, or AWWA C153/ANSI A21.4, and with a minimum rated working pressure of 250 psi. Fittings shall be mechanical joint and have a nominal wall thickness of Class 54 Ductile Iron Pipe. They shall be furnished with a bituminous outside coating and a ceramic epoxy lining. Lining shall be nominal 40 mils thick and shall be holiday free when high voltage holiday tested to 4000 volts per ASTM standards. All surface preparation shall be per manufacturer’s recommendations which will include proper grinding and blasting to ensure a 3 mil anchor profile is achieved throughout the area to be lined. Ceramic epoxy lining shall be Tnemec Series 431 Perma Shield PL or preapproved equal. Special adapters shall be provided, as recommended by the manufacturer, to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings or valves.
4. Restrained Joints – Restrained joints for pipe, valves and fittings shall be mechanical joints with ductile iron retainer glands equivalent to “Megalug” or push-on type joints equivalent to “Lok-Ring”, “TR Flex” or “Super Lock” and shall have a minimum rated working pressure of 250 psi. The joints shall be in accordance with the applicable portions of AWWA C 111. The manufacturer of the joints shall furnish certification, witnessed by an independent laboratory, that the joints furnished have been tested at a pressure of 500 psi without signs of leakage or failure. Restrained joints shall be capable of being deflected after assembly.

2.02 PIPE JOINTS (GRAVITY SEWER)

- A. Ductile Iron Pipe (D.I.) – Shall be flexible rubber gasket Type II, or mechanical joint Type III, conforming to ASA Specification A21.11.
- B. Polyvinyl Chloride (PVC) Pipe – Shall be flexible gasket joints for PVC sewer pipe and shall be compression type conforming to ASTM D-3212. The gasket shall conform to ASTM F-477.
- C. Transition Joints – The transition between sewer pipes of different materials shall be made by either concrete collar or by special adapters made for that purpose. Adapters between cast iron pipe and pipe of materials will be accepted upon approval by the Engineer. In most cases where special adapters are not available or not approved by the Engineer, concrete collars will be used.

2.03 MANHOLES

- A. Precast Concrete Manholes – shall be Precast reinforced concrete manholes that meet the requirements of ASTM C478 and the details contained in the project drawings. The minimum compressive strength of the concrete in Precast sections shall be 4000 psi.
1. Joints – shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or Type A or B “Tylox” equivalent to ASTM C443; mastic shall be “Ram-nek” with primer. The “Ram-nek” primer shall be applied to all contact surfaces of the manhole joint at the factory in accordance with the manufacturer’s instructions.
 2. Manhole Boots – Provide Neoprene boot seal where sewer enters the manhole. Holes for pipes entering and leaving the manholes shall be core-drilled at the plant location or in the field.
- B. Fiberglass Reinforced Manholes – shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl ester resins with fiberglass reinforcements. Manhole shall be a cone piece unit manufactured to meet or exceed all specification of ASTM D3753 latest edition. Manhole shall be as manufactured by L.F. Manufacturing, Inc. or equal.
1. Resins – shall be a commercial grade unsaturated polyester resin or other suitable polyester or vinyl ester resin
 2. Reinforcing Materials – shall be commercial Grade “E” type glass in the form of continuous roving and chop roving, having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.
- C. Brick and Mortar – Brick shall be whole and hard burned, conforming to ASTM C 32 Grade MS. Mortar shall be made of one part Portland cement and two parts clean sharp sand. Cement shall be Type I and shall conform to ASTM C 150. Sand shall meet ASTM C 144.
- D. Frames and Covers – Cast iron manhole frames and covers shall meet the requirements of ASTM A 48 for Class 30 gray iron and all applicable local standards. All castings shall be tough, close grained, smooth and free from blow holes, blisters, shrinkage, strains, cracks, cold shots and other imperfections. No casting will be accepted which weighs less than 95 percent of the design weight. Shop drawings must indicate the design weight and provide sufficient dimensions to permit checking. All castings shall be thoroughly cleaned in the shop and given two coats of approved bituminous paint before rusting begins.
1. Manhole frames and covers shall be as shown on the Standard Detail Drawings.
 2. All frames and covers shall have machined horizontal bearing surfaces.

- 3. All manholes shall have standard frames and covers except where specifically shown otherwise on the Drawings.
- E. Pipe Connections – Shall have flexible watertight joints at the point of entry of any sewer main into the manhole. The joint shall be wedged rubber shape equivalent to “Press Wedge II,” or a rubber sleeve equivalent to “Kor-N-Seal” or “Lock-Joint.”
- F. Drop Manhole – When incoming sewer pipes are more than two feet above the invert of the manhole that they are entering, a drop manhole must be provided. See Plans for details.

2.04 STONE BACKFILL

- A. Shall be graded crushed granite with the following gradation:

Square Opening Size	Percent Passing
1”	100%
3/4”	90 to 100%
3/8”	0 to 65%
No. 4	0 to 25%

2.05 SAND BACKFILL

- A. Shall be clean sand free of clay and organic material. Not more than 10% shall pass the No. 100 sieve.

2.06 BORROW

- A. Where it is determined that sufficient suitable material is not available from the site to satisfactorily backfill the pipe to at least 2 feet above the top of the pipe, the Contractor shall furnish suitable sandy borrow material to accomplish the requirements. The materials shall have not more than 60% passing the No. 100 sieve, nor more than 20% passing the No. 200 sieve.

2.07 UNSUITABLE EXCAVATED MATERIAL

- A. All unsuitable excavated material must be properly disposed of in a manner acceptable to the City Public Works Department and in a manner that will not adversely affect the environment.

PART 3 – EXECUTION

3.01 ON-SITE OBSERVATION

- A. The Engineer shall have the right to require that any portion of the work be done in his presence and if any work is covered up after such instruction, it shall be exposed by the Contractor for observation. However, if the Contractor notifies the Engineer that such work is scheduled and the Engineer fails to appear within 48 hours, the Contractor may proceed without him. All work done and materials furnished shall be subject to review by the Engineer or Project Representative. All improper work shall be reconstructed and all materials which do not conform to the requirements of the specifications shall be removed from the work upon notice being received from the Engineer for the rejection of such materials. The Engineer shall have the right to mark rejected materials so as to distinguish them as such.

3.02 HANDLING MATERIALS

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Any cracked or damaged materials cannot be used and must be properly discarded.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front loader. Do not use material damaged in handling.
- C. Distribution: Distribute and place pipe and materials to not interfere with traffic. Do not string pipe more than 300 feet beyond the area where pipe is being laid. Do not obstruct drainage ditches.
- D. Storage: Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas. Do not interfere with other contractors right to access.

3.03 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

Install pipelines and accessories along highway, streets and roadways in accordance with the applicable regulations of the County, City and/or the Department of Transportation with reference to construction operations, safety, traffic control, road maintenance and repair.

- A. Protection of Traffic: Provide and maintain suitable signs, barricades and lights for protection of traffic.

Replace all highway signs removed for construction as soon as possible. Do not close or block any highway, street, or roadway without first obtaining permission from the proper authorities.

Provide flagmen to direct and expedite the flow of traffic.

