

BID DOCUMENTS AND TECHNICAL SPECIFICATIONS

***MAY RIVER ROAD STREETScape Phase 2
LANDSCAPE and STREETScape IMPROVEMENTS***

IFB 2018 -11

For



**Town of Bluffton
Beaufort County, South Carolina**

July 12, 2017

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PART I – BIDDING REQUIREMENTS

INSTRUCTIONS AND INFORMATION FOR BIDDERS

1. BASIS OF CONTRACT:

See Invitation/Advertisement For Bids and Proposal Form.

2. BID SECURITY:

See Invitation/Advertisement For Bids and Proposal Form.

3. CONTRACTOR'S LICENSE:

All contractors wishing to bid on this project must have obtained a "Contractor License" and "Contractor License Number" from the state of South Carolina. All work to be included in this project shall be done by a licensed contractor. The successful bidder must furnish proof that they have a State of South Carolina Contractor's License and Town of Bluffton Business License before a contract will be executed.

4. PRE-BID CONFERENCE:

A Pre Bid Conference is tentatively set for Thursday July 27 at 10 AM. The location will be posted on the Web Site one week prior to conference.

5. INTERPRETATIONS:

No oral interpretation will be made to bidders as to the meaning of the Plans and Specifications. Requests for interpretation of Plans and Specifications must be made in writing to Mr. Benny Jones, Sr. at the Town of Bluffton, P.O. Box 386, Bluffton South Carolina (29910), or by e-mail at bjones@townofbluffton.com no later than August 9, 2017, and failure on the part of the successful bidder to do so shall not relieve him as Contractor of the obligation to execute such work in accordance with a later interpretation by the Engineer. All interpretations made to bidders will be issued in the form of addenda to the plans and specifications and will be posted on the Town of Bluffton web site. Such addenda are to be covered in the proposal, and in closing the Contract they will become a part thereof.

6. BIDDERS TO INVESTIGATE:

Bidders are required to submit their proposals upon the following express conditions, which shall apply to and become part of every bid received, for example:

Each Bidder must satisfy himself and form his own opinion by personal examination of the location and ground of the proposed work, and by such other means as he may desire, as to the actual conditions and requirements of the work, including the materials to be excavated, removed or relocated. Bidder must make his own interpretations and satisfy himself by his own investigations and research regarding labor and materials needed, and shall make his bid in sole reliance thereon. Any information or data furnished by the Owner or its employees for the convenience of any bidder is not guaranteed.

7. **PROPOSALS:**

Proposals will be opened and read as stated in the Invitation/Advertisement for Bids.

All bids must be submitted on the Bid Proposal Form furnished to the Bidder as a part of these documents and must be signed. All blanks on the proposal form must be filled in. Numbers shall be written in English words and in Arabic Numerals, and the completed form shall be without interlineation, alteration, or erasure. Failure to submit a proposal in the form requested or the inclusion of any condition, alternate, limitation or provision not called for will render the bid irregular and shall be considered sufficient cause for rejection of a bid. Failure to complete entries in all blanks in the proposal form shall be considered sufficient cause for rejection of a proposal. If the bidder is not currently able to complete the work described in the Plans and Specifications but would like to be considered for future work in the Town of Bluffton, the bidder may submit a Bid Proposal with the terms "NO BID". A "NO BID" Bid Proposal will be considered a responsive bid.

All proposals shall include a Project Schedule with projected dates and any Add Alternate requested in the Bid Tabulation.

Bid Security, made payable to the Owner, shall be in the amount of five percent (5%) of the Base Bid. Security shall be a Bid Bond issued by a surety licensed to conduct business in the state where the project is located, and shall have attached Power of Attorney certifying bond signee.

All addenda issued shall be acknowledged in the place so designated. All alternates, if any, shall be bid on; the term "no bid" shall not be used. In the event that the Bidder does not desire to make a change in price from his Base Bid for any given alternate, he shall so indicate by using the words "no change." Proposals shall close with legal name of Bidder and be executed by one legally authorized to bind the bidding firm to a contract.

A proposal cannot be withdrawn after it is filed, unless Bidder makes written request to the Owner prior to time set for opening of bids, or unless the Owner fails to accept bid within 90 days after date fixed for opening of bids. If any bidder refuses to enter into a contract, the Owner will retain his Bid Security as liquid damages but not as a penalty. The successful bidder must be able to provide a Payment Bond and Performance Bond within 10 days of notice to award. Samples of such bonds are contained herein and shall be in the amount of 100% of the value of the Base Bid.

Submittal: The Proposal, 1 original and 3 copies, and a single copy of the Bid Security together with the Power of Attorney shall be contained in a sealed envelope bearing the Bidder's name and contractor's license number clearly addressed to the Owner as indicated on the Proposal Form. In addition, in large letters on both the front and back of the envelope, the following shall appear: "PROPOSAL FOR LANDSCAPING. DO NOT OPEN UNTIL 2:00 O'CLOCK PM, 8/16/2017" not later than the date and hour named therein. After that time, no proposals will be received or withdrawn.

8. FORM OF AGREEMENT:

Form of Agreement will be on the enclosed Form in the Bid Documents.

9. AWARD:

The Owner's intent is to make an award within funds available to the lowest responsible bidder furnishing satisfactory performance surety. The Owner reserves the right to reject any or all bids and to waive technicalities and informalities.

The Owner reserves the right to select the alternates to be used in determining the lowest bid. If such bid exceeds available funds, the Owner may reject all bids. The Owner will decide which submittal is the lowest qualified bidder, and in determining such bidder, the following elements will be considered for each bidder:

- a. Maintains a permanent place of business.
- b. Has adequate plant, equipment and personnel to perform the work properly and expeditiously.
- c. Has suitable financial status to meet obligations incident to the work.
- d. Has appropriate technical experience.
- e. Has an acceptable construction schedule.

Awards shall be made only to responsive and responsible contractors who possess the ability or have access to resources to perform successfully under the terms and conditions of proposed procurement. Consideration must be given to such matters as contractor integrity, compliance with public policy, record of past performance, financial, and technical resources.

10. CONTRACTOR TO BE SATISFACTORY TO OWNER:

The Contract will not be awarded to any bidder or bidders who have failed in any contractual obligations to the Owner, or who has on any previous contract performed in a manner unsatisfactory to the Owner, either as to the character of the work, the fulfillment of guarantees or the time consumed in its completion.

One or more bidders shall, upon written request and prior to the letting of the contract, furnish the owner with the following information relative to his own business and that of each of the subcontractors named in his Bid Proposal.

- (a) A statement of his experience, including a list of projects for which he or his firm was a responsible contractor or subcontractor; such lists shall indicate the name or identification and location of each project, the year it was completed, a brief description and the approximate dollar value of the work for which he was responsible.
- (b) A statement of experience of each subcontractor named in his Bid Proposal; each statement shall include a list of projects for which the named

subcontractor was a responsible contractor or subcontractor; such lists shall include the name or identification and location of each project, the year it was completed, a brief description and the approximate dollar value of the work for which the named subcontractor was responsible.

- (c) The amount of capital and equipment the Bidder has available for the work of the project.
- (d) The amount of capital and equipment each of the named subcontractors has available for the work of the project.
- (e) A statement showing the financial assets and liabilities of the Bidder, certified to by a Certified Public Accountant.
- (f) A statement from each of the named subcontractors showing his assets and liabilities, certified by a Certified Public Accountant.

11. LIQUIDATED DAMAGES:

Liquidated Damages as set forth in the Bid Proposal will be assessed for each consecutive calendar day of delay in the completion of the work not excusable as provided in the Special Conditions (Section 4.03) and the Bid Proposal.

12. SURETY AND INSURANCE COMPANIES:

The Contract provides that the surety and insurance companies must be acceptable to the Owner. To avoid inconvenience, any bidder or subcontractor should confer with the Owner to determine whether the surety or insurance companies expected to be used on the work are acceptable to the Owner.

BID PROPOSAL

TOWN OF BLUFFTON
P.O. BOX 386
BLUFFTON, SOUTH CAROLINA 29910

ATTENTION: MR. BENNY JONES, SR
PROJECT MANAGER

PROJECT TITLE: MAY RIVER ROAD STREETSCAPE, Phase 2-
Landscape and Streetscape Improvements.

SUBMITTED BY: _____

Gentlemen:

Having carefully examined the Plans, Specifications and other Contract Documents relating to the project, dated June 22, 2016, with Revision date of July 5, 2017 and Addendum No.(s) ,_ and also having carefully inspected the premises and the conditions affecting the work, the undersigned hereby proposes and agrees to furnish all materials, labor skill, equipment, tools and other things of every kind and description specified, needed or used for the complete execution of all work covered by and in conformity with the aforesaid Plans, Specifications and other Contract Documents prepared by J.K. Tiller Associates, Inc. (hereinafter called the "Landscape Architect") for the Town of Bluffton (hereinafter called the "Owner") and all Amendments and Addenda thereto, for the sums hereinafter stated below and quantified on the completed Bid Form – Unit Price Schedule.

SCHEDULE OF BID PROPOSAL:

Bidder must fill in unit prices in figures, make extensions of each item and total as indicated. For complete information concerning these items, see Plans and Specifications.

SCHEDULE OF BID ITEMS

May River Streetscape - Phase II

Bluffton, SC

July 5, 2017

201613-02



DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
A. Site Preparation and Earth Work				
1. Fine Grading/ Plant Bed Preparation	97,500	SF	_____	_____
2. Soil Amendments	97,500	SF	_____	_____
3. Herbicide	97,500	SF	_____	_____
Site Preparation and Earth Work Subtotal				_____
B. Landscaping				
Trees				
1. CECA Cercis canadensis/ Red Bud/ 2" CAL / 8'-10'. H/ #45	2	EA	_____	_____
2. CHVI Chionanthus virginicus/ White Fringetree/ 1.5"-2" CAL/ 6'-8'H/ #30/ Single Trunk	24	EA	_____	_____
3. COFL Cornus florida/ Eastern Dogwood/ 1.5"-1.75" CAL/6'-8'H min./ #30	5	EA	_____	_____
4. GIBI Gingko biloba 'Autumn Gold'/ Maidenhair Tree/ 2.5"-3" CAL/ 12'-14'H/ Cont.	2	EA	_____	_____
5. LAIT Lagerstroemia indica 'Tuscarora'/ Crape Myrtle/ 1.75"-2" CAL/ 10'-12'H/ #30/ Multi-Trunk	9	EA	_____	_____
6. QUVI Quercus virginiana/ Southern Live Oak/ 2.5" CAL / 12'-14' H/ #65	37	EA	_____	_____
7. SAPA Sabal palmetto/ Cabbage Palm/ 15'-16'H/ Hurricane Cut	7	EA	_____	_____
Shrubs				
1. AZEN Azalea Encore TM/ Encore Azalea/ 3 GAL / 15"- 18" H min./ Full and single variety	237	EA	_____	_____
2. AZIF Azalea indica 'Formosa'/ Formosa Azalea/ 7 GAL / 28" H min./ Full	345	EA	_____	_____
3. ILGL Ilex glabra/ Inkberry Holly/ 7 GAL/ 28" min./ Full	132	EA	_____	_____

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
4. SERE Serenoa repens/ Saw Palmetto/ 7 GAL/ 18"-24"	369	EA		
5. VITA Vitex agnus-castus/ Chaste Tree/ 15 GAL/ 4'-6'	12	EA		
Ground Covers + Vines				
1. GELS Gelsemium sempervirens 'Carolina'/ Yellow Jessamine/ 3 GAL/ 2'-2.5' Staked	94	EA		
2. DIIR Diets iridioides/ Fortnight Lily/ 3 GAL/ 24" H/ Full	50	EA		
3. MUCW Muhlenbergia capillaris 'White Cloud'/ White Muhly Grass/ 3 GAL/ 15"-18"/ Full	121	EA		
4. TRAS Trachelospermum asiaticum 'Asiatic'/ Asiatic Jasmine/ 1 GAL/ 6"-12" Spread	2,848	EA		
Other				
1. SOD Cynodon dactylon 'Celebration'/ Celebration Burmuda Grass	40,342	SF		
2. MULCH Longleaf Pine Straw - 3" deep	50,500	SF		
3. IRRIGATION (N.I.B)				
Landscaping Subtotal				
C. Fence				
1. Living Fence	564	LF		
2. Black Vinyl Coated Chain Link Rolling Gate (length varies)	4	EA		
Fence				
D. Irrigation				
1. Hunter ACC99D Series Decoder Controller	1	EA		
2. Grounding Plate with Ground Enhancing Material	1	EA		
3. Ground Rod, Bare Wire, and Cadweld Connectors	6	EA		
4. 14-2 Hunter Jacketed Communication Cable Hunter WRF-Clik Series Wireless Rain/Freeze	5,000	LF		
5. Sensor Hunter ICV-101G Drip Zone Control Valve	1	EA		
6. Assembly	8	EA		
7. Hunter ICV-151G Series Electric Valve	14	EA		
8. 1" PVC Ball Valve	2	EA		

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
9 Nibco T-113BHW Series 2" Gate Valve	7	EA		
10 10" NDS Pro Series Valve Box	15	EA		
11. 12" NDS Pro Series Valve Box	14	EA		
12 Jumbo NDS Pro Series Valve Box	8	EA		
Hunter Pros-04-PRS30-CV Series 4" Pop-up				
13 Sprayhead with MPR Nozzle	734	EA		
14 Hunter PLD-AVR Series Air/Vacuum Relief Valve	1	EA		
15. Rain Bird XB-10 Series Xeri-Bug Emitters	247	EA		
Agrifim (1 GPH x 18" Spacing) Pressure				
16 Compensating Inline Drip Tubing	11,500	LF		
Hunter PLD-06-12 (.60 GPH x 12" Spacing) Series				
17 Eco-Wrap Subsurface Tubing	22,250	LF		
18 .520 x .620 Blank Tubing	1,000	LF		
19. .160 x .220 1/4" Vinyl Tubing	200	LF		
20 1" Lateral PR-200 PVC Pipe	13,300	LF		
21 1 1/2" Lateral PR-160 PVC Pipe	3,680	LF		
22 2" Lateral PR-160 PVC Pipe	280	LF		
23. 1 1/2" Mainline PR-160 PVC Pipe	260	LF		
24 2" Mainline PR-160 PVC Pipe	4,520	LF		
25 2 1/2" Mainline PR-160 PVC Pipe	40	LF		
26 2" Sleeve Schedule 40 PVC Pipe	140	LF		
27 4" Sleeve Schedule 40 PVC Pipe	1,520	LF		
28 6" Sleeve Schedule 40 PVC Pipe	140	LF		
Irrigation				

E. Maintenance

1 Year Maintenance	1	YR		
Maintenance				

TOTAL

F. Alternate - Landscape

Trees

1. CECA Cercis canadensis/ Red Bud/ 1.75" CAL / 8' H/#30	2	EA		
2. CHVI Chionanthus virginicus/ White Fringetree/ 1.5"- 1.75" CAL/ 4'-6' H/ Single Trunk/ #30	24	EA		
3. COFL Cornus florida/ Eastern Dogwood/ 1"-1.5" CAL/ 4'-6' H/ #15	5	EA		
4. GIBI Gingko biloba 'Autumn Gold'/ Maidenhair Tree/ 2"-2.5" CAL/ 8' H min.	2	EA		

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
5. LAIT Lagerstroemia indica 'Tuscarora'/ Crape Myrtle/ 1.5" CAL/ 6' H/ #15/ Multi-Trunk	24	EA		
6. QUVI Quercus virginiana/ Southern Live Oak/ 2" CAL / 10'-12' H/ #45	37	EA		
Shrubs				
1. AZIF Azalea indica 'Formosa'/ Formosa Azalea/ 3 GAL / 18"-24" H min./ Full	345	EA		
2. ILGL Ilex glabra/ Inkberry Holly/ 3 GAL/ 18"-24" min./ Full	132	EA		
3. SERE Serenoa repens/ Saw Palmetto/ 3 GAL/ 15"	369	EA		
4. VITA Vitex agnus-castus/ Chaste Tree/ 7 GAL/ 3' H.	12	EA		
Ground Covers + Vines				
1. GELS Gelsemium sempervirens 'Carolina'/ Yellow Jessamine/ 1 GAL/ 318"-24"Staked	121	EA		
2. DIIR Dietes iridioides/ Fortnight Lily/ 1 GAL/ 12"-18"/ Full	50	EA		
3. MUCW Muhlenbergia capillaris 'White Cloud'/ White Muhly Grass/ 1 GAL/ 10"-12"/ Full	121	EA		
4. TRAS Trachelospermum asiaticum 'Asiatic'/ Asiatic Jasmine/ 4" CONT./ 4"-6" Spread	2,848	EA		
Alternate - Landscaping Subtotal				
G. <u>Alternate - Site Furnishings</u>				
1. Gisco Tabby Flower Pot (Buff Tabby)	51	EA		
2. 6' DuMor 3 Arm Bench 165 (Recycled Plastic)	20	EA		
3. 6' DuMor Backless Bench 166 (Recycled Plastic)	4	EA		
4. DuMor Trash Receptacle 70-22 (Recycled Plastic)	12	EA		
Alternate - Site Furnishings				

Note: Quantities estimated above are to be used as an aid for clarification of units and a checklist for the contractor to compare with their own estimates

For and in consideration of the sum of \$1.00, the receipt of which is hereby acknowledged, the Undersigned agrees that this proposal may not be revoked or withdrawn after the time set for the opening of bids but shall remain open for acceptance for a period of ninety days following such time.