- B. Construction Operations: Perform all work along highways, streets and roadways to least interfere with traffic.
 - 1. Stripping: Where the pipe line is laid along road shoulders, strip and stockpile all sod, topsoil and other material suitable for shoulder restoration.
 - 2. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.
 - 3. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.
- C. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated materials off of the pavements.
- D. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material and free to drain at all times.
- E. Maintaining Highways, Streets, Roadways and Driveways: Maintain streets, highways, and roadways in suitable condition for movement of traffic until completion and final acceptance of the work. Use steel running plate to maintain traffic until pavement is completed.

3.04 EXISTING UNDERGROUND UTILITIES AND OBSTRUCTIONS

- A. It is the responsibility of the Contractor to locate all existing utilities along the path of his construction. The drawings shall indicate underground utilities or obstructions that are known to exist. Where these or unforeseen underground utilities are encountered, the location and alignment of the watermain may be changed, upon written approval of the Engineer and Owner, to avoid interference.

3.05 PIPE DISTRIBUTION

- A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.
- B. No pipe shall be strung further along the route than 300 feet beyond the area in which the Contractor is actually working without written permission from the

Owner and/or Engineer. The Owner and/or Engineer reserves the right to reduce this distance to a maximum distance of 200 feet in residential and commercial areas based on the effects of the distribution to the adjacent property owners.

- C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The Contractor shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.
- D. No distributed pipe shall be placed inside drainage ditches.
- E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge-to-edge.
- F. Contractor shall not excavate sanitary sewer trenches more than 400 feet in advance of pipe laying.

3.06 LAYING AND JOINTING PIPE AND ACCESSORIES

- A. Lay all pipe and fittings to accurately conform to the lines established by the construction drawings.
- B. Pipe Installation:
 - 1. Proper implements, tools and facilities shall be provided for the safe performance of the Work. All pipe, fittings and valves shall be lowered carefully into the trench by means of slings, ropes or other suitable tools or equipment in such a manner as to prevent damage to sewer materials and protective coatings and linings. Under no circumstances shall sewer materials be dropped or dumped into the trench.
 - 2. All pipe, fittings, valves and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the Owner and/or Engineer, who may prescribe corrective repairs or reject the materials.
 - 3. All lumps, blisters and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and free from dirt, sand, grit or any foreign materials before the pipe is laid. No pipe which contains dirt shall be laid.
 - 4. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing or other materials shall be placed in the pipe at any time.

5. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
- C. Expediting of Work: Excavate, lay the pipe, and backfill as closely together as possible. Do not leave unjointed pipe in the trench overnight. Backfill and compact the trench as soon as possible after laying and jointing is completed. Cover the exposed end of the installed pipe each day at the close of work and at all other times when work is not in progress. If necessary to backfill over the end of an uncompleted pipe or accessory, close the end with a suitable plug, either push-on, mechanical joint, restrained joint or as approved by the Owner and/or Engineer.
- D. Cutting Pipe:
1. Cut ductile iron pipe using an abrasive wheel saw.
 2. Cut PVC pipe using a suitable saw.
 3. Remove all burrs and smooth the end before jointing.
 4. The Contractor shall cut the pipe and bevel the end, as necessary, to provide the correct length of pipe necessary for installing the fittings, valves, accessories and closure pieces in the correct location. Only push-on or mechanical joint pipe shall be cut.

3.07 EXCAVATING, TRENCHING AND BACKFILLING

Refer to Section 02315

3.08 CONNECTION AND REPAIRS TO AN EXISTING SEWER MAIN

- A. Where connections or repairs are required, Contractor shall only use solid sleeves and provide all materials and labor necessary to make the connection or repair to the existing pipeline.

3.09 PROTECTION AND RESTORATION OF WORK AREA

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.

1. The Contractor shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.
 2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
 3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
 4. The Department of Transportation's engineer shall be authorized to stop all work by the Contractor when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-Made Improvements: Protect, or remove and replace with the Owner and/or Engineer's approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the Owner and/or Engineer. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the Contractor. No stumps, wood piles, or trash piles will be permitted on the work site.
- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the project in accordance with the applicable codes and rules of the appropriate city and/or county, state and federal regulatory agencies.
- D. Swamps and Other Wetlands:

1. The Contractor shall not construct permanent roadbeds, berms, drainage structures or any other structures which alter the original topographic features within the easement.
2. All temporary construction or alterations to the original topography will incorporate measures to prevent erosion into the surrounding swamp or wetland. All areas within the easement shall be returned to their original topographic condition as soon as possible after work is completed in the area. All materials of construction and other non-native materials shall be disposed by the Contractor.
3. The Contractor shall provide temporary culverts or other drainage structures, as necessary, to permit the free migration of water between portions of a swamp, wetland or stream which may be temporarily divided by construction.
4. The Contractor shall not spread, discharge or dump any fuel oil, gasoline, pesticide, or any other pollutant to adjacent swamps or wetlands.
5. Where special bedding is necessary to provide a trench bottom for the pipe, beddings shall be as specified in the plans.

3.10 SOIL TESTING

- A. Soil tests shall be performed on subgrades prior to placement of backfill material.
- B. Tests shall be performed immediately after placement of each layer of backfill to show compliance with field density and moisture requirements of section 02315.
- C. No additional layers shall be placed until the density of each layer has been approved.
- D. All tests shall be performed by a testing agency selected by Contractor and approved by Owner. Contractor is responsible for all costs.
- E. One test is required per 100 L.F. per 4' of depth in traffic areas. One test is required per 500 L.F. per 4' of depth in non-traffic areas.

END OF SECTION

SECTION 02531

CURED-IN-PLACE PIPE

PART 1 – GENERAL

1.01 SCOPE

A. This section of the Specifications describes products to be incorporated into the sanitary sewer for sections where cured-in-place pipe is the recommended rehabilitation method. The contractor shall furnish all products and perform all labor necessary to fulfill the requirements of these Specifications. It includes, but is not limited to the construction of the following items.

- 1. Cured-in-Place Pipe
- 2. Service Reinstatement on Cured-in-Place Sewer Mains

1.02 RELATED WORK

A. Other work required for the construction of the sanitary sewer collection system is specified in the following of the specifications:

Section No.	Title
02315	Excavation, Trenching and Backfilling for Utilities

1.03 REFERENCES

- A. ASTM F1417 (Latest Revision) – Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
- B. ASTM F2019 (Latest Revision) – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced (GRP) Cured-in-Place Resin Pipe (CIPP)
- C. ASTM F1216 (Latest Revision) – Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
- D. ASTM F1743 (Latest Revision) – Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
- E. ASTM D543 (Latest Revision) – Test Method for Resistance of Plastics to Chemical Reagents.
- F. ASTM D578 (Latest Revision) – Standard Specification Glass Fiber Strands

- G. ASTM D638 (Latest Revision) – Standard Test Method for Tensile Properties of Plastics
- H. ASTM D5813 (Latest Revision) – Cured-in-Place Thermosetting Resin Sewer Pipe
- I. ASTM D790 (Latest Revision) – Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- J. ASTM D2122 (Latest Revision) – Standard 1 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
- K. ASTM D3567 (Latest Revision) – Standard Practice for Determining Dimensions of “Fiberglass” (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings
- L. ASTM D2990 (Latest Revision) – Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

1.04 OPTIONS

- A. The specifications describe several materials. Where manufacturer’s and models of equipment are named in the specification, it is intended that these are to describe the quality and function required. The Contractor may use equipment or materials of other manufacturers provided they are reviewed and accepted by the Engineer and the Owner as meeting the specifications.
- B. The Contractor will furnish the Engineer and the Owner a description of all materials before ordering. The Engineer will review the Contractor’s submittals and provide in writing an acceptance or rejection of material. However, an acceptance of any material by the Engineer does not relieve the Contractor of this responsibility to meet the requirements of the construction plans or these specifications.