In case he be notified in writing by mail, telegraph, or delivery of the acceptance of the Proposal within ninety days after the time set for the opening of bids, the Undersigned agrees to execute within ten days a Contract (Form of Agreement between Contractor and Owner) for the work for the above stated compensation and at the same time to furnish and deliver to the Owner a Performance Bond and Payment Bond in accordance with the instructions bound in the specifications, each in an amount equal to 100 percent of the contract sum.

The Undersigned agrees to commence actual physical work on the site with an adequate force and equipment within 10 days of a date to be specified in a written order from the Owner and to complete fully all work within 60 consecutive calendar days. Contractor shall provide a construction project schedule with their proposal not to exceed the above construction timeline. The Undersigned Bidder agrees to pay to the Owner, Liquidated Damages as stated in the Special Conditions for each consecutive calendar day of delay in an amount not to exceed \$1,000 per day.

Enclosed herewith is a Bid Bond in the amount of _____
_____ Dollars (\$ _____)

Being not less than 5 percent of the Base Bid. The Undersigned agrees that the above stated amount is the proper measure of liquidated damages which the Owner will sustain by the failure of the Undersigned to execute the Contract and to furnish a Performance Bond and Payment Bond in case this Proposal is accepted and further agrees to the following:

If this Proposal is accepted within 90 days after the date set for the opening of bids and the Undersigned fails to execute the Contract within 10 days after written notice of such acceptance or if he fails to furnish both a Performance Bond and Payment Bond, the obligation of the Bid Bond will remain in full force and effect and the money payable thereon shall be paid into funds of the Owner as Liquidated Damages for such failure: otherwise the obligation of the Bid Bond will be null and void.

The Bidder submits the following statement of Bidder's qualifications.

BIDDER'S QUALIFICATIONS

NAME OF BIDDER _____

STREET ADDRESS _____

TELEPHONE NO. _____ FAX NO. _____

WHEN ORGANIZED _____

WHERE INCORPORATED _____

LICENSED TO DO BUSINESS IN THE STATE OF _____

The foregoing statement of qualifications is submitted under oath:

Respectfully submitted,

Name: _____

Mailing Address: _____

By: _____

Title: _____

The legal name of the Bidder is:

(Attach satisfactory evidence of the authority of the officer, or officers, signing on behalf of a corporation.)

CONTRACTOR QUESTIONNAIRE

Names, addresses and phone numbers of three references for which contractor has performed work similar in nature and scope of this project:

Names, addresses, telephone numbers and general description of work to be performed by proposed subcontractors:

Have you identified the proposed project manager: _____

If so, please name that person: _____

Have you identified the proposed on-site superintendent: _____

If so, please name that person: _____

Is your firm fully cognizant of Town of Bluffton rules and regulations including, but not limited to, tree protection, environmental protection, business licenses, and other requirements: _____

Have you visited the job site: _____

If so, have you planned how to protect the property of adjacent landowners and to minimize disruption to residents: _____

Have you identified which member of your staff will coordinate directly with residents and citizens in or adjacent to the project work area: _____

If so, please name that person: _____

What is your intended approach to material storage or a lay-down yard: _____

Are you planning to mobilize an office trailer to this job site: _____

If so, where will the trailer be located: _____

PART II – CONTRACT FORMS

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

THIS AGREEMENT is by and between _____ (“Owner”) and
_____ (“Contractor”)

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by _____ (Engineer), which 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 the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Dates for Final Completion and Final Payment*

The Work will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before 150 days.

4.02 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

For all Work other than Unit Price Work, a lump sum of: \$ _____

All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. 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.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

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 may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

- a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- b. Zero percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – CONTRACTOR'S REPRESENTATIONS

- 7.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
 - E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings

identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to __, inclusive).
 - 2. Performance bond (pages ____ to ____, inclusive).
 - 3. Payment bond (pages ____ to ____, inclusive).
 - 4. Other bonds (pages ____ to ____, inclusive).
 - a. ____ (pages ____ to ____, inclusive).
 - b. ____ (pages ____ to ____, inclusive).
 - c. ____ (pages ____ to ____, inclusive).
 - 5. General Conditions (pages ____ to ____, inclusive).
 - 6. Supplementary Conditions (pages ____ to ____, inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.

8. Drawings consisting of _____ sheets with each sheet bearing the following general title: _____ [or] the Drawings listed on attached sheet index.
 9. Addenda (numbers _____ to _____, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages _____ to _____, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
 - c. *[List other required attachments (if any), such as documents required by funding or lending agencies].*
 11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages _____ to _____, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

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

9.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract 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.

9.03 *Successors and Assigns*

A. 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 to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

A. Any provision or part of the Contract Documents held to be 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.

9.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR

By: _____
Title: _____

By: _____
Title: _____
(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
Title: _____
Address for giving notices:

Attest: _____
Title: _____
Address for giving notices:

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

License No.: _____
(Where applicable)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

Agent for service of process:

STANDARD ADDENDUM
TO
EJCDC C-520 (2007 EDITION)
STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)
FOR THE
TOWN OF BLUFFTON

ARTICLE 3 - The phrase "act as Owner's representative," shall be deleted in Article 3.01.

ARTICLE 4 - The phrase "or other loss" shall be inserted after the phrase "financial loss" in the first sentence in Article 4.03(A).

ARTICLE 5 - In the last sentence of Article 5.01(B), the phrase "by Engineer" shall be deleted.

ARTICLE 6 - In Article 6.01(A), the phrase "by Engineer" shall be deleted. In Article 6.02(A)(1)(a), the phrase "If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, than as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and" shall be deleted. In Article 6.03, the phrase "as recommended by Engineer" shall be deleted.

ARTICLE 7 - Article 7.01 shall be deleted in its entirety.

ARTICLE 8 - Article 8.01(D) shall be deleted in its entirety. In Article 8.01(E), delete the phrase "the Site-related reports and drawings identified in the Contract Documents" and insert the phrase "any Site-related reports and drawings identified in the Contract Documents" in its place. In Article 8.01(H), insert the phrase "and Owner" after each instance of the word "Engineer" in this section.

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name and Include Location*):

BOND

Bond Number:

Date (*Not earlier than Bid due date*):

Penal sum _____ \$ _____
(Words) (Figures)

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

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

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

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

PART III – SPECIFICATIONS
DIVISION I – GENERAL REQUIREMENTS

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *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 Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *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.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive 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 Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. 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 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times 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 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. 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.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the 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 in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *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, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the 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 Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared 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 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available 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. 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 therefrom; and
 6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown 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, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, 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.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. 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.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any 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 permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner'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 individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall 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 individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. 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.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If 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.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. 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 of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. 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.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with 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 adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show 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.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other 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.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent 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 or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

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

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for 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.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. 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 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Engineer;
 - 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. use or occupancy of the Work or any part thereof by Owner;
 - 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage 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 therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A 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, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner’s employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner’s employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. 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.
- C. If the proper execution or results of any part of Contractor’s Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor’s Work. Contractor’s failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor’s Work except for latent defects and deficiencies in such other work.

7.02 Coordination

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.

- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. 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 Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by 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 Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, 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.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. 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).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; 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 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. 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 not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. 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' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts 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 returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
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.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, 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 but not consumed which remain the property of Contractor.
 - c. 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, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
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.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. 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
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E 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.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. 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.

- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, 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, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the 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, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. 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.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. 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, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, 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, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, 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, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, 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. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

14.02 *Progress Payments*

A. Applications for Payments:

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. 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 and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 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.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

- involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. 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.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a 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 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 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.

- D. 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, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing 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.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. 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.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract 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 for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. 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 (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, 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 5.01, 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.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 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 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by 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 granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. 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);
 2. 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
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. 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
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. 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.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. 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.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

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

SECTION 00800
SUPPLEMENTAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

State:	Statutory
Applicable Federal (e.g., Longshoreman's):	Statutory
Employer's Liability:	Statutory

Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

General Aggregate	<u>\$1,000,000</u>
Products – Completed Operations Aggregate	<u>\$1,000,000</u>
Personal and Advertising Injury	<u>\$1,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	<u>\$1,000,000</u>

Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.

Excess or Umbrella Liability

General Aggregate	<u>\$2,000,000</u>
Each Occurrence	<u>\$2,000,000</u>

Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

Bodily Injury:	
Each person	<u>\$1,000,000</u>
Each Accident	<u>\$1,000,000</u>
Property Damage:	
Each Accident	<u>\$1,000,000</u>
Combined Single Limit of	<u>\$1,000,000</u>

SC 8.01 Delete Section 8.01 in its entirety and insert the following in its place:

8.01 Contract Administration and Communication

A. Owner will provide contract administration duties for the duration of the construction contract. All communications will be directly between the Owner and Contractor.

SC 9.01 Delete Section 9.01 in its entirety and insert the following in its place:

9.01 Owner's Consultant

A. Engineer will be Owner's consultant during the construction period. The duties and responsibilities and the limitations of Engineer as Owner's consultant during construction are set forth in the Contract Documents.

SC 14.02.C Delete Paragraph 14.02.C in its entirety and insert the following in its place:

C. Payment Becomes Due:

1. Thirty days upon receipt of an invoice for an approved Application for Payment by the Owner's Finance Department will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.
2. The Contractor shall send invoices of an approved Application for Payment to:

The Town of Bluffton
Attn: Accounts Payable
PO Box 386
Bluffton, SC 29910

An alternative electronic method for invoice submittals may be utilized by sending to: Invoice@townofbluffton.com, with a copy to the Project Manager.

PART III – SPECIFICATIONS

DIVISION II- STREETScape IMPROVEMENTS

<u>CONTRACT DOCUMENTS</u>	<u># OF PAGES</u>
<u>DIVISION 0</u>	
NO SECTION REQUIRED OR COVERED BY OTHERS	0
<u>DIVISION 1 - GENERAL REQUIREMENTS</u>	
NO SECTION REQUIRED OR COVERED BY OTHERS	0
<u>DIVISION 2 - SITEWORK</u>	
SECTION 02100 - SITE PREP	8
SECTION 02230 - EARTHWORK	4
SECTION 02810 - IRRIGATION SYSTEMS	16
SECTION 02870 - SITE FURNISHINGS	2
SECTION 02950 - TREE, SHRUBS, AND GROUNDCOVERS	14
<u>DIVISION 3 - CONCRETE</u>	
SECTION 03300 - CAST IN PLACE CONCRETE	6
<u>DIVISION 4 - MASONRY</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 5 - METALS</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 6 - WOODS</u>	
SECTION 06100 - CARPENTRY	6
<u>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 8 - DOORS, WINDOWS, AND GLASS</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 9 - FINISHES</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 10- SPECIALTIES</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 11- EQUIPMENT</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 12- FURNISHINGS</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 13- SPECIAL CONSTRUCTION</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 14- CONVEYING SYSTEMS</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0
<u>DIVISION 15 - MECHANICAL</u>	
NO SECTION REQUIRED OR COVERED IN OTHER DIVISIONS	0

DIVISION 16 - ELECTRICAL

SECTION 16000 - ELECTRICAL 11

ADDITIONAL SPECIFICATIONS

- DUMOR 70-22 TRASH RECEPTACLE
- DUMOR 165 BENCH
- TYMETAL CORP. SLIDING CANTILEVER GATE

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide all planting as shown on the drawings or inferable therefrom and/or as specified in accordance with the requirements of the Contract Documents.
- B. These specifications include standards necessary for and incidental to the execution and completion of planting, including hauling and spreading of topsoil, and finished grading as indicated on the prepared drawings and specified herein.
- C. Protection of existing features. During construction, protect all existing trees, shrubs, and specified vegetation, site features and improvements, structures, and utilities specified herein and/or on submitted drawings. Removal or destruction of existing plantings is prohibited unless specifically authorized by the landscape architect or other The Town of Bluffton representative.
- D. Section Includes:
 - 1. Selective Grubbing
 - 2. Erosion Control Mat
- E. Related Sections:
 - 1. Division I: General Requirements
 - 2. Section 10530: Tree and Plant Protection
 - 3. Section 02200: Earthwork
 - 4. Section 02950: Shrub and Tree Planting

1.2 APPLICABLE STANDARDS

- A. *American National Standards for Tree Care Operations, ANSI A300.* American National Standards Institute, 11 West 42nd Street, New York, NY 10036.
- B. *American Standard for Nursery Stock, ANSI Z60.1* American Nursery and Landscape Association, 1250 Eye Street, NW, Suite 500, Washington, DC 20005.
- C. *Hortus Third*, The Staff of the L.H. Bailey Hortorium. 1976. MacMillan Publishing Co., New York
- D. All standards shall include the latest additions and amendments as of the date of advertisement for bids.

1.3 QUALIFICATIONS

- A. Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type of work. All contractors and their sub-contractors who will be performing any landscape work included in this section of the specification shall be approved by the landscape architect or The Town of Bluffton representative.

1.4 REQUIREMENTS OF REGULATORY AGENCIES

- A. Certificates of inspection shall accompany the invoice for each shipment of plants as may be required by law for transportation. File certificates with the The Town of Bluffton prior to acceptance of the material. Inspection by federal or state authorities at place of growth does not preclude rejection of the plants at the site.

1.5 SUBMITTALS

- A. Manufacturer's Data: Submit copies of the manufacturer's and/or source data for all materials specified, including soils.
- B. Samples: Submit samples of all topsoil, soil mixes, mulches, and organic materials. Samples shall weigh 1 kg (2 lb.) and be packaged in plastic bags. Samples shall be typical of the lot of material to be delivered to the site and provide an accurate indication of color, texture, and organic makeup of the material.
- C. Plant Photographs: Submit color photographs of representative specimens of each type of tree and shrub on the plant list. Photos shall be 75 x 125 mm (3 x 5 in.) taken from an angle that depicts the size and condition of the typical plant to be furnished. A scale rod or other measuring device shall be included in the photograph. For species where more than 20 plants are required, include a minimum of three photos that show the average plant, the best quality plant, and the worst quality plant to be provided. Label each photograph with the plant name, plant size, and name of the growing nursery.
- D. Nursery Sources: Submit a list of all nurseries that will supply plants, along with a list of the plants they will provide and the location of the nursery.
- E. Soil Test: Submit a soil test analysis report for each sample of topsoil and planting mix from a soil test laboratory approved by the landscape architect or Town of Bluffton representative.