1.05 QUALITY ASSURANCE

- A. Material and equipment shall be the standard product of a manufacturer who has manufactured them for a minimum of 2 years and who provides published data on the quality and performance of the project.
- B. A Subcontractor for any part of the work must have experience on similar work and if required, furnish the Engineer with a list of projects and the Owners or Engineers who are familiar with his competence.
- C. Devices, equipment, structures, and systems not designated by the Engineer that the Contractor wishes to furnish shall be designed either by a registered

professional engineer or by someone the Engineer approved as qualified. If required, complete design calculations and assumptions shall be furnished to the Engineer or the Owner before acceptance.

- D. All testing of the piping shall be made by the Contractor with equipment qualified by the Owner, Engineer, or utility company and in the presence of the Engineer, Owner and utility company. The Engineer or his representative reserves the right to accept or reject testing equipment.
- F. The details of all welded joints shall comply with all of the requirements for joints, which are accepted without qualification test under the “Code of Arc and Gas Welding in Building Construction of the American Welding Society”. Workmanship shall conform to A.I.S.C. Specifications for Fabrication and Erection. All work shall be executed by skilled workmen under experienced supervision. All welding shall be done by welders who have been previously qualified by tests as prescribed in the “American Welding Society Standard Qualification Procedure” to perform the type of work required. Welders shall have passed the qualification test (Qualification tests using procedures covered in AWS B3.0 Part II) within the preceding 12 months.

1.06 ALTERNATIVES

- A. The intention of these specifications is to produce the best system for the Owner. If the Contractor suggests that alternate material, equipment or procedures will improve the results at no additional costs, the Engineer and the Owner will examine the suggestion and if it is accepted, it may be used. The basis upon which acceptance of an alternate will be given is its value to the Owner, and not for the convenience of the Contractor.

1.07 GUARANTEE

- A. The contractor shall guarantee the quality of the materials, equipment, and workmanship for 12 months after acceptance of the completed Project. Defects discovered during that period shall be repaired by the Contractor, at no cost to the Owner. The Performance bond shall reflect this guarantee.
- B. The manufacturers of equipment, valves, pumps, controls, measuring devices and special equipment shall test the equipment at field conditions for compliance with the specifications. The manufacturer shall guarantee his product to be free from defects in material and factory workmanship for a period of 1 year from date of acceptance of the completed project, provided the product is properly installed, serviced and operated under normal conditions according to the manufacturer’s instructions. The manufacturer shall furnish the service of a representative of the Engineer with a certificate that the equipment meets the specifications and will perform as required. The manufacturer shall

furnish four field trips to the plant by a service representative during the first year after completion of the Project at no cost to the Owner.

1.08 EXISTING UTILITIES

- A. All known utility facilities are shown schematically on plans, and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines are unknown facilities not shown on plans will not relieve the contractor of his responsibility under this requirement. "Existing Utilities Facilities" means any utility that exists on the projects 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 shown on the plans. The Contractor shall contact all utility companies prior to beginning work and request an accurate field location of their respective utility lines.
- B. Damage to any part of the existing water system facilities by the Contractor or Subcontractors, that is required by the user's and Owner's forces, shall be charged to the Contractor on the basis of time and material, plus 30% for overhead and administration.

1.09 ACCEPTANCE OF PORTIONS OF WORK

- A. The Owner reserves the right to accept and use any portion of the work whenever it is considered in the public interest to do so.

1.10 RECORD DATA

- A. It will be required of the Contractor to keep accurate, legible records of the location of any deviations from the construction drawings, any additional items or structures to the construction drawings. These records will be made available to the Engineer before his inspection for incorporation into the Engineer's Record Drawings.

1.11 SUBMITTALS

- A. Follow all requirements of Section 01300 – Submittals in addition to the following requirements.
- B. Cured-In-Place Pipe (CIPP)
 - 1. Furnish Manufacturers certifications stating the materials to be used meet the referenced standards and these specifications.
 - 2. Furnish descriptions of proposed equipment and procedures for accomplishing the work. Include detailed drawings and descriptions of

the entire process, including all construction procedures, bypass pumping, and reinstatement of service connections.

3. Furnish documentation demonstrating installer's proven commercial success with previous CIPP projects.
4. Furnish Tube manufacturer's product data
5. Furnish design calculations for wall thickness.
6. Furnish long-term testing results from an independent testing laboratory for flexural creep of the cured-in-place pipe material installed by the Contractor on previous projects consisting of the same work.
7. Furnish pre-installation and post-installation DVDs of closed circuit television inspections along with printed inspection logs for the pre & post construction conditions. Information required in the videos and printed logs includes the following: stationing, structural conditions and deformation of pipe walls, blockages or obstructions, condition of joints and pipe walls, standing water/sag conditions, infiltration/exfiltration, fluctuations in water level, size/location/clock position for service laterals, defect codes for each defect noted, and PACP Ratings.
8. Furnish flexural property test data for each line segment from an independent testing laboratory.
9. Furnish cured-in-place pipe thickness measurements for each line segment from an independent testing laboratory.

PART 2 – PRODUCTS

Products and materials used in the work shall conform to the following:

2.01 CURED-IN-PLACE PIPE (CIPP)

A. Products and Installers must meet the following criteria.

1. Product must have a minimum of 25 similar projects performed in the United States and documented to be successful to assure commercial viability.
2. Installer's superintendent and project manager must have successfully installed at least 100,000 ft. of a cured-in-place product in sewer systems.
3. Installer's project manager must have a minimum of 5 years' experience with the product intended for use on this project.

4. Products must provide third party test results supporting the structural performance (short-term and long-term) of the product that is satisfactory to the Owner.
5. Manufacturing and installation processes must operate under a quality management system which is third party certified to ISO 9000.

B. Materials

1. Tube for Hot Water/Steam Curing – furnish tube meeting the following:
 - a. At the time of manufacture, each lot of felt tube liner shall be inspected for defects and tested in accordance with applicable ASTM standards.
 - b. Tube shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters, and deleterious faults.
 - c. Withstand installation pressure and is strong enough to bridge missing pipe sections where necessary.
 - d. Stretches to fit irregular pipe sections
 - e. Utilizes an impermeable, flexible membrane that is coated on the outside layer of the tube prior to wetout to contain the resin and facilitate monitoring of resin saturation during the wetout procedure.
 - f. Tube shall consist of one or more layers of absorbent felt fabric and shall meet the requirements of ASTM F1216 or ASTM F1743, Section 5.
 - g. Non-woven polyester felt and non-woven fiberglass filament reinforced polyester felt may be used.
 - h. Is homogeneous across the entire wall thickness and contains no intermediate or encapsulated elastomeric layers.
 - i. Does not utilize material in the tube that may cause delamination in the cured-in-place pipe.
 - j. Does not utilize overlapping layers of felt in longitudinal seams that cause lumps in the final product.
 - k. Has seams stronger than the non-seamed felt.

1. Is marked for distance on the exterior at regular intervals along its length. Marking intervals do not exceed 5 feet and include the manufacturer's name or identifying symbol.

2. Fiberglass Tube for Ultraviolet Light Curing

- a. At the time of manufacture, each lot of glass fiber liner shall be inspected for defects and tested in accordance with applicable ASTM standards.
- b. Tube shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters, and deleterious faults. Tube shall be non-corrosion material. Its glass fibers must extend in a longitudinal direction to ensure no longitudinal stretching during the pull-in process.
- c. Withstand installation pressure and is strong enough to bridge missing pipe sections where necessary.
- d. Stretches to fit irregular pipe sections
- e. Liner shall consist of an inner foil and outer foil to contain resin migration and contamination. The inner foil is a clear plastic membrane to contain resin and styrene gases during the curing process. After the curing process is complete, the inner foil shall be removed and properly disposed of. The outer foil must be a UV protective layer, designed to protect the liner from contamination prior to and during the curing process.
- f. Exterior plastic shall be ultra violet light resistant and translucent to allow visual inspection of the impregnation of the resin within the glass fibers.

3. Resin – furnish a resin system meeting the following:

- a. Is a vinyl ester or polyester and catalyst system compatible with the proposed curing process that provides the cured physical strengths specified herein.
- b. Is corrosion resistant.
- c. The resin must be tested to meet or exceed the requirements of ASTM D5813.
- d. When properly cured within the tube composite, meets the applicable requirements of ASTM F1216, ASTM F1743, and ASTM F2019, the

physical properties herein, and those which are to be utilized in the design of the Cured-in-Place pipe for this project.

- e. Produces cured-in-place pipe which complies with the structural and chemical resistance requirements of this specification.
 - f. Contains 5% or less resin filler.
4. Cured-in-Place Pipe (CIPP) – Design and produce cured-in-place pipe meeting the following:
- a. Design CIPP in accordance with ASTM F1216, Appendix X1.
 - b. Design CIPP assuming no bonding to the original pipe wall.
 - c. Design CIPP utilizing a long-term, time dependent flexural modulus value obtained from long-term testing results for flexural creep of the cured-in-place pipe material installed by the Contractor on previous projects consisting of the same work.
 - d. Design CIPP utilizing a percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) in design calculations for external buckling. Do not use values in excess of 50% unless substantiated by qualified independent testing laboratory data.
 - e. Use materials of equal quality or better than the materials used in the long-term test with respect to the initial flexural modulus used in design.
 - f. Design CIPP utilizing an enhancement Factor “K” value of 7 for “Partially Deteriorated” Design conditions. Do not use Enhancement (K) factors in excess of 7 unless substantiated by qualified independent testing laboratory data.
 - g. Produce CIPP with uniformly bonded layers. Ensure any two layers cannot be cleanly separated with a probe or point of a knife blade or separated in a manner that allows the probe or knife blade to move freely between the layers.
 - h. Produce CIPP with light, reflective interior wall color to allow clear, detailed examination with closed circuit television inspection equipment.
 - i. Ensure CIPP material conforms to the structural properties listed in the table below.

MINIMUM STRUCTURAL PROPERTIES		
Property	Test Method	Cured Composite
Modulus of Elasticity	ASTM D790 (short term)	250,000 psi
Flexural Stress	ASTM D790	4,500 psi

- j. For CIPP cured with hot water, produce a minimum wall thickness of 4.5 mm for 8” and 10” sewers and a minimum wall thickness of 8 mm for 24” sewers. For CIPP cured with UV light, produce a minimum wall thickness of 3 mm for 8” and 10” sewers and a minimum wall thickness of 4 mm for 24” sewers. Ensure wall thickness is based on the physical properties listed in the table above and the Design Equations in the Appendix of ASTM F1216, using the design parameters listed in the table below.

DESIGN PARAMETERS	
Design Safety Factor	2.0
Retention Factor for Long-Term Flexural Modulus (determined by long-term testing described above)	1%-60%
Ovality	2%
Enhancement Factor, K	7

- k. Ensure any layers of the tube not saturated with resin prior to insertion into the existing pipe are not included in the structural CIPP wall thickness computation.
- l. Ensure CIPP meets the chemical resistance requirements of ASTM F1216, Appendix X2.
- m. Ensure CIPP contains no dry or unsaturated layers.

PART 3 – EXECUTION

3.01 CURED-IN-PLACE PIPE

- A. Pre-Installation Procedures
1. Prior to beginning work, inspect pipeline by closed circuit color television. Bypass flows around section being inspected if necessary.
 2. Identify and locate all existing breaks, obstacles, and service connections during television inspection. Carefully inspect interior of pipeline to determine existing conditions that may prevent proper installation of the cured-in-place pipe.

3. Clear the line of all solids and roots. Remove all internal debris from the sewer line to prevent interference with the cured-in-place pipe. Properly dispose of all debris removed from the sewer line.
4. Cut-out any intruding service connections robotically from the interior of the pipe.
5. Excavate and repair any dropped joints or collapses observed during the inspection process to allow for insertion of the cured-in-place pipe. Notify Engineer for approval prior to performing any point repairs.

B. Construction Methods

1. Use a roller system to uniformly distribute the resin throughout the tube and ensure the following:
 - a. Quantity of resin used for tube impregnation is sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall.
 - b. Thorough resin saturation is achieved throughout the length of the tube.
 - c. Point of vacuum is not further than 25 feet from the point of initial resin introduction.
 - d. Vacuum point is no further than 75 feet from the leading edge of the resin after a vacuum in the tube is established.
 - e. Leading edge of the resin slug is as near to perpendicular as possible.
2. Position the wetout tube in the pipeline using either inversion or a pull-in method. If pulled into place, utilize power winching equipment suitable for intended purpose and ensure the tube is not damaged as a result of pull-in friction. Ensure the tube is pulled-in or inverted through an existing manhole or approved access point and extends fully to the next designated manhole or termination point.
3. Curing
 - a. Hot Water
 - i. Place temperature gauges inside the tube at the invert level of each end and monitor the temperature during the cure cycle.

- ii. Cure the product by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule.
- iii. Perform a cool-down process that complies with the resin manufacturer's specifications.

b. UV

- i. Install end plugs to cap each end of the fiberglass liner and inflate with air to a constant inner pressure.
 - ii. Insert UV light sources into the liner. Utilize the optimal curing speed as recommended by the manufacturer given the pipes' diameter, liner thickness, length, and exothermic reaction temperature.
 - iii. During the curing process, control and record the following parameters for submission to the Engineer with the post-construction videos:
 - 1. Curing speed
 - 2. Light source wattage
 - 3. Inner air pressure
 - 4. Curing temperature
 - 5. Date and time
 - 6. Length of liner
 - iv. Remove inner foil material and discard to provide for optimal quality of the final product.
4. Reinstall service connections without excavation, utilizing a remote controlled cutting device, monitored by a video TV camera. Provide a minimum of two (2) complete cutters plus spare key components onsite before starting each inversion or pull-in.