- 1. Provide a particle size analysis, including the following gradient of mineral content:

<u>USDA Designation</u>	<u>Size in mm</u>
Gravel	+2 mm
Very course sand	1-2 mm
Coarse sand	0.5 - 1mm
Medium sand	0.25 - 0.5 mm
Fine sand	0.1 - 0.25 mm
Very fine sand	0.05 - 0.1 mm
Silt	0.002 - 0.05 mm
Clay	smaller than 0.002 mm

- 2. Provide a chemical analysis, including the following:
 - a. pH and buffer Ph
 - b. Percentage of organic content by oven-dried weight.
 - c. Nutrient levels by parts per million, including phosphorus, potassium, magnesium, manganese, iron, zinc, and calcium. Nutrient test shall include the testing laboratory recommendations of horticultural plants.
 - d. Soluble salt by electrical conductivity of a 1:2, soil: water, sample measured in millimho per cm.

- e. Cation exchange capacity (CEC).

1.6 QUALITY ASSURANCE

- A. Qualifications: Perform Site Preparation operations in accordance with local codes and industry safety standards.
- B. Topsoil Analysis Tests: Performed by State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, approved by The Town of Bluffton.
- C. Pre-Construction Conferences - Review on site with SCDOT and The Town of Bluffton:
 - 1. Vegetation to remain in "selective, clear and grub" areas. Treat the areas to be planted with herbicides as directed and in accordance with SCDOT Manuals.
 - 2. General layout of all plant bed area where the herbicide treatment and grubbing only as needed to clear out weeds prior to planting installation.

1.7 UTILITY VERIFICATION

- A. Contact the Utility Protection Center prior to beginning any land disturbance. Toll free phone number is 1-800-721-7877.
- B. The contractor shall contact the local utility companies for verification of the location of all underground utility lines in the area of the work. The contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement.

1.8 SCHEDULING

- A. Perform site preparation before start of site construction. Alert The Town of Bluffton and SCDOT, proceed with instructions from those authorities for a proper protection and job security for all work within the May River Road corridor.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Mulch: Pinestraw Mulch as specified in Section 02950.
- B. Antiseptic Paint: black asphalt base antiseptic paint formulated for use on damaged plant materials, or approved equal.
- C. Tree Fertilizer: Conforming to applicable Federal and State law including SCDOT Manual requirements, uniform as to composition, dry, free-flowing, and delivered to site in original unopened containers. Rates and minimum analysis shall be according to recommendations of soils report.
- D. Erosion Control Blanket: The Blanket shall be composed of 100% coconut fiber encased in heavyweight, UV stabilized, top and bottom nets. The components are sewn together on 1.5 inch centers with black polypropylene tread to ensure long lasting durability. Minimum roll width shall be 4' and filler weight to be a minimum of .5 lbs./sq. yd.
- E. Plants: Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the

project for at least two years. They shall have been freshly dug (during the most recent favorable harvest season).

- a. All plant names and descriptions shall be as defined in *Hortus Third*.
 - b. All plants shall be grown and harvested in accordance with the *American Standard for Nursery Stock*.
 - c. Unless approved by the landscape architect, plants shall have been grown at a latitude compatible with the latitude and cold hardiness zone of the planting location.
2. Unless specifically noted, all plants shall be of specimen quality, exceptionally heavy, symmetrical, and so trained or favored in development and appearance as to be unquestionable vigorous, well-branched, and densely foliated when in leaf; free of disease and insects, eggs, or larvae; and shall have healthy, well-developed root systems. They shall be free from physical damage or other conditions that would prevent vigorous growth.
- a. Trees with multiple leaders, unless specified, will be rejected. Trees with a damaged or crooked leader, bark abrasions, sunscald, disfiguring knots, insect damage, or cuts of limbs of 20 mm (3/4 in.) in diameter that are not completely closed will be rejected.
3. Plants shall conform to the measurements specified, except that plants larger than those specified may be used if approved by the landscape architect or The Town of Bluffton representative. Use of larger plants shall not increase the contract price. If larger plants are approved, the root ball or container size and root growth shall be increased in proportion to the size of the plant.
- a. Caliper measurements shall be taken on the trunk 150 mm (6 in.) above the natural ground line for trees up to and including 100 mm (4 in.) in caliper. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to branch tip. Plants shall be measured when branches are in their normal position. If a range of sizes is given, no plant shall be less than the minimum size, and no less than 50% of the plants shall be as large as the maximum size specified. Measurements specified are minimum sizes acceptable after pruning, where pruning is required. Plants that meet measurements but do not possess a standard relationship between height and spread, according to the *American Standards for Nursery Stock*, shall be rejected.
4. Substitutions of plant materials will not be permitted unless authorized in writing by the landscape architect or Town of Bluffton Representative. If proof is submitted in writing that a plant specified is not obtainable, consideration will be given to the nearest available size or similar variety, with a corresponding adjustment of the contract price.
5. The plant list on the drawing, is for the contractor's information only, and no guarantee is expressed or implied that quantities therein are correct or that the list is complete. The contractor shall ensure that all plant materials shown on the drawings are included in his or her bid.
6. All plants shall be labeled by plant name. Labels shall be attached securely to all plants, bundles, and containers of plant materials when delivered. Plant labels shall

be durable and legible, with information given in weather-resistant ink or embossed process lettering.

7. Selection and Tagging:

- a. Plants shall be subject to inspection for conformity to specification requirements and approval by the landscape architect or The Town of Bluffton representative at their place of growth and upon delivery. Such approval shall not impair the right of inspection and rejection during progress of the work.
- b. A written request for the inspection of plant material at their place of growth shall be submitted to the The Town of Bluffton at least ten calendar days prior to digging. This request shall state the place of growth and the quantity of plants to be inspected. The The Town of Bluffton may refuse inspection at this time if, in his or her judgement, sufficient quantities of plants are not available for inspection
- c. All plants shall be selected and tagged by the The Town of Bluffton at their place of growth. For distant material, photographs may be submitted for pre-inspection review.
- d. All field grown deciduous trees shall be marked to indicate the trees north orientation in the nursery. Place a 1-in. diameter spot of white paint onto the north side of the tree trunk within the bottom 12 inches of the trunk.

8. Anti-Desiccants

- a. Anti-desiccants, if specified, are to be applied to plants in full leaf immediately before digging or as required by the landscape architect. Anti-desiccants are to be sprayed so that all leaves and branches are covered with a continuous protective film.

9. Balled and Burlapped (B&B) Plant Materials

- a. Trees designate B&B shall be properly dug with firm, natural balls of soil retaining as many fibrous roots as possible, in sizes and shapes as specified in the *American Standard for Nursery Stock*. Balls shall be firmly wrapped with nonsynthetic, rottable burlap and secured with nails and heavy, nonsynthetic, rottable twine. The root collar shall be apparent at surface of ball. Trees with loose, broken, processed, or manufactured root balls will not be accepted, except with special written approval before planting. After the tree is set and secured in the soil, any nails and twine at the root collar shall be cut and removed to assure no girdling of the tree occurs.

10. Container Plants

- a. Plants grown in containers shall be of appropriate size for the container as specified in the most recent edition of the *American Standard for Nursery* and be free of circling roots on the exterior and interior of the root ball.
- b. Container plants shall have been grown in the container long enough to have established roots throughout the growing medium and of the size specified.

11. Bareroot and Collected Plants

- a. Plants designated as bareroot or collected plants shall conform to the *American Standard for Nursery Stock*.
 - b. Bareroot material shall not be dug or installed after bud break or before dormancy.
12. Immediately after harvesting plants, protect from drying and damage until shipped and delivered to the planting site. Rootballs shall be checked regularly and watered sufficiently to maintain root viability.
13. Transportation and Storage of Plant Material
- a. Branches shall be tied with rope or twine only, and in such a manner that no damage will occur to the bark or branches.
 - b. During transportation of plant material, the contractor shall exercise care to prevent injury and drying out of the trees. Should the roots be dried out, large branches broken, balls of earth broken or loosened, or areas of bark torn, The Town of Bluffton representative may reject the injured tree(s) and order them replaced at no additional cost to The Town of Bluffton. All loads of plants shall be covered at all times with tarpaulin or canvas. Loads that are not protected will be rejected.
 - c. All barefoot stock sent from the storage facility shall be adequately covered with wet soil, sawdust, woodchips, moss, peat, straw, hay or other acceptable moisture-holding medium, and shall be covered with a tarpaulin or canvas. Loads that are not protected in the above manner may be rejected.
 - d. Plants must be protected at all times from sun or drying winds. Those that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, wet mulch, or other acceptable material, and kept well watered. Plants shall not remain unplanted any longer than three days after delivery. Plants shall not be bound with wire or rope at any time so as to damage the bark or break branches. Plants shall be lifted and handled with suitable support of the soil ball to avoid damaging it.
14. Mechanized Tree Spade Requirements
- Trees may be moved and planted with an approved mechanical tree spade. The tree spade shall move trees limited to the maximum size allowed for a similar B&B root-ball diameter according to the *American Standard for Nursery Stock* or the manufacturer's maximum size recommendation for the tree spade being used, whichever is smaller. The machine shall be approved by the landscape architect or Town of Bluffton representative prior to use. Trees shall be planted at the designated locations in the manner shown in the plans and in accordance with applicable sections of the specifications.
- F. Anti-desiccant: shall be an emulsion specifically manufactured for agricultural use, which provides a protective film over plant surfaces. Anti-desiccants shall be delivered in containers of the manufacturer and shall be mixed according to the manufacturer's directions. Submit manufacturer literature for approval.

- G. Tree Shelter: shall be extruded, twin-walled polypropylene tubes, 80 mm to 105 mm (3-1/4 to 4-1/4 in.) in diameter; 600 mm (2 ft.) tall, with manufacturer-supplied oak stakes and bird screen. Submit manufacturer literature for approval.
- H. Tree Wrap:
 - 1. Option 1 - Extruded, translucent, twin-walled polypropylene protection board sheets; 3 mm thick. 1800 mm (6 ft.) long tree shelters may be utilized for short trunk trees 75 mm (3 in.) caliper or less. Submit manufacturer literature for approval.
 - 2. Option 2 - Breathable synthetic fabric tree wrap. White in color, delivered, in 75 mm (3 in.) wide rolls. Specifically manufactured for tree wrapping Tree wrap shall be "Breathable Fabric Tree Wrap" as manufactured for tree wrapping. Tree wrap shall be "Breathable Fabric Tree Wrap" as manufactured by the Dewitt Company, Inc., Sikeston, MO, or approved equal. Submit manufacturer literature for approval.
 - 3. Tree wrap shall be secured to the trunk using biodegradable tape suitable for nursery use and which is expected to degrade in sunlight in less than two years after installation.
- I. Biostimulants: shall contain soil conditioners, VAM, and endomycorrhizal and ectomycorrhizal fungi spores and soil bacteria appropriate for existing soil conditions. Submit manufacturer literature for approval.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect trees to remain as specified by others.

3.2 SELECTIVE CLEARING AND GRUBBING

A. Selective Grubbing:

- 1. Remove and dispose of weeds, roots, and debris in all plant locations and within a radius of one foot of the out edge of the root ball of each tree pit - kill and retain existing grass root matt to help retard soil erosion
- 2. Grubbing inside drip line of trees to remain: use hand methods to grub to 1 inch below proposed grades.

- B. Fill depressions caused by selective clearing and grubbing operations with suitable soil material, except areas requiring further excavation. Compact fill and grade surface to match adjacent ground surface. Follow procedures described in Section 02200.

- C. Mulch "selective clear and grub" area. Application rate and method as specified in Section 02950.

3.3 DISPOSAL

- A. Remove waste materials from the right of way and dispose of off site. No burning of material shall be allowed on site.

3.4 EROSION CONTROL BLANKET

-
- A. The embankment shall be shaped and dressed in accordance with the specifications at the location and grade shown on the original highway drawings or as accepted by the highway department Resident Engineer. Apply the necessary soil additives fertilizer and herbicide applications prior to installing the ECB. the upslope side ends of Erosion Control Blanket (ECB) must be buried in a 6" deep vertical slot, and stapled to the bottom of the slot at one foot intervals, then backfilled and tamped
 - B. Adjoining sections shall overlap 2 to 4 inches and stapled overlap area 12 inches apart.
 - C. All other areas on the blanket shall be secured with u-shaped wire stapes with at least eight inch legs and one inch crown. Install staples per manufacturers recommendations but no greater than 3 feet apart.
 - D. Cut an "X" in blanket to accommodate planting of the individual shrubs, staple all four sides around the shrub and topdress with mulch.

END OF SECTION 02100

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavation and Backfill for Site Improvements.
 - 2. Fine Grading.
- B. Related Sections:
 - 1. Division 1: General Requirements.
 - 2. Section 01530: Tree and Plant Protection.
 - 3. Section 02100: Site Preparation.
 - 4. Section 02950: Trees, Plants, and Groundcovers.

1.2 SUBMITTALS

- A. Submit the following materials certifications:
 - 1. Pre-emergent Herbicide: this must be in accordance with SCDOT Herbicide Operation Manual available at the scdot.org website - revised May 9, 2016.
- B. Provide representative samples of materials proposed for use. Forward samples to testing laboratory for testing.
- C. Test Reports: submit copies of testing reports to The Town of Bluffton of the following:
 - 1. Topsoil analysis.
 - 2. Fill and backfill analysis.

1.3 QUALITY ASSURANCE

- A. Perform earthwork operations according to local codes and industry safety standards.
- B. Topsoil Analysis Tests: performed by State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, as approved by The Town of Bluffton.
- C. Provide and pay for soil testing and inspection for quality control testing during earthwork operations.

1.4 SITE CONDITIONS

- A. Existing Conditions:
 - 1. Comply with Section 01500 requirements for protection of existing utilities.

2. Promptly notify The Town of Bluffton of unexpected sub-surface conditions. See section 02950, Part 3 - Execution, 3.1 Examination, C. Subsurface Drainage Investigation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Suitable Soil Materials: Inert subsoil material meeting the following requirements:
 1. Maximum laboratory dry weight shall be not less than 90 pounds per cubic foot.
 2. Soils weighing less than 100 pounds per cubic foot shall not be used in the top 12 inches of the subgrade.
 3. Liquid Limit: not to exceed 65 according to AASHTO T89.
 4. Plasticity Index: soils with liquid limits between 40 and 65 shall have a plasticity index not less than the liquid limit minus 30 according to AASHTO T90.
- B. Topsoil:
 1. Natural, friable, loamy soil characteristic of productive soil in vicinity. It shall be reasonably free of stones larger than 1 inch, clay lumps, roots, toxic substances, debris, and other foreign matter harmful to plant growth.
 - a. Shall contain not less than 5 percent nor more than 20 percent organic matter by volume as determined by loss on ignition of samples oven dried to constant weight at 212 F.
 - b. pH range: Coordinate pH requirements with plant requirements described in Section 02930 and Section 02950. Imported topsoil shall have a pH range of 6.0 to 6.5.
 - c. Sieve Analysis:

	<u>Percent by Weight</u>
Passing 2 inch sieve, minimum	100%
Passing No. 4 sieve, minimum	95%
Passing No. 10 sieve, minimum	90%
 - d. Composition of Soil passing No. 10 Sieve:

Sand: 20 to 80 percent
Silt: 10 to 75 percent
Clay: 5 to 40 percent
 2. Utilize on-site stockpiled topsoil as required to complete the work. Topsoil not meeting the above requirements shall be amended according to Section 02930 and Section 02950.
 3. Provide imported topsoil material as required to complete the work. Obtain rights and pay all costs for imported materials.
 4. Obtain soil amendment and fertilization recommendations from testing agency for the plant materials specified for the project.

5. Existing topsoil may be used if it meets the requirements for imported topsoil or if approved by the owner. Provide a minimum of one soil sample with accompanying soil test report for each topsoil type found at the site. Following the completion of the soil testing, the contractor and The Town of Bluffton representative shall meet at the site prior to beginning the planting operation or topsoil stripping.
- C. Pre-emergent Herbicide: Granular weed growth inhibiting type herbicide for use under paving surfaces as approved by the SCDOT Manual shall be used in mulch areas. Material shall not damage adjacent trees and plants.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing grades indicated on Drawings. Notify Landscape Architect of discrepancies prior to start of grading work.