C. Post Installation Procedures

- 1. After construction is complete and services have been reconnected, internally inspect pipeline by closed circuit color television. Bypass flows around section being inspected. Provide a copy of post-installation inspection to Owner on DVD.
- 2. Prepare Cured-in-Place Pipe samples and test physical properties in accordance with ASTM F1216 or ASTM F1743, Section 8, using either method proposed. Ensure the flexural properties meet or exceed the

values listed in Table 1 of the applicable ASTM. Provide for testing of Flexural properties and reporting of test data for each line segment by an independent testing laboratory.

3. Obtain wall thickness samples for analysis from each line segment installed and at the end farthest from the cure source. Determine wall thickness of samples as described in paragraph 8.1.6 of ASTM F1743. Ensure the minimum wall thickness at any point is not less than 87.5% of the design thickness as determined in subsection 2.03.B.4 of this specification.

3.02 ON-SITE OBSERVATION

- A. The Engineer shall have the right to require that any portion of the work be done in his presence and if any work is covered up after such instruction, it shall be exposed by the Contractor for observation. However, if the Contractor notifies the Engineer that such work is scheduled and the Engineer fails to appear within 48 hours, the Contractor may proceed without him. All work done and materials furnished shall be subject to review by the Engineer or Project Representative. All improper work shall be reconstructed and all materials which do not conform to the requirements of the specifications shall be removed from the work upon notice being received from the Engineer for the rejection of such materials. The Engineer shall have the right to mark rejected materials so as to distinguish them as such.

3.03 HANDLING MATERIALS

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Any cracked or damaged materials cannot be used and must be properly discarded.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front loader. Do not use material damaged in handling.
- C. Storage: Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas. Do not interfere with other contractors right to access.

3.04 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

Install pipe and accessories along highway, streets and roadways in accordance with the applicable regulations of the County, City and/or the Department of Transportation with reference to construction operations, safety, traffic control, road maintenance and repair.

- A. Protection of Traffic: Provide and maintain suitable signs, barricades and lights for protection of traffic.

Replace all highway signs removed for construction as soon as possible. Do not close or block any highway, street, or roadway without first obtaining permission from the proper authorities.

Provide flagmen to direct and expedite the flow of traffic.

- B. Construction Operations: Perform all work along highways, streets and roadways to least interfere with traffic.
- C. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated materials off of the pavements.
- D. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material and free to drain at all times.
- E. Maintaining Highways, Streets, Roadways and Driveways: Maintain streets, highways, and roadways in suitable condition for movement of traffic until completion and final acceptance of the work. Use steel running plate to maintain traffic until pavement is completed.

3.05 EXISTING UNDERGROUND UTILITIES AND OBSTRUCTIONS

- A. It is the responsibility of the Contractor to locate all existing utilities along the path of his construction. The drawings shall indicate underground utilities or obstructions that are known to exist.

3.06 EXCAVATING, TRENCHING AND BACKFILLING

Refer to Section 02315

3.07 INSPECTION & TESTING

Following installation, the interior of the gravity sewers shall be subjected to a televised inspection. Prior to Final Acceptance the Owner and/or Engineer shall be provided with one copy of the TV inspection report and DVD showing the entire length of gravity sewer being tested. The report shall contain the condition of pipe, type of pipe, depth, location of services, length, type joint, roundness, and distance between manholes. Any pipe found to be cracked or otherwise defective shall be removed and replaced.

3.08 PROTECTION AND RESTORATION OF WORK AREA

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.
1. The Contractor shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.
 2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
 3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
 4. The engineer shall be authorized to stop all work by the Contractor when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-Made Improvements: Protect, or remove and replace with the Owner and/or Engineer's approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the Owner and/or Engineer. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the Contractor. No stumps, wood piles, or trash piles will be permitted on the work site.

- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the project in accordance with the applicable codes and rules of the appropriate city and/or county, state and federal regulatory agencies.
- D. Swamps and Other Wetlands:
1. The Contractor shall not construct permanent roadbeds, berms, drainage structures or any other structures which alter the original topographic features within the easement.
 2. All temporary construction or alterations to the original topography will incorporate measures to prevent erosion into the surrounding swamp or wetland. All areas within the easement shall be returned to their original topographic condition as soon as possible after work is completed in the area. All materials of construction and other non-native materials shall be disposed by the Contractor.
 3. The Contractor shall provide temporary culverts or other drainage structures, as necessary, to permit the free migration of water between portions of a swamp, wetland or stream which may be temporarily divided by construction.
 4. The Contractor shall not spread, discharge or dump any fuel oil, gasoline, pesticide, or any other pollutant to adjacent swamps or wetlands.
 5. Where special bedding is necessary to provide a trench bottom for the pipe, beddings shall be as specified in the plans.

END OF SECTION

SECTION 02534
FLOW DIVERSION

PART 1 GENERAL

1.01 SCOPE

- A. Under this heading shall be furnished all equipment, labor and materials to provide for diverting flow around a section of the sewer system upon which rehabilitation work is being performed including, but not limited to pumps, power and conduits for flow diversion.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PUMPING AND FLOW DIVERSION

- A. When adequate flow control cannot be obtained by plugging influent lines, pumps or siphons shall be used to divert all of the flow from that section of the sewer being rehabilitated. Flow diversion will be required for television inspection sealing if flow cannot be controlled by plugging or blocking.
- B. When pumping is required, the Contractor shall supply the necessary pumps, conduits and other equipment to divert the flow of sewage around the sewer system section in which work is to be performed. The diversion system shall be of sufficient capacity to handle existing flows plus additional flow that may occur during period of a rain storm. The Contractor will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and flow diversion system. If pumping is required on a 24-hour basis, all engines shall be equipped in a manner to keep the pump noise at a minimum.
- C. In no case shall bypassing to any watercourse, storm sewer or other point where pollution may result be permitted.

3.02 FLOW CONTROL PRECAUTIONS

- A. Whenever flows in a sewer line are blocked, plugged or diverted, precautions must be taken by the Contractor to protect the sewer lines from damage that might be inflicted by excessive sewer surcharging. Further, the Contractor must take precautions to ensure that sewer flow control operations do not cause flooding or

damage to public or private property.

END OF SECTION 02534

SECTION 02536

MANHOLE REHABILITATION

PART 1 – GENERAL

1.01 SCOPE

- A. This section of the Specifications describes products to be incorporated into the sanitary sewer for manholes where rehabilitation is recommended. The contractor shall furnish all products and perform all labor necessary to fulfill the requirements of these Specifications. It includes, but is not limited to the construction of the following items.
 - 1. Manhole Rehabilitation

1.02 RELATED WORK

- A. Other work required for the construction of the sanitary sewer collection system is specified in the following of the specifications:

Section No.	Title
02315	Excavation, Trenching and Backfilling for Utilities

1.03 OPTIONS

- A. The specifications describe several materials. Where manufacturer's and models of equipment are named in the specification, it is intended that these are to describe the quality and function required. The Contractor may use equipment or materials of other manufacturers provided they are reviewed and accepted by the Engineer and the Owner as meeting the specifications.
- B. The Contractor will furnish the Engineer and the Owner a description of all materials before ordering. The Engineer will review the Contractor's submittals and provide in writing an acceptance or rejection of material. However, an acceptance of any material by the Engineer does not relieve the Contractor of this responsibility to meet the requirements of the construction plans or these specifications.

1.04 QUALITY ASSURANCE

- A. Material and equipment shall be the standard product of a manufacturer who has manufactured them for a minimum of 2 years and who provides published data on the quality and performance of the project.

- B. A Subcontractor for any part of the work must have experience on similar work and if required, furnish the Engineer with a list of projects and the Owners or Engineers who are familiar with his competence.
- C. Devices, equipment, structures, and systems not designated by the Engineer that the Contractor wishes to furnish shall be designed either by a registered professional engineer or by someone the Engineer approved as qualified. If required, complete design calculations and assumptions shall be furnished to the Engineer or the Owner before acceptance.
- D. All testing of the piping shall be made by the Contractor with equipment qualified by the Owner, Engineer, or utility company and in the presence of the Engineer, Owner and utility company. The Engineer or his representative reserves the right to accept or reject testing equipment.
- F. The details of all welded joints shall comply with all of the requirements for joints, which are accepted without qualification test under the “Code of Arc and Gas Welding in Building Construction of the American Welding Society”. Workmanship shall conform to A.I.S.C. Specifications for Fabrication and Erection. All work shall be executed by skilled workmen under experienced supervision. All welding shall be done by welders who have been previously qualified by tests as prescribed in the “American Welding Society Standard Qualification Procedure” to perform the type of work required. Welders shall have passed the qualification test (Qualification tests using procedures covered in AWSS B3.0 Part II) within the preceding 12 months.

1.05 ALTERNATIVES

- A. The intention of these specifications is to produce the best system for the Owner. If the Contractor suggests that alternate material, equipment or procedures will improve the results at no additional costs, the Engineer and the Owner will examine the suggestion and if it is accepted, it may be used. The basis upon which acceptance of an alternate will be given is its value to the Owner, and not for the convenience of the Contractor.

1.06 GUARANTEE

- A. The contractor shall guarantee the quality of the materials, equipment, and workmanship for 12 months after acceptance of the completed Project. Defects discovered during that period shall be repaired by the Contractor, at no cost to the Owner. The Performance bond shall reflect this guarantee.
- B. The manufacturers of equipment, valves, pumps, controls, measuring devices and special equipment shall test the equipment shall test the equipment at field conditions for compliance with the specifications. The manufacturer shall guarantee his product to be free from defects in material and factory workmanship

for a period of 1 year from date of acceptance of the completed project, provided the product is properly installed, serviced and operated under normal conditions according to the manufacturer's instructions. The manufacturer shall furnish the service of a representative of the Engineer with a certificate that the equipment meets the specifications and will perform as required. The manufacturer shall furnish four field trips to the plant by a service representative during the first year after completion of the Project at no cost to the Owner.

1.07 EXISTING UTILITIES

- A. All known utility facilities are shown schematically on plans, and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines are unknown facilities not shown on plans will not relieve the contractor of his responsibility under this requirement. "Existing Utilities Facilities" means any utility that exists on the projects 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 shown on the plans. The Contractor shall contact all utility companies prior to beginning work and request an accurate field location of their respective utility lines.
- B. Damage to any part of the existing water system facilities by the Contractor or Subcontractors, that is required by the user's and Owner's forces, shall be charged to the Contractor on the basis of time and material, plus 30% for overhead and administration.

1.08 ACCEPTANCE OF PORTIONS OF WORK

- A. The Owner reserves the right to accept and use any portion of the work whenever it is considered in the public interest to do so.

1.09 RECORD DATA

- A. It will be required of the Contractor to keep accurate, legible records of the location of any deviations from the construction drawings, any additional items or structures to the construction drawings. These records will be made available to the Engineer before his inspection for incorporation into the Engineer's Record Drawings.

1.10 SUBMITTALS

- A. Follow all requirements of Section 01300 – Submittals.

PART 2 – PRODUCTS

Products and materials used in the work shall conform to the following:

2.01 MATERIALS AND EQUIPMENT

- A. The materials to be utilized in the lining of wastewater structures shall be designed and manufactured to withstand the severe effects of hydrogen sulfide in a wastewater environment. Manufacturer of corrosion protection products shall have long proven experience in the production of the lining products utilized and shall have satisfactory installation record.
- B. Equipment for installation of lining materials shall be high quality grade and be as recommended by the manufacturer.
- C. The lining system to be utilized for large wastewater structures shall be a multi-component ‘stress skin panel’ liner system as described below:
1. Liner

<u>Installation</u>	<u>Liner</u>
Moisture Barrier	Modified Polymer (Silicone modified polyurea)
Surfacer	Polyurethane/Polymeric blend foam
Final Corrosion Barrier	Modified polymer (Silicone modified polyurea)
 2. The Modified polymer (silicone modified polyurea) shall be sprayable, solvent free, two-component polymeric, moisture/chemical barrier specifically developed for the corrosive wastewater environment.
 3. The Polyurethane Rigid Structure Foam, shall be low viscosity two-component, containing flame retardants.
 4. Total thickness of multi-component liner system shall be a minimum of 500 mils.
- D. The product shall be SPECTRASHEILD, manufactured by CCI Spectrum, Inc.

PART 3 – EXECUTION

3.01 INITIAL INSPECTION

- A. Applicator shall take appropriate action to comply with all local, state, and federal regulations including those set forth by OSHA, EPA, the Owner, and any other applicable authorities.
- B. Prior to conducting any work, perform inspection of structure to determine need for protection against hazardous gases or oxygen depleted atmosphere and the need for flow control or flow diversion.

- C. Submit plan for flow control or bypass to owner/engineer for approval prior to conducting the work.
- D. New Portland cement structures shall have endured a minimum of 28 days since manufacture prior to commencing installation of the liner system.

3.02 SURFACE PREPARATION

- A. Conduct surface preparation program to include monitoring of the atmosphere for hydrogen sulfide, methane, low oxygen or other gases, approved flow control equipment, and surface preparation equipment.
- B. Surface preparation methods may include high pressure water cleaning, hydro blasting, abrasive blasting, grinding, or detergent water cleaning and shall be suited to provide a surface compatible for installation of the liner system.
- C. Surface preparation method shall produce a cleaned, abraded and sound surface with no evidence of laitance, loose concrete, loose brick, loose mortar, contaminants or debris, and shall display a surface profile suitable for application of the liner system.
- D. After completion of surface preparation, perform the seven-point checklist inspecting for:
 - 1. Leaks
 - 2. Cracks
 - 3. Holes
 - 4. Exposed Rebar
 - 5. Ring and Cover condition
 - 6. Invert Condition
 - 7. Inlet and Outlet Pipe Condition
- E. After the defects in the structure are identified, repair all leaks and severe cracks with Spectra-Grout.
- F. Upon completion of leak and crack repair, the surface shall be primed.

3.03 MATERIAL INSTALLATION

- A. Application procedures shall conform to recommendations of the manufacturer, including materials handling, mixing, environmental controls during application, safety, and spray equipment.
- B. Spray equipment shall be specifically designed to accurately ratio and apply the liner system.

- C. Application of multi-component liner system shall be in strict accordance with manufacturer's recommendation. Final installation shall be a minimum of 500 mils. A permanent identification and date of work performed shall be affixed to the structure in a readily visible location.
- D. A final written report may be provided to the owner/engineer detailing the location, date of report, and description of repair if requested.