3.2 PREPARATION

- A. Protect existing trees to remain as specified by others.
- B. Protection of Existing Utilities:
 1. Before starting grading and excavation changes, establish the location and extent of underground utilities in work area. Protect existing utilities during earthwork. Perform excavation work near utilities by hand.
- C. Protection of Persons and Property:
 1. Comply with the requirements specified in Section 01500.
 2. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- D. Excess Water Control
 1. Provide berms or channels to prevent flooding of subgrade. Promptly remove all water collecting in depressions. Protect against mulch washing into drainage areas promptly replace mulch to its proper location.
 2. Replace soil softened or eroded by water and recompact.
 3. Provide and maintain dewatering system components to convey water away from excavations.

3.3 FINE GRADING

- A. Uniformly distribute and spread topsoil if required. Provide 6 inch depth at all planting areas, except as otherwise specified.
- B. Fine grade topsoil to lines and elevations indicted on Drawings, eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles, and contours of subgrades. Keep these areas to a minimum.

- C. Set fine grade plant beds 1 inch below adjacent walks or curbs.
- D. Remove stones, roots, weeds, and debris while spreading topsoil materials. Rake surface clean of stone 1 inch or larger in diameter

3.4 VEGETATION CONTROL

- A. Apply pre-emergent herbicide to existing surfaces in areas of proposed mulch. See SCDOT Manual
- B. Apply pre-emergent herbicide in strict accordance with manufacturer's installation instructions and recommended application rate. See SCDOT Herbicide Manual.

3.5 FIELD QUALITY CONTROL

- A. Obtain samples as required by testing agency.
- B. Topsoil: Take representative samples of topsoil proposed for use in proposed planting areas and submit to testing laboratory. Provide the following data:
 - a. pH factor.
 - b. Mechanical analysis.
 - c. Percentage of organic content.
 - d. Recommendations on type and quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.
- C. Fill Materials: Test proposed materials to verify suitability for use, gradation of material, and optimum moisture-density relation by AASHTO T99.

3.6 PROTECTION

- A. Protect newly graded areas from traffic and erosion until work is accepted. Keep work area free from trash and debris.
- B. Repair, compact, and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Re-shape, and compact to required density areas disturbed by construction operations or adverse weather.

3.7 DISPOSAL

- A. Remove unsuitable excavated material, surplus material, rock, trash, and debris from the site and dispose in approved landfill areas.

END OF SECTION 02200

PART 1 - GENERAL

1.1 SUMMARY

- A. The work covered by this Section consists of furnishing all labor, equipment and materials and performing all operations necessary for installing an automatic irrigation system as shown on the Drawings and/or described by these Specifications. The work includes: excavation and preparation of trenches, installation of the irrigation system (including: plastic pipe – solvent weld and gasketed, plastic fittings – solvent weld and gasketed, ductile iron fittings - gasketed, thrust blocking directional fittings and isolation valves, sprinkler heads, gate valves, electric control valves, valve boxes, electrical control cable, automatic controller, grounding and surge protection, decoders, sensors, wiring to controller, discharge zee pipe for pump station, connection of zee pipe to PVC mainline), and all required submittals.

1.2 DEFINITIONS

- A. Pipe sizes used in this Section are nominal pipe size (NPS) in inches. Tube sizes are standard size in inches.
- B. Supply Piping: Piping from water source to connection to irrigation system pressure piping. Mainline piping is under same static pressure as water supply.
- C. Pressure Piping: Piping downstream from supply piping to and including control valves. Piping is under irrigation system pressure. Piping in this category includes pressure regulators, water meters, and backflow preventers, when used.
- D. Circuit Piping: Piping downstream from control valves to irrigation system sprinklers, emitters, devices, and drain valves. Piping is under pressure during flow.
- E. Control Valve: Automatic (electrically operated) valve for control water flow to irrigation system zone.
- F. Drain Piping: Downstream from circuit piping drain valves. Piping is not under pressure.
- G. Drain Valve: Manual or automatic (pressure operated) drain valve for draining of irrigation system circuit piping.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Location of Sprinklers and Devices: Design location is approximate. Minor field adjustments may be necessary to avoid plantings and obstructions such as signs and light standards. Sprinklers to be spaced no greater than 55% of diameter of throw at optimum performance pressure. This will achieve "Head to Head" coverage performance.
- B. Minimum Water Coverage: Not less than:
1. Turf Areas: 100 percent.
 2. Other Planting Areas: 100 percent.
- C. Components and Installation: Capable of producing piping systems with the following minimum working pressure ratings except where indicated otherwise on drawings.
1. Pressure Piping: 160 psi
 2. Circuit and Drain Piping: 160 psi

- D. Electrical: Source Power for irrigation controller to be 120 Volts A.C., 60 Hertz, Single Phase, with a 10 amp circuit breaker.

1.4 SUBMITTALS

- A. Product data including pressure rating, rated capacity, settings, and
 1. Backflow Preventers, and Pressure Regulators (When Required)
 2. Automatic Controller, Sensors, Decoders, Wires, and Connectors
 3. Valves, including general-duty, underground, manual and automatic, and quick-coupler types and Valve Boxes.
 4. Sprinklers, including swing joint risers and swing pipe.
 5. Drip Emitters, Tubing, Filters, and other devices.
- B. Shop drawings showing irrigation system, including plan layout and locations, types, sizes, capacities, and flow characteristics of irrigation system components. Include water meters, backflow preventers, valves, piping, sprinklers and devices, accessories, controls, and wiring. Show areas of sprinkler spray and overspray.
- C. Coordination drawings showing piping and major system components. Indicate interface and spatial relationship between piping, system components, adjacent utilities, and proximate structures.
- D. Maintenance data for inclusion in "Operating and Maintenance Manual" for all the following products, if applicable, on system.
 1. Backflow preventer, including instructions for testing
 2. Master valve
 3. Isolation valve
 4. Pressure Regulator
 5. Automatic control valve
 6. Sprinkler
 7. Controller and Control System components
 8. Pump and Control System components
 9. Filter
- E. A list of three (3) past projects similar in scope to this project, including names and phone numbers of owners and date of installation shall be submitted with bid.

1.5 QUALITY ASSURANCE

- A. Comply with requirements of utility supplying water for prevention of backflow and backsiphonage.

- B. Comply with requirements of authority with jurisdiction for irrigation systems.
- C. Installer Qualifications: Irrigation Contractor shall be a firm engaged full time in the installation of this type of system with at least five (5) years experience and who has completed a minimum of three (3) irrigation systems similar in material (size and type), design, and extent as indicated for this project and that have resulted in a record of successful in-service performance. Previous irrigation projects must have included: a two-wire communication/control system, gasketed mainline pipe with gasketed fittings, concrete thrust blocking, and similar type pump station discharge pipe installation.
- D. Listing/Approval Stamp, Label, or Other Marking: On equipment, specialties, and accessories made to specified standards.
- E. Product Options: Irrigation system piping, specialties, and accessories are based on specific types, manufacturers, and models indicated on drawings. Components with equal performance characteristics produced by other manufacturers may be considered, provided deviations in dimensions, operation, and other characteristics do not change design concept of intended performance as judged by the Architect. The burden of proof of product equality is on the Contractor. A sample of the product must be submitted with written request for substitution. Contractor must obtain written approval of product substitution from Landscape Architect prior to installation.
- F. All irrigation equipment used in this project shall be purchased through a distributor which is a local authorized manufacturer's representative and who is a factory authorized service center. The distributor should have a service department that can assist in trouble shooting and training of specified products. The name of the distributor company including contact name, phone number and address shall be submitted with bid.

1.6 SITE CONDITIONS

- A. Perform site survey, research public utility records, and verify existing utility locations. Verify that irrigation system piping may be installed in compliance with original design and referenced standards. Protect all hardscape and planted areas from damage during system installation, Hand trenching only inside "tree save" areas.

1.7 SEQUENCING AND SCHEDULING

- A. Maintain uninterrupted water service to building during normal working hours. Arrange for temporary water shutoff with Owner.
- B. Coordinate irrigation systems work with landscape work.

1.8 PRE-INSTALLATION MEETING

- A. Meeting to convene one (1) week before starting work on project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Product manufacturer name, specific product type, model number and size are indicated on drawings. Any product substitutions must be approved in writing by Landscape Architect prior to installation by contractor.

-
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, one of the following:
1. Backflow Preventers:
 - a. Wilkins Regulator, Zurn Industries, Inc.
 - b. Or approved equal
 2. Pressure Regulators:
 - a. Wilkins Regulator, Zurn Industries, Inc.
 - b. Rain Bird Corporation
 - c. Senninger
 - d. Or approved equal
 3. Valves for Aboveground and Underground Pit Installation:
 - a. Nibco
 - b. Harvard
 - c. Clow
 - d. Or approved equal
 4. Automatic Control Valves:
 - a. Rain Bird Corporation
 - b. Hunter Industries
 - c. Or approved equal
 5. Control Valve Boxes:
 - a. NDS
 - b. Carson Industries
 - c. Or approved equal
 6. Sprinklers:
 - a. Rain Bird Corporation
 - b. Hunter Industries
 - c. Or approved equal
 7. Drip Emitters, Tubes, and Devices:
 - a. Rain Bird Corporation

- b. Agrifim
 - c. Jain Irrigation
 - d. Antelco
 - e. Or approved equal
8. Controllers:
- a. Rain Bird Corporation
 - b. Hunter Industries
 - c. Or approved equal
9. Automatic Rain Shutoff Device:
- a. Rain Bird Corporation
 - b. Hunter Industries
 - c. Irritrol
 - d. Or approved equal
10. PVC Solvent Weld Pipe:
- a. Jet Stream Plastics
 - b. Silver-Line Plastics
 - c. Or approved equal
11. Solvent Weld PVC Fittings:
- a. Lasco Fittings, Inc.
 - b. Or approved equal
12. Wire:
- a. Regency Wire and Cable
 - b. Or approved equal
13. PVC Gasketed Pipe:
- a. Jet Stream Plastic
 - b. Silver-Line Plastics
 - c. Sanderson Pipe
 - d. Or approved equal

14. Gasketed PVC and Ductile Fittings:

- a. Harco Fittings
- b. Or approved equal

15. Solvents and Cements

- a. IPS Weld-on
- b. Or approved equal

2.2 PIPE

- A. Copper Tube: ASTM B 88 Types L and M water tube, annealed and drawn tempers, with plain ends.
- B. Polyvinyl Chloride (PVC) Plastic Pipe: ASTM D 1785, PVC 1120, Schedule 40, 160 psi minimum pressure rating for 8-inch and smaller sizes, with Belled/Solvent Weld ends.
- C. Polyvinyl Chloride (PVC) Plastic Pipe: ASTM D 1785, PVC 1120, SDR 21, 200 psi minimum pressure rating, with Belled/Solvent Weld ends.
- D. Polyvinyl Chloride (PVC) Plastic Pipe: ASTM D 2241; PVC 1120, SDR 26, 160 psi minimum pressure rating, with Belled/Solvent Weld ends.

2.3 PIPE FITTINGS

- A. A. Copper Tube Fittings: ASME B16. 22, wrought copper or cast-brass, solder-joint, pressure types.
- B. B. Polyvinyl Chloride (PVC) Plastic Pipe Fittings: ASTM D 2466, Schedule 40, sockettype.

2.4 JOINING MATERIALS

- A. Solvent Cement: ASTM F 656 purple color primer and ASTM D 2564 solvent cement.
- B. Solder: ASTM B 32, Alloys Sn95 and E.
- C. Gaskets for Plastic Flanged Joints: Materials recommended by plastic pipe and fittings manufacturer.

2.5 BACKFLOW PREVENTERS

- A. Description: Consult with local water authority and only use approved type device and installation method prior to installation. ASSE standard backflow preventer of size indicated for maximum flow rate and maximum pressure loss indicated.
 - 1. Working Pressure: 150-psi minimum except where otherwise indicated.
 - 2. 2 Inches and Smaller: Bronze body with threaded ends.
 - 3. 2.5 Inches and Larger: Bronze, cast-iron, steel, or stainless steel body with flanged ends.
- B. Approved type of devices may include one of the following and as indicated on drawings.

1. Reduced Pressure Principle Backflow Preventer
2. Double Check Valve Backflow Preventer
3. Pressure Vacuum Breaker

2.6 PRESSURE REGULATORS

- A. A. Description: ASSE 1003, single seated, direct operated type water pressure regulators, rated for initial working pressure of 150 psi minimum, with size, flow rate, and inlet and outlet pressures indicated. Include integral factory installed or separate field-installed wye-pattern strainer that is compatible with unit for size and capacity. Manufacturer model number and size are indicated on drawings.
1. 2 Inches and Smaller: Bronze body with threaded ends.
 2. 2.5 Inches and Larger: Bronze or cast-iron body with flanged ends.
 3. 3. Interior components: Corrosion resistant materials.

2.7 VALVES

- A. Description: Manufacturer's standard valves for isolation and drain application, of type, size and model number are indicated on drawings and as follows:
- B. Non-rising Stem Gate valves 3 Inches and Larger: AWWA C500, cast-iron double disc, bronze disc and seat rings or AWWA C509, resilient seated; bronze stem, cast iron, or ductile-iron body and bonnet, stem nut, 200 psi working pressure; and ends that fit NPS dimension, PVC pipe. Include elastomeric gaskets.
- C. Brass, non-rising Stem Gate Valves, 3 inches and smaller: Type 1, solid wedge; non-rising, full port, class (200 WOG Rating) brass body and screw bonnet with threaded or solder-joint ends. Include polytetrafluoroethylene (PTFE) impregnated packing, brass packing gland, and malleable-iron handwheel.
- D. Bronze, non-rising-Stem Gate Valves, 3 inches and smaller: MSS SP-80, Type 1, solid wedge; rising, copper-silicon-alloy stem; 125 class (200 PSI WOG Rating) body and screw bonnet of ASTM B 62 cast bronze, with threaded or solder-joint ends. Include polytetrafluoroethylene (PTFE) impregnated packing, brass packing gland, and malleable-iron handwheel.
- E. Plastic Valves: Polyvinyl chloride (PVC) plastic with 150 psi minimum pressure rating FPT, ends compatible to piping where valve is to be installed, and tee handle.

2.8 CONTROL VALVES

- A. A. Description: Manufacturer's standard control valves for circuits, of type, size and model number are indicated on drawings and as follows:
1. Manual Control Valves: Class 150 psi minimum rating, globe valves.
 2. Key-Operated, Manual Control Valves: Class 150 PSI rating, Gate Valves, fitted for key operation.
 3. Automatic control valves: Diaphragm type, normally closed, with manual flow adjustment, and operated by 24-volt AC solenoid.

4. Automatic Drain Valves: Designed to open for drainage when line pressure drops below 3 psi (when required).
 5. Quick-Couplers: Factory-fabricated, assembly. Include coupler water seal valve, single piece body with spring loaded or weighted, rubber covered cap: hose swivel with ASME B1.20.7, 3/4-11.5NH threads for garden hose on Outlet; and operating key.
- B. Control Valve Boxes: Polyethylene (PE), acrylonitrile-butadiene-w styrene (ABS), fiberglass, polymer concrete, or precast concrete box and cover. Large enough for easy service access. Plastic valve boxes to be the "Pro Series" or "Spec Series" grade only, size as indicated on drawings detail drawings.
1. Drainage Backfill: Cleaned gravel or crushed stone, graded from 2 inches maximum to 3/4 inch minimum.
 2. Include valve key, 60 inches long with tee handle and key end to fit key operated valve.