3.04 ON-SITE OBSERVATION

- A. The Engineer shall have the right to require that any portion of the work be done in his presence and if any work is covered up after such instruction, it shall be exposed by the Contractor for observation. However, if the Contractor notifies the Engineer that such work is scheduled and the Engineer fails to appear within 48 hours, the Contractor may proceed without him. All work done and materials furnished shall be subject to review by the Engineer or Project Representative. All improper work shall be reconstructed and all materials which do not conform to the requirements of the specifications shall be removed from the work upon notice being received from the Engineer for the rejection of such materials. The Engineer shall have the right to mark rejected materials so as to distinguish them as such.

3.05 HANDLING MATERIALS

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Any cracked or damaged materials cannot be used and must be properly discarded.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front loader. Do not use material damaged in handling.
- C. Storage: Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas. Do not interfere with other contractors right to access.

3.06 INSPECTION & TESTING

- A. Manholes that receive interior surface rehabilitation shall be tested in the following manner:
 - 1. Vacuum Tests: Vacuum tests shall be performed in accordance with ASTM C 1244, *Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test*. The manhole, after manhole rehabilitation is complete, shall be vacuum tested. The test head shall be

placed at the inside of the top of the cone section and the compression head inflated to 40 psi to affect a seal between the vacuum base and the manhole structure. Connect the vacuum pump to the outlet port with the valve open. A vacuum of 10-inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9-inches. The manhole shall pass if the time is greater than 60 seconds for 48-inch diameter manholes. If the manhole fails the initial test, necessary repairs shall be made with non-shrink grout while the vacuum is still being drawn. Retesting shall proceed until a satisfactory test is obtained. Vacuum testing equipment shall be equal to that as manufactured by P.A. Glazier, Inc.

2. **Cementitious Manhole Liner Thickness Verification:** During the installation process, the Contractor will perform a physical depth check of the liner material immediately upon product application. This physical depth verification must take place in the presence of the project observer. The test instrument will be a small diameter rigid wire or rod that is bent at a length that corresponds to the minimum desired liner thickness. The test instrument should be used to penetrate the liner at various locations within the manhole. The Contractor should insert the entire bent portion of the test instrument into the liner to demonstrate a liner thickness in excess of the minimum required thickness. Those areas that do not meet the minimum specified thickness shall receive additional application of liner material until the minimum desired thickness is achieved.
3. **Holiday Testing:** Contractor will perform a holiday test in the presence of the project observer to demonstrate that the minimum thickness of the epoxy coating has been achieved. Repair holidays by abrading the surface with grit disk paper, cleaning and hand applying additional coating over the prepared section.

END OF SECTION

SECTION 02741

REMOVAL AND REPLACEMENT OF EXISTING PAVEMENT

PART 1 – GENERAL

1.01 SCOPE

- A. The Contractor shall furnish all labor, materials, equipment and incidental required to remove and replace existing pavements defined as Class “A” Pavement Replacement and Asphalt Patch as shown on the Drawings and as required for the construction of new pipelines and structures.
- B. The Contractor will be required to hose clean all road surfaces after backfilling and before any surfacing, but in no case will pavement be placed until the trench material is dry.
- C. The Contractor shall maintain pavement under this Contract during the guarantee period of one year and shall promptly refill and repave areas which have settled or are otherwise unsatisfactory for traffic.
- D. The Contractor shall furnish and spread calcium chloride on disturbed surfaces to allay dust conditions. Calcium chloride shall conform to AASHO M-144, except that the pellet or flake shall be equally acceptable.
- E. Permanent pavement shall be placed over a backfilled trench as soon as possible. Repaving may be delayed if the Engineer so directs, but in such case temporary pavement or crusher run placement shall be required.
- F. If, in the opinion of the Engineer, the placing of temporary pavement is necessary, the Contractor shall place the temporary pavement as described hereinafter.

1.02 RELATED WORK

NOT USED

1.03 SPECIFICATIONS

- A. Except as otherwise specified herein, the Standard Specifications for Highway Construction as issued by the State of Georgia, Department of Highways and Public Transportation, Section 400, shall apply to material requirements for

temporary and permanent replacement of pavements removed in excavation of trenches.

PART 2 PRODUCTS

2.01 ASPHALT REMOVAL & REPLACEMENT

- A. An asphalt removal & replacement will consist of 8” of Class “A” Portland Cement Concrete over compacted subgrade with 2” of Type “E” asphaltic top coat that is equal or better than original paving. A bituminous tack coat must be applied before placement of asphaltic top coat.

2.02 TEMPORARY PAVEMENT

- A. Where directed by the Engineer, the Contractor shall place temporary pavement with top matching the grade of existing pavement. The material shall be 1-1/2” Asphaltic Concrete Surface Course.

PART 3 EXECUTION

3.01 CUTTING PAVEMENT

- A. The Contractor shall cut and remove pavement as necessary for installing the new pipe lines and appurtenances and for making connections to existing pipe lines.
- B. Before removing pavement, the pavement shall be marked for cuts nearly paralleling pipe lines and existing street lines. Asphalt pavement shall be cut along the markings with a rotary saw or other suitable tool. Concrete pavement, and asphalt pavement on concrete base, shall be scored to a depth approximately two (2) inches below the surface of the concrete along the pavement may be broken below the scoring with a jackhammer or other suitable equipment.
- C. No pavement shall be machine pulled until completely broken and separated along the marked cuts.
- D. The pavement adjacent to pipeline trenches shall neither be disturbed nor damaged. If the adjacent pavement is disturbed or damaged, irrespective of cause, the Contractor shall remove the damaged pavement and shall replace it at his own expense.

3.02 HOT MIX ASPHALT PAVEMENT CONSTRUCTION, REPAIR AND REPLACEMENT

- A. All existing pavement cut or damaged by construction under this contract shall be repaired to match the original surface material and original grade unless otherwise specified or shown on the Drawings. Materials and construction procedures for base course and pavement repair shall conform to the GA DOT Specifications for the type of original surface.
- B. New pavements shall be placed at the locations as shown on the Drawings.
- C. The work for new or for repair of existing pavement shall include the placing and compacting of the base course, the placing of the Portland Cement Concrete at the thickness specified in the details, the application of prime and tack coats where required, the placing and maintaining of the hot mix asphalt surface course at the thickness specified in the details, and all special requirements specified herein.
- D. The backfill shall be thoroughly compacted prior to concrete base.
- E. The asphalt surface course shall be thoroughly rolled or tamped with a mechanical roller or tamper.

3.03 CONCRETE PAVEMENT

- A. Where the installation of pipe involves the cutting of concrete, the cutting shall be kept from expansion joint to expansion joint. Once the pipe is installed, the Contractor shall compact the trench to 98% density according to the modified proctor. After compaction, Contractor shall install and compact a 6" thick graded aggregate base course. The base shall be poured and finished. Concrete shall be 3,000 psi and shall be equal or better than original pavement.
- B. When sidewalks are removed and replaced, match the existing finish and construct sidewalks as detailed on the plans.

3.04 CLEAN-UP

- A. After all repair and restoration or paving has been completed, all excess asphalt, dirt, rock and other debris shall be removed from the roadways. All existing storm sewers and inlets shall be checked and cleaned of any construction debris.