2.9 AUTOMATIC CONTROL SYSTEM

- A. A. Description: Low-voltage controller system, made for control of irrigation system automatic control valves. Controller operates on 120 volts AC building power system, provides 24 volts AC power to control valves, and includes stations for at least the number of control valves indicated. Manufacturer model number and size are indicated on drawings.
- B. Exterior Control Enclosure: Weatherproof enclosure with locking cover and 2 matching keys. Enclosure construction complies with NFPA 70 and NEMA 250, Type 4, and includes provision for grounding.
1. Material: Molded plastic or painted steel.
 2. 2. Mounting: Surface-type for wall mounting. Transformer: Internal-type, and suitable for converting 120 volts
 3. AC building power to 24 volts AC power.
- C. C. Interior Control Enclosure: Drip-proof enclosure with and locking cover and 2 matching keys.
1. Material: Molded plastic or painted steel.
 2. Mounting: Surface-type for wall mounting.
 3. Transformer: Plug-in style and suitable for converting 120 volts AC building power to 24 volts AC power.
- D. Controller Stations for Automatic Control Valves: Each station is variable from approximately 1 to 360 minutes. Include switch for manual or automatic operation
- E. Timing Device: Adjustable, 24-hour, 14-day clock to operate any time of day. Include provision for the following settings:
1. Setting to skip operation any day in timer period.

2. Setting for operation every other day.
 3. Settings for multiple programs, 3 programs minimum.
 4. Settings for operation 4 or more times daily.
 5. Include manual or semi-automatic operation without disturbing preset automatic operation. Provide battery (NIOCad or Alkaline) to automatically power the timing device during power outages to maintain time and date while non-volatile memory maintains schedule.
- F. Contractor should incorporate an adjustable rain shut-off device or weather sensor as indicated on drawings.
- G. Controller to be grounded as per code and manufacturer's recommendations.

2.10 SPRINKLERS

- A. Description: Manufacturer's standard sprinklers designed to provide uniform ("Head to Head" placement) coverage over entire area of spray shown on Drawings at available water pressure. Manufacturer type, size and model number are indicated on drawings and as follows:
1. Housings: Brass or plastic, except where material is specified.
 2. Flush, Surface: Fixed pattern with screw-type flow adjustment.
 3. Interior Parts: Brass or other corrosion-resistant materials.
 4. Bubbler: Fixed pattern, with screw-type flow adjustment and pressure compensating.
 5. Shrubbery: Fixed pattern, with screw-type flow adjustment.
 6. Plastic Pop-Up Spray: Fixed pattern with screw-type flow adjustment and stainless steel retraction spring.
 7. Pop-Up, Rotary Spray: Gear drive, full-circle and adjustable part-circle type.

2.11 DRIP EMITTERS, TUBES, AND DEVICES

- A. Description: Manufacturer's standard units as indicated on drawings and as follows:
1. Application Pressure Regulators: Brass or plastic housing, $\frac{3}{4}$ -1inch size, with corrosion-resistant internal parts, and capable of controlling outlet pressure to approximately 40 psi.
 2. Strainer/Filter Units: Brass or plastic housing, with corrosion-resistant internal parts of size and capacity required for emitters, drip tubes, and devices downstream of unit.
 3. Emitters: Plastic body with single outlet to deliver the following flow over a range of 15-50 psi and be pressure compensating.
 - a. Flow: $\frac{1}{2}$ gallon per hour.

- b. Flow: 1 gallon per hour.
 - c. Flow: 2 gallons per hour.
 4. Emitters: Plastic body with multiple outlets, to deliver the following flow over a range of 15-50 psi and be pressure compensating.
 - a. Flow Each Outlet: ½ gallon per hour.
 - b. Flow Each Outlet: 1 gallon per hour.
 - c. Flow Each Outlet: 2 gallons per hour.
 - d. Emitter Tubing: 1/8-inch diameter polyethylene tubing.
 5. Inline pressure compensating emitter tubing, to deliver the following flow over a range of 15 – 50 psi. Emitter flow, inline spacing and spacing between the rows are as indicated on drawings.
 - a. Flow: ½ gallon per hour
 - b. Flow: 1 gallon per hour
 6. Drip Tubes: Flexible polyvinyl chloride (PVC)/or Polyethylene (P.E.) plastic tube for emitters or other devices indicated and with flushable end plug/cap.
 - a. Size: ½-inch NPS.

2.12 WIRE

- A. Wiring: Solid copper conductor, insulated cable, suitable for direct burial.
 1. Feeder Circuit power cables: Type UF, No. 12 AWG minimum between building circuit breaker and controllers.
 2. Low-Voltage, Branch Circuit Cables: Type PE, No.14 AWG minimum, between controllers and automatic control valves. Conductor size and color should be as required by controller manufacturer.
 3. Splicing Materials: 3m DBR/Y or approved equal.

2.13 PRESSURE GAUGES

- A. Pressure Gauges: ASME B40.1, 2.5 inch diameter dial, liquid filled, stainless steel housing with minimum dial range of 1½ times system operating pressure and bottom outlet.

2.14 PUMP (PRIMARY OR BOOSTER)

- A. If a pump (primary or booster) is required, contractor must install the manufacturer type and size as indicated on drawings. See detail notes and drawings for specific model number and electrical requirements. Contractor must verify the water source meets the minimum requirements of the design.

2.15 SUPPLIER

- A. All irrigation equipment to for this project to be purchased from Simmons Irrigation Supply.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Contractor to examine site for conditions under which the work is to be performed. Communicate existence of any unsatisfactory site conditions to Owners Representation prior to commencement of installation. Start of installation means acceptance of site conditions. Damage to existing landscaping, hardscape, structures, utilities, etc. on the site will be the responsibility of the Contractor. Investigate and determine available water supply water pressure and flow characteristics prior to installation. If water source does not meet the minimum requirements of the design, consult Landscape Architect for design modifications.

3.2 PREPARATION

- A. Set flags to identify proposed sprinkler and valve locations. Obtain Landscape Architect's approval before excavation. Protect existing trees to remain as specified by others.

3.3 SLEEVING AND CONDUIT

- A. Sleeves/Conduits are to be installed prior to paving asphalt or pouring of concrete.
- B. Sleeves are to be installed under all hardscape areas. Refer to installation section 3.7 (D).
- C. Install piping and wires in sleeves where crossing hardscape features such as sidewalks, roadways, parking lots, curbs, etc.
 - 1. Install piping sleeves by boring or jacking under existing paving where possible.
 - 2. Repair any existing hardscape features to their original condition at the Contractor's expense.
- D. Sleeves shall be two (2) pipe sizes larger than the pipe within sleeve. A separate sleeve is required for control wire.
- E. Minimum cover for sleeves (depth of bury) should be consistent with the depth of the pipe routed through it. Refer to section 3.7 D.

3.4 PIPING APPLICATIONS

- A. Refer to detailed specifications for pipe and fittings products listed below. Piping in pits and aboveground may be joined with flanges instead of joints indicated. All above ground piping to be galvanized steel.
- B. Use pipe, tube, fittings, and joining methods according to the following applications.
- C. Pressure and Circuit Piping: Use size and type as indicated on drawings and as follows:
 - 1. All Sizes: ASTM D 2241, SDR 26 or 21, (as indicated on drawings) polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, with Schedule 40, PVC plastic, socket-type fittings, and solvent-cemented joints.
- D. Sleeves: ASTM D 1785, Schedule 40, polyvinyl chloride (PVC) plastic pipe; ASTM D 2466, Schedule 40, PVC plastic, socket-type fittings; and solvent-cemented joints.

3.5 JOINT CONSTRUCTION

- A. Flanged Joints: Align flanges and install gaskets. Assemble joints by sequencing bolt tightening. Use lubricant on bolt threads.
- B. Threaded Joints: Thread pipes with tapered pipe threads according to ASME B1.20.1, apply teflon and apply wrench to valve ends into which pipes are being threaded.
- C. Copper Tube and Fittings, Soldered Joints: Construct joints according to CDA No. 404/0 Products Handbook "Copper Tube Handbook."
- D. Polyvinyl Chloride (PVC) Piping Solvent-Cemented Joints: Construct joints according to ASTM D 2672 and ASTM D 2855.
 - 1. Handling of Solvent Cements, Primers, and Cleaners comply with procedures in ASTM F 402 for safe handling when joining plastic pipe and fittings with solvent cements.
 - 2. The use of cleaner, purple primer and solvent cement should be used on the pipe and fittings at each joint.

3.6 PIPING SYSTEMS – COMMON REQUIREMENTS

- A. General Locations and Arrangements: Drawings indicate diagrammatic general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, and in other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings to avoid plants, trees, structures and utilities.
- B. Install components having pressure rating equal to or greater than system operating pressure.
- C. Install piping free of sags.
- D. Locate groups of pipes parallel to each other, spaced to permit valve servicing.
- E. Install fittings for changes in direction and branch connections.
- F. Piping Connections: Except as otherwise indicated make piping connections as specified below. Install dielectric fittings to connect piping of dissimilar metals.

3.7 PIPING INSTALLATION

- A. A. Install copper tube and copper tube fittings, according to CDA No. 404/0 Products Handbook "Copper Tube Handbook."
- B. Install underground polyvinyl chloride (PVC) plastic pipe according to ASTM D 2774.
- C. Lay piping on solid subbase, uniformly sloped without humps or depressions.
 - 1. Slope circuit piping down toward drain valve minimum of ½ inch in 10 feet.
 - 2. Install polyvinyl chloride (PVC) plastic pipe in dry weather when hours at temperature above 40 deg. F before testing, unless otherwise recommended by manufacturer.

- D. Minimum cover: Provide following minimum cover over top of buried piping or 12" below the average local frost depth, whichever is the greater depth.
 - 1. Pressure Piping: 18" of cover for pipe 2 1/2" and smaller; 24" for pipe 3" and 4", and 30" for pipe 6" and larger.
 - 2. Circuit Piping: 18" of cover for circuit pipe.
 - 3. Drain Piping: 18" of cover for pipe 4" and smaller; 24" for pipe 6" and larger.
 - 4. Sleeves: 24" of cover for pipe 6" and smaller; 30" for pipe 8" and larger.
- E. Tunneling: Install pipe under streets or other obstructions that cannot be disturbed, by tunneling, boring, or jacking. Prior approval by Landscape Architect must be obtained for all tunneling and boring.
- F. Install all piping and wire under sidewalks and paving in sleeves.
- G. Prior approval by Landscape Architect must be obtained for all trenching around existing specimen/large trees. Only hand trenching or directional boring will be allowed within "tree save" areas.
- H. Backfilling: Excavate to depths required to provide 2 inch depth of sand bedding for pipe when rock or unsuitable bearing material is encountered. Fill to match adjacent grade elevations with approved earth fill material free from all rock, stone or sharp objects, as well as, roots and building material. Place and compact fill material in lifts (layers) not greater than 6 inches thick. Mechanical tamping shall be done after each lift to eliminate trench settling. Contractor shall be responsible for repair or restoration of trench settlement in excess of 1/2 inch.

3.8 VALVE INSTALLATION

- A. Valves: Install underground valves in valve boxes or pits, top of valve box to be level with surrounding finished grade. Bottom of valve box to contain 3 inch of gravel sump.
- B. Control Valves: Install in valve control valve boxes, arranged for easy adjustment and removal. Top of valve box to be level with surrounding finished grade. Bottom of valve box to contain 3 inch of gravel sump.

3.9 WATER METER INSTALLATION

- A. Install meter per local codes and per local water authority. Contractor to pay all fees associated with meter and tap unless otherwise agreed upon by Owners representative.

3.10 BACKFLOW PREVENTER INSTALLATION

- A. Install backflow preventers of type, size, and capacity as indicated on drawings. Include valves and test cocks. Consult with local water Authority with jurisdiction and use only approved type device and installation method prior to installation.
- B. Do not install bypass around backflow preventer.
- C. Do not install backflow preventers with drains or vents in pits or areas subject to flooding.
- D. Support backflow preventers, valves, and piping on 3000 psi minimum, Portland-cement-mix concrete piers or approved equal method.

- E. All above ground backflow preventers should be installed with an approved insulated, fiberglass cover.

3.11 PRESSURE REGULATOR INSTALLATION

- A. Install pressure regulators with shutoff valve and strainer on inlet and pressure gauge on outlet. Install shutoff valve on bypass where indicated.

3.12 PIT CONSTRUCTION AND INSTALLATION

- A. Construct pits of cast-in-place concrete or provide precast concrete pits of dimensions indicated, with manhole frame and cover, ladder, and drain. Include sleeves with waterproof mechanical sleeve seal for pipe entry and exit or as indicated.

3.13 FIELD QUALITY CONTROL

- A. Testing: Perform hydrostatic test of mainline piping and valves before backfilling trenches. Piping may be tested in sections to expedite work. Notify the hardscape Architect or Owners Representative 72 hours in advance of pressure testing and document testing to their satisfaction.
 - 1. Subject the piping system to static operating pressure without exceeding pressure rating of piping system materials. Isolate the test source and allow to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.
 - 2. Repair leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.

3.14 SPRINKLER INSTALLATION

- A. Sprinklers: Flush circuit piping with full head of water and instal sprinklers after hydrostatic test is completed.
 - 1. Install lawn sprinklers at manufacturer's recommended heights.
 - 2. Install shrubbery sprinklers at heights indicated.
 - 3. Locate part-circle sprinklers to maintain a minimum distance of 6" from walls and 2" from other boundaries (sidewalks, curbs) unless otherwise indicated.
 - 4. Install nozzles as indicated on drawings and adjust to avoid spray onto adjacent hardscape.

3.15 AUTOMATIC CONTROL SYSTEM INSTALLATION

- A. Install controllers according to manufacturer's written instructions and as indicated.
- B. Install control wiring in same trench with piping where possible. All wire crossing under a street or sidewalk shall be in a conduit.
- C. All splices to be made/located inside a valve box with a minimum of 36 inch of slack, excess wire coiled on each side of the splice.

3.16 CONNECTIONS

- A. Connect piping to sprinklers, devices, valves, control valves, specialties, and accessories.
- B. Connect water supplies to irrigation systems. Include backflow preventers on potable water supplies.
- C. Electrical Connections: Connect to power source, controllers, and automatic control valves.

3.17 CLEANING AND ADJUSTING

- A. Flush dirt and debris from piping before installing sprinklers and other devices.
- B. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.
- C. Carefully adjust lawn sprinklers so they will be flush with, or not more than ½ inch above, finish grade after completion of landscape work.
- D. Adjust settings of controllers and automatic control valves, and provide written irrigation schedule.

3.18 COMMISSIONING

- A. A. Starting Procedures : Follow manufacturer's written procedures. If no procedures are prescribed by manufacturers, proceed as follows:
 - 1. Verify that specialty valves and their accessories have been installed correctly and operate correctly.
 - 2. Verify that specified tests of piping are complete.
 - 3. Check that sprinklers and devices are correct type.
 - 4. Check that damaged sprinklers and devices have been replaced with new materials.
 - 5. Check that potable water supplies have correct type backflow preventers.
 - 6. Energize circuits to electrical equipment and devices.
 - 7. Adjust operating controls.
- B. Operational Testing: Perform operational testing after hydrostatic testing is completed, backfill is in place, and sprinklers are adjusted to final position.

3.19 AS-BUILT DRAWINGS

- A. A. Record Drawings: At conclusion of work, and as a condition for request for final payment, submit Record Drawings at a scale matching that of the construction drawings.

3.20 CLEAN-UP

- A. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall make any necessary repairs, adjustments and corrections to the work as required by the Drawings and Specifications. The Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures

and all other items not incorporated into the work. The site shall be left in a neat and presentable condition.

3.21 GUARANTEE

- A. For a period of one year from date of final acceptance of the work performed under this Contract, the Contractor shall promptly furnish, without cost to the Owner, any and all parts and labor which prove defective in material, workmanship, or proper functioning of system.

3.22 REPLACEMENTS

- A. Landscape Irrigation System- During the last month of the guarantee period, the Landscape Architect and Contractor shall inspect the installation to determine the condition of the complete system. A list of defective materials or installations to be replaced shall be made and the Contractor will make repairs within thirty days of receiving written notification. Replaced materials and installation shall be in accord with these Specifications, Drawings and/or schedules. Damages to products and installation made by others are not subject to this replacement guarantee, this is only for defective material and workmanship.

3.23 DEMONSTRATION

- A. Demonstrate to Landscape Architect that system meets coverage requirements and that automatic controls function properly.
- B. Demonstrate to Owner's maintenance personnel operation of equipment, sprinklers, specialties, and accessories. Review operating and maintenance information.
- C. Provide 7 days written notice in advance of demonstration to the Landscape Architect and Owner's Representative.
- D. Provide a written schedule indicating days of operation, start time, and length of time each valve (zone) is required to open and provide 1.0 inch of water per week to the planted area.