3.05 MAINTENANCE OR REPAIR

- A. All wearing surfaces shall be maintained by the Contractor in good order and be suitable for traffic at all times for a period of one year after completion and acceptance of the work. Approximately at the end of the maintenance period a

final inspection will be made of the repaired surface and any settlement or depression of the repaired surface shall be adjusted as previously noted herein.

END SECTION

SECTION 02920

GRASSING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Ground preparation, seeding, planting grass, fertilizing, and mulching of graded areas behind structures, over pipelines, in rights-of-way, roadway shoulders, and any other disturbed area.
- B. Seed Protection.
- C. Maintaining seeded areas until final acceptance.

1.02 RELATED SECTIONS

- A. None

1.03 MEASUREMENT AND PAYMENT

- A. Grassing will be paid for as indicated in Section 01025.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Damaged bags are not acceptable.
- C. Deliver sod on pallets.
- D. All materials shall be acceptable to Engineer prior to use.

1.05 PLANTING DATES

- A. This specification provides for the establishment of a permanent grass cover between the dates of March 1 and September 30. If land disturbing activities are not completed in time to permit planting and establishment of the permanent grass during the dates specified in the seeding schedule, the Contractor will be required to plant a temporary cover. The temporary cover shall be planted between October 1 and February 28 unless otherwise permitted.

PART 2 – PRODUCTS

2.01 SEED

- A. 33% Centipede grass, 67% Carpet grass.
- B. All seed shall conform to all Georgia State Laws and to all requirements and regulations of the State of Georgia Department of Agriculture.
- C. The several varieties of seed shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the State of Georgia Department of Agriculture.
- D. The Engineer reserves the right to test, reject, or accept all seed before seeding.

2.02 FERTILIZER

- A. 10N-10P-10K, commercial fertilizer of approved type, conforming to state fertilizer laws.

2.03 SEEDING SCHEDULE

A.

<u>SEED</u>	<u>RATE</u>	<u>PLANTING DATES</u>
Centipede	25 lbs/acre	March 1 – September 30
Carpet	30 lbs/acre	March 1 – September 30
Rye	75 lbs/acre	October 1 – February 28

- B. In areas where existing grass is to be matched, contractor shall sow seed at the rate and dates recommended by seed distributor.

2.04 LIME

- A. Agricultural grade, ground limestone.

2.05 SOD

- A. Sod shall be densely rooted, good quality grass (to match existing grass), free from noxious weeds. The sod shall be obtained from areas where the soil is reasonably fertile. The sod shall be raked free of all debris and the grass mowed to two inches before cutting. The sod shall contain practically all of the dense root system and not be less than one (1) inch thick. Sod shall be cut in uniform strips not less than twelve (12) inches in width and not less than twenty-four (24) inches in length.

2.06 ACCESSORIES

- A. Straw Mulch: Oat or wheat straw reasonable free from weeds, foreign matter detrimental to plant life, and in dry condition.
- B. Excelsior Mulch: Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of the fibers shall be 4 to 6 inches. The cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to the natural grain of the wood so as to cause splintering of the fibers when weathering in order to provide adherence to each other and to the soil.
- C. Wood cellulose fiber shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form homogenous slurry. The mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate into the underlying soil. The mulch shall be heat processed so as to contain no germination or growth-inhibiting factors. It shall be dyed (non-toxic) an appropriate color to facilitate metering of material.

2.07 PRODUCT REVIEW

- A. The Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 – EXECUTION

3.01 PREPARATION

- A. The areas to be seeded shall be made smooth and uniform and shall conform to the finished grade indicated on the plans.
- B. Remove foreign materials, plants, roots, stones, and debris from surfaces to be seeded.
- C. Grassing areas, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer, seed, or sod is applied.

3.02 STAND OF GRASS

- A. **Before payment for final grassing, the Contractor will be required to produce a satisfactory stand of perennial grass. This stand shall cover 70% of the total area.**

3.03 SEEDING DATES

- A. Seeding shall be performed during the periods and at the rates specified in the seeding schedule. Seeding work may, at the discretion of the Contractor, be performed throughout the year following the schedule prescribed for the given period. Seeding work shall not be conducted when the ground is frozen or excessively wet. The Contractor will be required to produce a satisfactory stand of grass regardless of the period of the year the work is performed.

3.04 APPLYING LIME AND FERTILIZER

- A. Following advance preparation and placing selected material for shoulders and slopes, lime, if called for based on soil tests and fertilizer, shall be spread uniformly over the designated areas and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer shall be applied at the rate of 500 pounds per acre for the initial application unless otherwise directed by the Engineer. Lime shall be applied at the rate determined by the soil test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic thuds as a mixture of fertilizer and seed. When fertilizer is applied with combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when Wood Cellulose Fiber Mulch is used. Any stones larger than 2½ inches in any dimension, larger clod, roots, or other debris brought to the surface shall be removed.

3.05 SEEDING

- A. Seed shall be sown within 24 hours following the application of fertilizer and lime and preparation of the seedbed as specified in Section 3.04. Seed shall be uniformly sown at the rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas that are inaccessible to seed drills.
- B. The seed shall be covered and lightly compacted by means of cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing, or by other satisfactory methods.
- C. Apply water with fine spray immediately after each area has been sown.
- D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.
- E. If permitted by the special provisions, wood cellulose fiber mulch or excelsior fiber mulch may be used.

3.06 SEED PROTECTION (STRAW MULCH)

- A. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

3.07 SEED PROTECTION (EXCELSIOR MULCH)

- A. Seed shall be sown as specified in Section 3.05. Within 24 hours after the covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. The Engineer may require light rolling of the mulch to form a tight mat.

3.08 SEED PROTECTION (WOOD CELLULOSE FIBER MULCH)

- A. After the lime has been applied and ground prepared as specified in Section 3.4, wood cellulose fiber muck shall be applied at the rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for the application of fertilizer, seed and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed and water. The slurry distribution lines shall be equipped with a set of hydraulic spray nozzles, which will provide an even

distribution of the slurry on the various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons.

- B. The seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by the hydraulic seeding method specified herein. The materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be so regulated that the amounts and rates of application shall result in a uniform application of all materials at rates not less than the amount specified. Using the color of the wood pulp as a guide, the equipment operator shall spray the prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream so as to fall like rain, allowing the wood fibers to build upon each other until an even coat is achieved.

3.09 SODDING

- A. Sod shall be placed between March 1 and December 1.
- B. Sod shall be placed within 48 hours of cutting.
- C. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of the strips shall be at right angles to the flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. The sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement. The sod shall be watered, mowed, weeded, repaired or otherwise maintained, to insure the establishment of a uniform healthy stand of grass until acceptance.

3.10 MAINTENANCE

- A. Maintain seeded surfaces until final acceptance.
- B. Maintenance shall consist of providing protection against traffic, watering to ensure uniform seed germination and to keep surface of soil damp, and repairing any areas damaged as a result of construction operations or erosion.

3.11 ACCEPTANCE

- A. Before acceptance of the seeding performed for the establishment of permanent vegetation, the Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and the winter weather and be capable of re-establishment in the spring.

END SECTION