END OF SECTION 02810

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Tabby Flower Pot.
2. Trash Receptacle.
3. Bench.
4. Backless Bench.

B. Related Sections:

1. Division 1: General Requirements.
2. Section 02200: Earthwork.
3. Section 03300: Cast-In-Place Concrete.
4. Manufacturer's specifications

1.2 SUBMITTALS

- A. Submit manufacturers' recommendations for installation of site furnishings.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Immediately upon delivery to site, place materials in area protected from weather and damage.
- B. Damaged or defective units shall be replaced.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Tabby Flower Pot:

1. Manufacturer: Gisco.
2. Model: Rolled Rim Planter.
3. Description: Buff Tabby, 28" High, 27" Diameter, 375 lbs.

B. Trash Receptacle:

1. Manufacturer: DuMor.
2. Model: 70-22PL

3. Description: Black Powdercoated, Plastic, Color: Cedar, add dome hood, anchor with the stainless steel expansion anchor included.
- C. Bench:
1. Manufacturer: DuMor.
 2. Model: 165 Series PL.
 3. Description: 6' Bench with Center Arm, Black Powdercoat Finish. Cedar Recycled Plastic, Anchor with All Steel Anchor Post.
- D. Backless Bench:
1. Manufacturer: DuMor.
 2. Model: 166 Series PL.
 3. Description: 6' Backless Bench, Black Powdercoat Finish. Cedar Recycled Plastic, Anchor with All Steel Anchor Post.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Layout and stake locations of site furnishings. Obtain approval of The Town of Bluffton representative prior to installation.

3.2 INSTALLATION

- A. Install site furnishings according to manufacturers' recommendations.
- B. Coordinate installation between various trades involved in the installation.
- C. Set site furnishings plumb, level, and true to line and elevations indicated on the Drawings.
- D. Secure site furnishings in place according to methods indicated on Drawings.

3.3 CLEANING

- A. Upon installation, remove stains using a neutral cleaner acceptable to unit manufacturer. Flush surfaces with clear water.

END OF SECTION 02870

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soil Preparation.
 - 2. Planting mixes.
 - 3. Trees, shrubs, and groundcovers.
 - 4. Mulch and planting accessories.
- B. Related Sections:
 - 1. Division 1: General Requirements.
 - 2. Section 02200: Earthwork.
 - 3. Section 02100: Site Preparation

1.2 REFERENCES

- A. "Standardized Plant Names" as adopted by the latest edition of the American Committee of Horticultural Nomenclature.
- B. American Standard for Nursery Stock.
- C. Standards of Practice of the American Association of Nurserymen.

1.3 SUBMITTALS

- A. Submit the following material samples:
 - 1. Mulch.
 - 2. Planting accessories.
- B. Quality Control Submittals:
 - 1. Submit the following materials certification:
 - a. Peat moss.
 - b. Plant fertilizer(s) analysis.
 - c. Pine bark soil conditioner.
 - 2. Submit subsurface investigation reports.(Park 3 - execution, 3.1 Examinations, C. Subsurface Drainage Investigation).
 - 3. Submit photographs of "specimen" plant materials.

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- C. Contract Closeout Submittals:
 - 1. Prior to plant material acceptance, submit written maintenance instructions recommending adequate and reasonable procedures for maintenance of plant materials.
 - 2. Provide plant material record drawings:
 - a. Legibly mark drawings to record actual construction.

1.4 QUALITY ASSURANCE

- A. Plant names indicated on Drawings comply with "Standardized Plant Names". Names of varieties not listed conform generally with names accepted by the nursery trade.
 - 1. Provide stock true to botanical name.
 - 2. Legibly tag plants with botanical name and size in accordance with the Standards of Practice of the American Association of Nurserymen.
- B. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock."
- C. Plants may be inspected and approved at the place of growth, for compliance with specification requirements for quality, size, and variety.
 - 1. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of work.
- D. Qualifications: Planting shall be performed by experienced workers familiar with planting procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fertilizer materials in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.
- B. Moving and Storage of Plant Materials: Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected.
 - 1. Spray deciduous plants in foliage with an approved Antitranspirant immediately after digging to prevent dehydration.
 - 2. Dig, pack, transport, and handle plants with care to ensure protection against injury. Fully protect plants from damage by sun, wind, drought, water and other injurious conditions during transportation to site and during temporary storage before planting.
 - 3. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the The Town of Bluffton.
 - 4. No plant shall be bound with rope or wire in a manner that could damage or break the branches or trunk.

1.6 PROJECT CONDITIONS

- A. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.

1.7 SCHEDULING

- A. Time of Planting: Plant under favorable weather conditions and recommended season for grass survival and establishment. At option of, and under full responsibility of contractor, planting operations may be conducted under unseasonable conditions, but without additional compensation.

1.8 WARRANTY

- A. Warrant plant material to remain alive and be healthy, vigorous condition for a period of one year after final Certificate of Substantial Completion acceptance of entire project by the Town of Bluffton

- B. The contractor shall be responsible for all planting materials for a one year period.

- 1. Maintenance begins for the contractor immediately after each plant (trees, shrubs, and ground cover) is planted and continues until acceptance by the representative for The Town of Bluffton and shall continue for a 12 month period after acceptance.

- a. Maintenance includes:

- 1) Pruning
- 2) Watering
- 3) Weeding
- 4) Mulch replacement and addition
- 5) Tightening and repair of guy wires and stakes
- 6) Resetting plants to an upright position and to proper grade elevation
- 7) Restore and maintain the plant saucer
- 8) Apply insecticide and herbicides as necessary to maintain a health and vigorous plant in accordance with SCDOT Manuals
- 9) Mowing of all grass areas

- b. Plants that become damaged shall be replaced immediately at no additional cost to The Town of Bluffton.

- c. Watering: The contractor shall monitor, adjust and furnish any materials, such as slow release tree watering bags and/or irrigation, to ensure adequate water to the root zone of all plantings - trees, shrubs and ground cover.

- d. Trash and Debris removal and proper disposal - During the maintenance period, the contractor is responsible for the trash and debris removal within the limit of work area.

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- e. Planting areas shall be checked weekly for weed growth and the contractor shall remove all weeds which encroach on planting areas within the limit of a work area.
 - f. During the growing season, the contractor shall make visits to the site within the limit of work area to determine the need for mowing the grass areas. The contractor shall be responsible for mowing the grass areas when the grass is 5 to 7 inches in height above grade. The grass area shall then be mowed to a height of 3 to 4 inches. Care shall be taken to remove all trash or debris that may be thrown from the mower onto adjacent pavement or roadway.
 - g. Once each month, the contractor shall inspect the plant material for damage and take appropriate action to repair the damage appropriate to good horticultural maintenance techniques and/ or practices.
- C. Remove from site, promptly upon discovery during periodic visits, dead or other unsatisfactory plants. Mark location safely with stake to facilitate future replacement by the Contractor at no cost to The Town of Bluffton.
- D. Replace, in accordance with the Drawings and Specifications, all plants that are dead or, as determined by the The Town of Bluffton, are in an unhealthy or unsightly condition, and have lost their natural shape due to dead branches, or other causes due to contractor's negligence.
- 1. The cost of such replacement(s) is at contractor's expense.
 - 2. Replace during earliest favorable weather and season unless directed otherwise by The Town of Bluffton
 - 3. Warrant all replacement plants for 1 years after installation.
- E. Warranty shall not include damage or loss of plants caused by fires, floods, freezing, rains, lightning storms, winds over 75 miles per hour, or winter kill caused by extreme cold and severe winter conditions not typical of planting area; acts of vandalism or negligence outside the control of the Contractor.
- F. Failure to Remedy Defects: If contractor fails to remedy any defects in workmanship, materials, or performance that he is responsible for within reasonable length of time as specified in notice from The Town of Bluffton to contractor, The Town of Bluffton may have work done and charge the cost to the contractor.
- G. Satisfaction of Warranty:
- 1. Contractor shall request by written notice inspection of final acceptance to take place within one week before or after end of warranty period.
 - 2. If plants are in satisfactory condition, the contractor shall receive a written notice of Warranty Compliance.
 - 3. Replace rejected work and continue maintenance until work is reinspected by The Town of Bluffton and found acceptable.

PART 2 - PRODUCTS

2.1 MATERIALS

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- A. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the Drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern and the responsibility to install those plants shall be the contractors.
- B. Plants: Provide plants typical of their species or variety with normal, densely-developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from insect pests, diseases, and physical injury. All plants shall have a fully developed form without voids and open spaces.
1. Balled and Burlapped plants: Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed plant balls are not acceptable.
 2. Bare-root plants: Dug with adequate fibrous roots, covered with a uniformly thick coating of mud by being puddled immediately after they are dug, or packed in moist straw or peat moss.
 3. Container-growth stock: Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
 - a. No plants shall be loose in the container.
 - b. Container stock shall not be pot bound.
 4. Substitutions:
 - a. No substitutions of plant species shall be accepted, except with written permission of Landscape Architect or the Town of Bluffton Representative.
 - b. Root types may be freely substituted in the case of balled and burlapped, or container grown. All other specifications remaining unchanged. Bare root or collected plants are not acceptable as substitutes without receipt of a Change Order.
 5. All plants shall be nursery grown under climatic conditions similar to those in the locality of the project, unless otherwise indicated in Planting Schedule.
 6. Stock furnished shall be at least the minimum size indicated on the Drawings. Larger stock is acceptable, at no additional cost, and providing the larger plants will not be cut back to the size indicated on the Drawings.
 7. Provide "specimen" plants with a special height, shape, or character of growth. Tag specimen trees or shrubs at the source of supply. Provide sufficient photographs of the proposed specimen plants for approval by the landscape architect or The Town of Bluffton representative prior to shipment.
 8. The height of the tree, measured from the crown of the roots to the average height of the top of the tree, shall not be less than the minimum size designated in the plant list.
 9. No pruning wounds shall be present with a diameter of more than 1 inch and such wounds must show vigorous bark on all edges.

10. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant list.
 - a. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
 - b. Single stemmed or thin plants will not be accepted.
 - c. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground.
 - d. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.

11. Sabal Palmettos:
 - a. All Sabal palmettos shall be booted and hurricane cut at the time of planting.
 - b. Trunk shall be nearly uniform in diameter over entire height and shall be free of old frond subs, fire black or other damage.

2.2 ACCESSORIES

A. Planting Soil Mix:

1. Topsoil: As specified in Section 02200.
2. Peat: Sphagnum moss.
3. Pine Bark: Commercial horticultural preparation, finely ground, free of extraneous and harmful matter.
4. Polymeric Water Soluble Soil Conditioner: Porous ceramic water absorbing polymer.

B. Soil Conditioning Materials:

1. Aluminum Sulfate: Unadulterated, in manufacturer's original, unopened container labeled with analysis and net weight. Use to acidify soil (lower pH) as recommended by soils test report.
2. Limestone: Raw, ground agricultural limestone, containing at least 90 percent calcium carbonate; 90 percent shall pass No. 10 sieve and 50 percent shall pass No. 50 sieve. Use to decrease acidity of soil (raise pH) as recommended by soils test report.

C. Fertilizer:

1. Superphosphate: Soluble mixture of treated minerals; 20% available phosphoric acid.
2. Commercial Fertilizers: Conforming to applicable Federal and State law, uniform as to composition, dry, free-flowing, and delivered to site in original unopened containers. Application rate and minimum analysis shall be as recommended by soils test report.

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- D. Mulch:
1. Pinestraw: Clean, dry, whole needles of Loblolly (Pinus taeda) or Longleaf Pine (Pinus Palustris), free of harmful or extraneous matter.
- E. Staking, Guying, and Wrapping Materials:
1. Stakes for Staking: 2" x 2" x 8'-0" long, treated lumber.
 2. Stakes for Guying: 2" x 4" x 2'-6" long, treated lumber.
 3. Guying/Staking Wire: No. 10 or 12 gage galvanized iron wire, twisted into double strand.
 - a. Turnbuckles: Galvanized steel of size and gage required to provide tensile strength equal to that of the wire. Turnbuckle openings shall be at least 3".
 4. Protective Encasement: Material to cover guy wire where looped around trees shall be new or used two-ply, ½" minimum diameter rubber hose of consistent color or approved comparable non-injurious product, of length sufficient to properly protect trunk, one color throughout Project.
 5. Twine: Two-ply jute material.
- F. Miscellaneous Materials:
1. Antitranspirant: Protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions. Provide one of the following or approved equal:
 - a. "Wilt-Pruf" by Nursery Specialty Products, Inc., New York, NY.
 - b. "D-Wax" by Plant Products, Blue Point, NY.
 - c. "Protex" by Protex Industries, Inc., New York, NY.
 2. Water: Clean, free from toxic amounts of salt, oil, acid, alkali, organic matter or other substances harmful to plants.
 3. Antiseptic Paint: black asphalt base antiseptic paint formulated for use on damaged plant materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Locations for plants and/or outlines of areas to be planted are to be staked out at the site. Locate and mark all subsurface utility lines. Approval of the stakeout by the The Town of Bluffton is required before excavation begins.
- B. Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected and fine grading has been approved by The Town of Bluffton.
- C. Subsurface Drainage Investigation:

1. Required Tests: Subsurface drains have not been included as part of project; therefore, contractor shall make such reasonable percolation tests, approved by The Town of Bluffton, as may be necessary to determine if subsurface drainage conditions in landscape areas are so poor as to support moisture conditions potentially fatal to plantings. The following procedure is recommended:
 - a. Wait at least twenty-four (24) hours after rain and dig test pit twelve (12) inches square or 13-1/2 inches in diameter to depth of bottom of plant bed, trench or pit. Remove all loose soil (if standing water is visible, notify the The Town of Bluffton).
 - b. Quickly fill pit bottom with six (6) inches (approximately 3-1/4 gallons) of water.
 - c. Record length of time from filling until disappearance of water and divide the number of minutes by six (6) to give average time of one (1) inch fall.
 - d. Compare one (1) inch fall time with following table:
 - 1 inch in 0-3 min. indicates rapid absorption.
 - 1 inch in 3-5 min. indicates medium absorption.
 - 1 inch in 5-30 min. indicates slow absorption.
 - 1 inch in 30-60 min. indicates semi-impervious soil.
 - 1 inch in over 60 min. indicates impervious soil.
 - e. If soil is indicated to be semi-impervious or impervious, or if water is initially found in test pit, notify The Town of Bluffton before proceeding further.
 - f. If contractor does not make test at representative locations and file records of results with The Town of Bluffton, or if he plants in areas shown to have poor drainage without written release from The Town of Bluffton, he shall be liable for any future guaranteed replacements due to subsurface water damage.
 - g. If contractor makes proper tests and files complete records indicating no semi-impervious or worse conditions, he will not be held responsible for future subsurface water damage to work of Contract within Guaranty Period. The Town of Bluffton representative or Landscape Architect may supervise testing at any time.
2. Relocation or Omission of Plants:
 - a. Where subsurface conditions provide inadequate drainage and subsurface drainage system is not to be used as remedy, make reasonable relocation of plants as directed by Landscape Architect or The Town of Bluffton representative.
 - b. Drainage conditions necessitating omission of plants shall be covered by Change Order.
3. Authorization of Drain as Extra Work: The Town of Bluffton may authorize installation of subsurface drains to alleviate moisture problems at locations determined by Landscape Architect. Perform work at negotiated extra cost; begin work only upon receipt of Change Order. Locations, appropriate materials, and construction techniques shall be as directed by Landscape Architect.

3.2 PREPARATION

- A. Soil Conditioning:
1. Coordinate soil conditioning with soil testing and fine grading operations specified in Section 02200.
 2. Adjustment of pH: If the pH range of the soil samples from the proposed planting sites is not acceptable, the contractor shall, upon receipt of authorization to proceed by Change Order, adjust the pH of the existing soils within the unacceptable areas. Adjust pH by uniformly incorporating required soil conditioning materials at the rate determined by the analysis of the soil test done by the Soils Testing Laboratory.
- B. Location of Plants: Place individual plants and stake plant beds as indicated on Drawings. Notify Landscape Architect or The Town of Bluffton representative for approval prior to planting. Contractor shall make reasonable adjustment of plant locations as recommended by Landscape Architect or The Town of Bluffton representative.
- C. Obstructions:
1. Obstructions at or below grade shall be removed where possible; obstructions such as functioning utilities or objects too massive to be removed with tractor mounted backhoe will require plant relocations as directed by Landscape Architect or The Town of Bluffton.
 2. Above Ground: Report overhead interference such as wires, overhangs, etc., to The Town of Bluffton representative and relocate plantings as directed.
 3. Repairs: Contractor shall familiarize himself with the location of all underground and above-ground improvements and take care not to disturb improvements during his installation operations. Contractor shall repair or replace at contractor's sole expense improvements damaged by his installation operations.
- D. Excavation of plant pits:
1. Tree Pits: Dig pits with vertical sides to 6 inches deeper than depth of root ball. Make pit diameter 2 feet greater than ball diameter or root spread. Remove excavated soil, if unsuitable for backfill, from site.
 2. Shrub Pits: Dig pits with vertical sides to 6 inches deeper than depth of root balls; make pit diameter 12 inches greater than ball diameter or root spread. Remove from site excavated soil, if unsuitable for backfill.
- E. Planting Mixture:
1. Mixture for shrubs, trees and groundcovers: Homogenous blend of 1 part (by volume) peat or finely ground pine bark and 2 parts topsoil.
 - a. Add soil amendments necessary to adjust soil to required pH for plant material, as recommended in soil test report.
 - b. Add ½ lb. superphosphate per cubic yard for planting mixture.
 - c. Add three (3) pounds of 4-12-12 or equivalent fertilizer shall be thoroughly mixed before being placed into pits or beds.

2. Place and compact mixture to 6 inch depth in bottom of pit. Reserve enough mixture for backfill.
3. Groundcover Beds: Till and pulverize soil to a depth of 6 inches below grade. Mix by tilling the material as described above.
4. Top soil, peat moss, pine bark soil conditioner, polymeric soil conditioner and fertilizer are considered incidental to the plantings so payment of this work will be included in the cost for trees, shrubs and groundcovers.

3.3 INSTALLATION

A. Plant Bed Edging:

1. Assemble to the lines and elevations indicated on Drawings. All curves shall be cut in with smooth and continuous lines in accordance with the detail.

B. Setting Trees and Shrubs:

1. Orientation: Place each plant in vertical position and rotate to obtain best visual appearance and proper relationship to former site location in the nursery.
2. Root and Ball Preparation: Remove container from container plants and lightly scarify roots in several places before placement. After placement, loosen binding from top and side of balled and burlapped plants and remove box or platform and surplus bindings. Spread roots of bare root plants in a natural manner and cut cleanly any that have been broken.
3. Grade Relationship: After settlement, crown of plant shall remain flush with the average finished grade and blending with finish grade.
4. Backfill: Fill remaining hole with planting soil mix, compact lightly and create a saucer to trap water. Soak pit, trench or bed thoroughly with water soon after planting.

C. Setting Groundcover:

1. Spacing of Plants: Unless otherwise specified, center to center spacing of plants refers to planting bed surface plane, not a horizontal plane. Quantity estimates include allowances for such variation.
2. Root Preparation: Remove container plants and scarify roots in several places before placing in position. Spread roots of BR plants in natural position.
3. Position of Plants: Place each plant to provide its best cover to ground; on steep slopes this may mean axis of plant is not vertical.
4. Crown to Grade Relationship: Place crown high enough so that plant will not be smothered by mulch. Slope planting mix upward from finished grade to meet crown.
5. Backfill and Watering: Fill around roots with planting soil mixture and firmly compact. Soak bed thoroughly with water soon after planting.

D. Pruning and Repair of Plants

1. Remove or cut back broken, damaged, and unsymmetrical growth of new wood.

2. Multiple leader plants: Preserve the central leader which will best promote the symmetry of the plant. Cut branches flush with the trunk or main branch.
3. Prune needle-leaf evergreen trees only to remove broken or damaged branches.
4. Staking and Guying and Wrapping
 - a. Stake or guy a tree only when necessary for the specific conditions encountered and with the approval of the Landscape Architect or the Town of Bluffton representative. Staking may be required in unusual circumstances such as sandy soils in either the root ball or adjacent soils or in extremely windy conditions. Poor-quality trees with cracked, wet or loose root balls, poorly developed trunk-to-crown ratios, or undersized root balls shall be rejected if they require staking, unless written approval to permit staking or guying as a remedial treatment is obtained from the Landscape Architect. Trees that settle out of plumb due to inadequate soil compaction either under or adjacent to the root ball shall be excavated and reset. In no case shall trees that have settled out of plumb be pulled upright using guy wires.
 - b. When required, staking and guying methods shall be approved by the Landscape Architect or the Town of Bluffton representative.. If no staking or guying methods appear on the drawings, submit for approval a drawing of the staking or guying method to be used. Stakes, anchors, and wires shall be of sufficient strength to maintain the tree in an upright position that overcomes the particular circumstances that initiated the need for staking or guying. Guy wires shall be galvanized, multistrand, twisted wire.
 - c. Where guy wires are attached around the tree, the trunk shall be protected with 20 mm (3/4 in.) diameter rubber hose, black in color, and of sufficient length to extend past the trunk by more than 105 mm (6 in.).
 - d. Stakes and guys shall be installed immediately upon approval or planting, and shall be removed at the end of the first growing season. Any tree that is not stable at the end of this time shall be rejected.
 - e. Wrap the trunk of any tree only when necessary for the specific conditions encountered and with the approval of the Landscape Architect or the Town of Bluffton representative.. Wrapping may be required for thin-barked species in unusual circumstances such as trees planted adjacent to South- or West-Facing reflective surfaces, or when it is impossible to plant the tree with the trunk oriented to the same north orientation that it held in the growing nursery.
 - f. When required, wrapping methods shall be approved by the Landscape Architect or the Town of Bluffton representative.. If no wrapping requirements appear on the drawings, submit for approval a drawing of the wrapping method to be used. Wrapping material shall be as specified in this specification. Wrapping material shall be fastened using a biodegradable tape. All tape shall be loosely wrapped around the wrapping material in a single layer to permit its breakdown in sunlight and permit a minimum of 25 mm (1 in.) of unrestricted trunk growth. Stapling or tying the wrap with non- or-slowly biodegradable tape or any synthetic natural fiber string shall be prohibited.

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- g. Wrapping material shall be applied from the base of the tree to the first branch.
 - h. All wrapping material shall be removed no later than at the end of the year after planting or as specified by the Landscape Architect or the Town of Bluffton representative..
5. Wires: Encase each wire encircling tree trunk with protective encasement to prevent bark abrasion. Tighten wires and maintain taut; turn-buckle use is optional.
- E. Fertilizing
- 1. Time of Application: Apply at time of planting or promptly thereafter. Do not apply during period of August 16th through March 15th.
 - 2. Methods of Application: Uniformly spread on soil surface prior to mulching at specified rate.
 - 3. Rates of Application: Apply fertilizer at rate and ratio according to recommendations from soil tests. Fertilizer rates listed below are general rates which may be altered due to specific soil requirements:
 - Trees: 16-4-8 at 2 pounds per inch of caliper.
 - Shrubs: 5-10-10 at 20 pounds per 100 square feet.
 - Groundcovers: 5-10-10 at 2 pounds per 100 square feet.
 - Vines: 5-10-10 at 2 pounds per 100 square feet.
 - Herbaceous Plants: 5-10-10 at 2 pounds per 100 square feet.
- F. Mulch
- 1. Areas to receive mulch: all plant beds and other areas as designated on Drawings shall be mulched.
 - 2. Placement: Place mulch to required uniform depth soon after planting to prevent drying of planting soil around roots. When other operations such as fertilizing do not necessitate delay, mulch promptly after planting; do not delay more than 3 days after plants have been set.
 - a. Apply Pinestraw Mulch at a rate of one bale per 100 square feet over entire area or a uniform depth of 3 inches, except in groundcover beds where it shall be a uniform depth of 2 inches. Work straw neatly down among plants to give good appearance.

3.4 MAINTENANCE

- A. Maintain plantings through the establishment period required by Section 811 of the 2000 edition of the South Carolina State Highway Department Standard Specifications for Highway Construction until final acceptance of Work. The establishment period shall be that time from initial planting through and including twelve months following the issuance of the Certificate of Substantial Completion by The Town of Bluffton.

- B. Limitations: If the work is phased, completed portions accepted by The Town of Bluffton shall be maintained by the contractor under the establishment period and for additional time in accordance with the Bid Alternate if directed to do so by The Town of Bluffton. If unreasonable delays are caused by The Town of Bluffton the additional cost for extra maintenance during the delay shall be negotiated.
- C. Maintenance shall begin immediately after each plant is planted and continue until its acceptance has been confirmed by the Landscape Architect or the Town of Bluffton representative. and to continue throughout the twelve month establishment period.
- D. Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, tightening and repairing guys and stakes, if any, resetting plants to proper grades or upright position, restoring of the planting saucer, and furnishing and applying such sprays or other materials as necessary to keep plantings free of insects and diseases in vigorous condition.
- E. Planting areas and plants shall be protected at all times against trespassing and damage of all kinds for the duration of the maintenance period. If a plant becomes damaged or injured, it shall be treated or replaced as directed by the Landscape Architect or the Town of Bluffton representative, at no additional cost.
- F. Watering: Contractor shall irrigate as required to maintain vigorous and healthy tree growth. Overwatering or flooding shall not be allowed. The contractor shall monitor, adjust and furnish any additional material, equipment, or water to ensure adequate irrigation. Root balls of all trees and large shrubs shall be spot watered using handheld hoses during the first four months after planting, as required to ensure adequate water within the root ball.
- G. During periods of restricted water usage, all governmental regulations (permanent and temporary) shall be followed. The contractor may have to transport water from ponds or other sources, at no additional expense to The Town of Bluffton when irrigation systems are unavailable. Water source shall be approved by the Landscape Architect or the Town of Bluffton representative.
- H. The contractor shall mow and remove trash for the establishment period for all contract areas, as designated on drawing. This maintenance activity shall be part of the bid for the area and included in the overall cost of the job, if so directed by The Town of Bluffton here in.
- I. The contractor shall also include, as directed by The Town of Bluffton herein, Alternate One of the bid proposal, the cost of maintaining the plantings, mowing and trash removal for an additional year beyond the one year establishment period.

3.5 ACCEPTANCE

- A. The Landscape Architect or The Town of Bluffton representative shall inspect all work for acceptance upon written request of the contractor. The request shall be received at least ten calendar days before the anticipated date of inspection
- B. Acceptance of plant material shall be for general conformance to specified size, character, and quality and shall not relieve the contractor of responsibility for full conformance to the contract documents, including correct species.
- C. Upon completion and reinspection of all repairs or renewals necessary in the judgement of The Town of Bluffton, The Town of Bluffton shall certify in writing that the work has been completed.

- D. Upon acceptance, The Town of Bluffton will assume plant maintenance.

3.6 GUARANTEE PERIOD AND REPLACEMENTS

- A. The guarantee period for trees and shrubs shall begin at the date of Certificate of Substantial Completion.
- B. The contractor shall guarantee all plant material to be in healthy and flourishing condition for a period of one year from the date of Certificate of Substantial Completion.
- C. The contractor shall replace, without cost, as soon as weather conditions permit, and within a specified planting period, all plants determined by the The Town of Bluffton representative or landscape architect to be dead or in an unacceptable condition during and at the end of the guarantee period. To be considered acceptable, plants shall be free of dead or dying branches and branch tips and shall bear foliage of normal density, size, and color. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification.
- D. The guarantee of all replacement plants shall extend for an additional period of one year from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of said extended guarantee period, the Landscape Architect or The Town of Bluffton representative may elect subsequent replacement or credit for that item.
- E. At the end of the guarantee, the contractor shall reset grades that have settled below the proposed grades on the drawings.
- F. The contractor shall make periodic inspections, at no extra cost, during the guarantee period to determine what changes, if any, should be made in the maintenance program. If changes are recommended, they shall be submitted in writing to the The Town of Bluffton.

3.7 FINAL INSPECTION AND FINAL ACCEPTANCE

- A. At the end of the guarantee period and upon written request of the contractor, The Town of Bluffton will inspect all guaranteed work for final acceptance. The request shall be received at least ten calendar days before the anticipated date for final inspection. Upon completion and reinspection of all repairs or renewals necessary in the judgment of The Town of Bluffton at that time, The Town of Bluffton shall certify, in writing, that the project has received final acceptance.

3.8 CLEANING

- A. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

END OF SECTION 02950

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Reinforcing and accessories.
2. Concrete bases.
3. Cast-in-place concrete foundations, retaining walls, and miscellaneous structural concrete.

B. Related Sections:

1. Division 1: General Requirements.
2. Section 02200: Earthwork.
3. Section 02870: Site Furnishings.
4. Section 05600: Metal Fences.

1.2 REFERENCES

- A. American Concrete Institute, (ACI).

1.3 SUBMITTALS

A. Product Data:

1. Submit complete materials list of items proposed for the work. Identify materials source.
2. Submit admixture, curing compound, retarder, and accessory item product data.

B. Quality Control Submittals:

1. Submit concrete mix designs. Obtain approval before placing concrete.
2. Submit copies concrete test reports. Test results shall be reported in writing to The Town of Bluffton representative on same day that tests are made. Reports of compressive strength shall contain the following:
 - a. project identification name and number
 - b. date of concrete placement
 - c. name of concrete testing service
 - d. concrete type and class
 - e. location of concrete

- f. design compressive strength at 28 days
 - g. concrete mix proportions and materials
 - h. compressive breaking strength and type of break for both 7-day tests and 28-day tests.
3. Submit material certifications for aggregates, reinforcing, and joint fillers.
- C. Submit concrete delivery tickets. Show the following:
- 1. Batch number.
 - 2. Mix by class or sack content with maximum size aggregate.
 - 3. Admixtures.
 - 4. Air content.
 - 5. Slump.
 - 6. Time of loading.

1.4 QUALITY ASSURANCE

- A. Testing and Inspection: Performed by a qualified independent testing laboratory that meets ASTM E329 standards.
- B. Provide and pay for testing and inspection during concrete operations. Laboratory shall be acceptable to the Town of Bluffton.
- C. Maintain field records of time, date of placing, curing, and removal of forms of concrete in portion of work.
- D. Do not change source or brands of cement and aggregate materials during the course of the Work without written approval of The Town of Bluffton representative

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver curing materials, admixtures, and retarders in manufacturer's standard unopened containers with labels legible and intact. Store and protect from freezing and damage.
- B. Store cement, aggregates, and other materials in such a manner as to prevent deterioration or contamination with foreign matter. Each size aggregate to be stored separately. Cement which has caked, partially set, or otherwise deteriorated shall not be used in the concrete.
- C. Do not subject concrete to any procedure which will cause segregation.
- D. Do not use concrete which becomes nonplastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials.

1.6 PROJECT CONDITIONS

- A. Work Notification: Notify The Town of Bluffton representative at least 24 hours prior to installation of concrete.

- B. Environmental Requirements:
1. Do not place concrete over wet, saturated, muddy, or frozen subgrade.
 2. Do not install concrete when air temperature is below 35 degrees Fahrenheit or when the temperature is projected to drop below 25 degrees Fahrenheit within 48 hours. Use of calcium chloride, salt, or any other admixtures to prevent concrete from freezing is prohibited.
 3. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placing, and curing. After concrete placement, concrete shall be maintained between 50 and 100 degrees F. for a minimum of 3 days.
 - a. In cold weather comply with ACI 306, "Recommended Practice for Cold Weather Concreting". Cold weather concreting is defined as a period when for more than 3 successive days the mean daily temperature drops below 40 degrees F. When temperatures above 50 degrees F. occur during more than half of any 24 hour period, the concrete should no longer be regarded as cold weather concreting.
 - b. In hot weather comply with ACI 305, "Recommended Practice for Hot Weather Concreting."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C150, Type 1, natural color.

1. Provide white portland cement for integrally colored concrete.

MAX. SIZE FOR COARSE AGGREGATE SHALL NOT BE LARGER THAN:
1/5 THE NARROWEST DIM. BETWEEN FORM SIDES
1/3 THE DEPTH OF SLABS
3/4 THE MIN. CLEAR SPACING BETWEEN REINFORCING.

- B. Aggregate: Provide ASTM C33 Grading #57 clean, uncoated, crushed stone or gravel coarse aggregate free of materials which cause staining or rust spots.
- C. Fine Aggregate: Natural sand or a combination of natural sand and manufactured sand conforming to ASTM C33.
- D. Water: Clean, fresh, and potable.
- E. Air-entraining admixture: ASTM C260.
- F. Water-reducing admixture: ASTM C494.
- G. Non-slip aggregate: Fused aluminum oxide grits or crushed emery containing not less than 40 percent aluminum oxide and not less than 25 percent ferric oxide, factory graded, packaged, rust-proof, and nonglazing.

2.2 MIXES

- A. Provide ASTM C94 ready-mixed concrete. Batch mixing at site is not acceptable.

1. Strength:
 - a. 4000 psi minimum 28-day compressive strength; 611 lbs. cement per cu. yd. minimum; water/cement ratio, 0.44 maximum.
 - b. 3000 psi minimum 28-day compressive strength; 517 lbs. cement per cu. yd. minimum; water/cement ratio, 0.58 maximum.
 - c. 2500 psi minimum 28-day compressive strength; 470 lbs. cement per cu. yd. minimum; water/cement ratio, 0.65 maximum.
- B. Provide an approved water-reducing admixture in all concrete.
- C. Provide an air-entraining admixture in all concrete. Air content 4 to 7 percent.
- D. Indicate water added to mix at job site on each delivery ticket. Show quantity of water added. Site water tempered mixes exceeding specified slump range will be rejected as not complying with specification requirements.

2.3 ACCESSORIES

- A. Curing Compound: ASTM C309, non-yellowing, non-staining liquid membrane-forming type containing a fugitive dye. Chlorinated rubber compounds not acceptable for exterior use.
- B. Moisture-retaining cover: One of the following, complying with ASTM C171. Polyethylene sheeting and polyethylene film bonded to burlap shall not be less than 0.004 inch thick.
 1. Waterproof paper.
 2. Polyethylene film.
 3. Polyethylene-coated burlap.

RETARDS TOP 1/8" TO 3/16"
USE WATER-SOLUBLE TO RETARD TOP 3/16" TO 3/4".

- C. Surface retarding agent: Water-insoluble concrete surface retarder.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine subgrades and installation conditions. Do not start concrete work until unsatisfactory conditions are corrected.
- B. All proposed grades on the Drawings have been calculated to achieve desired drainage and visual effect; the Contractor shall verify existing elevations and grades and notify the Landscape Architect if the existing conditions vary from the existing conditions shown by the Drawings and the desired effect cannot be achieved.

3.2 INSTALLATION

- A. Concrete Placement:

1. Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as specified.
2. Do not place concrete in footings until subgrade bearing surface passes compaction tests specified in Section 02200.
3. Do not place concrete until subbase and forms have been checked for line and grade by the Town of Bluffton representative.
4. Footings: Place footings full thickness in one operation, without change in proportions, screeded to proper elevation, and float surface.

3.3 Curing:

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Maintain concrete between 50 and 100 degrees F. for minimum of 3 days.

3.4 FIELD QUALITY CONTROL

- A. Provide field quality control testing and inspection during concrete operations.
- B. Sampling from Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
- C. Testing:
 1. Slump Test: ASTM C143. Maximum 4 inches and 2 inches minimum. One test per each days pour per class of concrete, and for each 100 cubic yards or major fraction thereof.
 2. Provide air indicator tests and air meter tests for all air-entrained concrete.
 - a. Perform air indicator test with a "Chase" AE35 or equal air indicator, and air meter test in accordance with ASTM C231 or C173. Test first load of concrete delivered each day.
 - b. Furnish copies of field records and tests reports as listed for strength tests.
 3. Strength Testing:
 - a. Provide 1 set of 3 test specimens per each days pour per class of concrete, and for each 100 cu. yds. or major fraction thereof. Secure samples in accordance with ASTM C172 and mold specimens in accordance with ASTM C31.
 - b. Test 1 specimen at 7 days and 2 specimens at 28 days in accordance with ASTM C39.
 - c. Furnish copies of field records and test reports as follows:
 - 2 copies to The Town of Bluffton representative
 - 1 copy to Contractor
 - 1 copy to Ready Mix Supplies

4. Record the exact location of the concrete in the work represented by each set of cylinders and show on test reports.
5. Provide an insulated moist box for protection of the test cylinders until shipped to the laboratory.

3.5 PROTECTION

- A. Protect concrete work from damage due to construction and vehicular traffic until final acceptance. Exclude construction and vehicular traffic from concrete pavements for at least 14 days.
- B. After curing, backfill, grade, and compact soil to conform to the surrounding area in accordance with the lines and grades indicated shown on Drawings. Perform earthwork operations as specified in Section 02200.
- C. The Contractor shall repair damaged concrete and clean concrete discolored during construction. At no additional cost to the Owner, damaged concrete or wood dividers shall be removed and reconstructed for the entire length (between regularly scheduled joints). Removed damaged portions shall be removed from the site.

3.6 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the Work. Remove from the site all excess materials, debris, and equipment. Repair damage resulting from concrete operations.
- B. Sweep concrete sidewalks and pavement, wash free of stains, discoloration, dirt, and other foreign material immediately prior to final acceptance.

END OF SECTION 03300

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Site fabricated wood fencing.
 - 2. Related hardware.
- B. Related work:
 - 1. Division 1: General Requirements.
 - 2. Section 03300: Cast-In-Place Concrete.

1.2 REFERENCES

- A. Southern Pine Inspection Bureau (SPIB).
- B. Western Wood Products Association (WWPA).
- C. West Coast Lumber Inspection Bureau (WCLIB).
- D. Western Spruce-Pine-Fir Association (WSPFA).
- E. American Plywood Association (APA).
- F. National Forest Products Association (NFPA).
- G. American Wood Preservers Association (AWPA).
- H. Redwood Inspection Service (RIS).
- I. National Hardwood Lumber Association (NHLA).

1.3 SUBMITTALS

- A. Wood treatment data: Submit certification by treating plant indicating chemicals and process used and compliance with specified requirements.
- B. Submit manufacturer's product data for carpentry accessories and hardware items.
- C. Submit shop drawings. Indicate shop fabrication and erection details for factory fabricated wood fencing, including: layout and details of height, post locations, panel, sizes, and anchorage.
- D. Submit the following material samples:

FOLLOWING 3 ITEMS ARE FOR FACTORY FABRICATED FENCES.

- 1. Posts and railings, 12" lengths.
- 2. Wood fencing, 12" lengths.

3. Gate hardware, 1 each.

4. Fence Mesh.

1.4 QUALITY ASSURANCE

A. Lumber: Comply with American Softwood Lumber Standard PS-20. Provide lumber species complying with grading rules of following associations.

1. Southern Pine: Standard Grading Rules for Southern Pine Lumber, published by SPIB.

2. Douglas Fir and Western Red Cedar: Western Lumber Grading Rules, published by WWPA, or Standard Grading Rules for West Coast Lumber, Number 16, published by WCLIB.

3. Western Spruce, Pine, and Fir: WSPFA and current Canadian Grading Rules by National Grades Association Canada.

4. Redwood: Standard Specifications for Grades of California Redwood Lumber, published by RIS.

5. Cypress: Rules for Measurement and Inspection of Hardwood and Cypress Lumber published by NHLA.

B. Design and detailing of wood framing connections: Comply with NFPA National Design Specifications for Wood Construction.

C. Wood treatment: Comply with AWPAs standards for wood preservative treatment scheduled.

D. Sample panel: Before starting wood fencing provide a sample panel using materials indicated for the project work. Build panel at the site full height and typical length indicated on Drawings. Correct and rebuild sample panel until Landscape Architect's acceptance of the work. Retain panel during construction as a standard for completed wood fencing work.

1. The approved sample panel may be a portion of the work and remain in place at Contractor's own risk. Location as directed by the Landscape Architect.

2. Provide a sample panel for each type of wood fencing required.

E. Grade Marks:

1. Identify lumber and plywood by official grade marks or provide inspection certificates from appropriate grading and inspecting agencies.

2. Do not place grade marks on exposed faces. Where this cannot be avoided, sand wood to remove grade mark.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Keep materials dry during delivery and site storage. Stack materials to ensure proper drainage and ventilation and to minimize deformation. Protect from weather damage, soiling, staining, and deterioration.

B. Store and protect rough hardware from weather damage and deterioration.

1.6 SCHEDULING

- A. Do not begin wood fencing installation before completion of final grading.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Lumber:

1. Nominal sizes are indicated on Drawings. Provide actual size complying with American Softwood Lumber Standard PS-20 for moisture content indicated for each use, except where net sizes are indicated by detail dimensions.

2.2 WOOD PRESERVATIVE TREATMENTS

- A. AWPB LP-2: Pressure treat lumber and plywood with water-borne preservative for above-ground use in accordance with AWPB quality mark designation LP-2.

1. Net retention shall be 0.25 lbs. per cu. ft.
2. Treatment shall provide a clean, paintable wood surface, free of objectionable odors.

- B. AWPB LP-22: Pressure treat lumber and plywood with water-borne preservative for ground-contact use in accordance with AWPB quality mark designation LP-22.

1. Net retention shall be 0.40 lbs. per cu. ft.
2. Treatment shall provide a clean, paintable wood surface, free of objectionable odors.

- C. AWPB MP-1: Pressure treat lumber with water-borne and creosote preservatives for marine use in accordance with AWPB quality mark designation MP-1.

1. Net retention shall be 1.0 lbs. per cu. ft. water-borne preservative and 20.0 lbs. per cu. ft. creosote preservative.

- D. Air or kiln dry wood after treatment to maximum 19% moisture content.

2.3 ACCESSORIES

A. Rough hardware:

1. Furnish bolts, plates, anchors, hangers, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or securing woodwork to structures.
2. Provide fabricated items of sizes, shapes, and dimensions required, as specified in Section 05500.
3. Fasteners and anchorages: Provide aluminum, stainless steel or hot-dip galvanized finish, ASTM A153, fasteners and anchorages size and type to suit application.
- a. Bolts and nuts: Regular hexagon head type, ASTM A307, Grade A.
- b. Lag bolts: Square head type, FS FF-B-561.

- c. Wood screws: Flat head carbon steel, FS FF-S-111.
- d. Plain washers: Round, carbon steel, FS FF-W-92.
- e. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class, and style as required.
- f. Expansion shields: FS FF-S-325.
- g. Nails:
 - 1) Nails shall be box, hot-dipped galvanized, unless specified otherwise below.
 - 2) Finish and siding nails shall be annular alloy aluminum.
- 4. Metal Connectors: Simpson Strong-Tie or approved equal. Connectors shall be hot-dipped galvanized. Provide size indicated on Drawings.
- B. Glue: Resorcinol glue.
- C. Concrete: ASTM C94 ready-mixed concrete minimum 28 day compressive strength of 2,500 psi. as specified in Section 03300.
- D. Wire: 2"X4", galvanized wire, sag resistant, welded one piece steel construction, made to Class 3 specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine final grades and installation conditions. Do not start carpentry work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Obtain measurements and verify dimensions and details before proceeding with rough carpentry work.
- B. Layout complete fence line. Locate and mark post positions. Space line posts equally and at maximum 6.0' on center spacing.

3.3 INSTALLATION

- A. Wood Framing: Layout, cut, fit, and erect framing for rough and finished work. Brace, plumb, and level all members in true alignment and rigidly secure in place with sufficient nails, spikes, screws, and bolts as necessary.
 - 1. Wood Framing shall be size and on spacings as indicated on Drawings.
 - 2. Use only treated, sound, thoroughly seasoned materials of longest practical lengths and sizes to minimize joints. Use materials free of warp, unless warp can be easily corrected by anchorage and attachment. Make tight connections between members.

3. Cut square on bearings, closely fitted, accurately set to required lines and levels, rigidly secured.
4. Do not use shims for leveling on wood bearings.
5. Splicing between structural members is not accepted.
6. Replace framing impaired by cutting, drilling, or by inherent defects.
7. Provide corner bracing and wall bracing to give adequate resistance to racking.
8. Fit rough carpentry work to other work. Scribe and cope as required for accurate fit. Coordinate location of nailers, blocking, and similar supports to allow proper attachment of other work.
9. Set wood framing accurately to required lines and levels. Cut, join, and tightly fit framing around other work.

B. Posts:

1. Drill post holes into firm undisturbed or compacted earth.
 - a. Hole diameter: Minimum 3 times post diameter.
 - b. Hole depth: Minimum 4" deeper than post setting depth.
 - c. Post setting depth: Minimum 2'-0" deep for fences up to 5'-0" high, minimum 3'-0" for fences up to 6'-0" high, and minimum 3'-6" for fences up to 8'-0" high.

Post setting depth: Set 1/3 of total post length into ground.
2. Set posts as indicated on the Drawings. If not indicated, set posts as specified below.
 - a. Posts - concrete backfill: Set posts in 6" depth of granular drainage fill to assure proper drainage. Fill remaining foundation void with concrete. Slope top surface away from post.
 - b. Posts - earth backfill: Set posts in 6" depth of granular drainage fill to assure proper drainage. Fill remaining foundation void with compacted earth fill. Compact to 95% of optimum moisture -density ratio as specified in Section 02200. Slope top surface away from post.
 - c. Gate and corner posts: set posts in concrete backfill.
 - d. Line posts: set posts in earth backfill.
3. Excavated post hole soil may be spread uniformly adjacent to fence line.
4. Align each post both vertically and laterally. Secure in position during concrete and earth fill placement.

C. Connectors:

1. Furnish and install miscellaneous rough hardware in connection with rough carpentry work.
 2. Install factory-made connectors in accordance with manufacturer's recommendations.
- D. Anchoring and Nailing:
1. Nailing Schedule: Comply with Standard Building Code's Fastening Schedule - Table 1705.1.
 2. Fastenings shall be placed without splitting wood and pre-drilled when required.
 3. Washers: Provide washers under bolt heads, lag heads, and nuts bearing on wood.
 4. Bolts and lag screws shall be tightened at installation and carefully retightened just prior to closing in or at completion of project.
 5. Bolts:
 - a. Bolt Holes: Bolt holes shall be drilled 1/32" to 1/16" oversize.
 - b. Bolts shall not be forcibly hammered into place.
 6. Lag screw holes and placement:
 - a. Lag screws shall have pre-drilled lead holes. Lead hole for shank shall be the same diameter and depth as the shank. Lead hole for threaded portion shall have diameter 60 to 75 percent of the shank diameter.
 - b. The lag shall be screwed into pre-drilled holes and shall not be hammered into place. Soap or other lubricant may be used on screws at Contractor's option to facilitate insertion.
 7. Wood screws:
 - a. Lead hole for shank shall be 7/8 the diameter of the shank. Lead hole for threaded portion shall be 7/8 the diameter of screw at root of threaded portion.
 - b. Screws shall be screwed into pre-drilled holes and shall not be hammered into place. Soap or other lubricant may be used on screws at Contractor's option to facilitate insertion.
- E. Sill Plates: Provide sill plates where wood framing is supported by concrete or masonry. Anchor to embedded bolts.
- F. Brush apply 2 coats of wood preservative to surfaces of preservative treated lumber which are field cut, dressed, or drilled.
- 3.4 CLEANING
- A. Clean up debris and cuttings on a regular periodic basis.

- B. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, tools, and equipment. Repair damage resulting from carpentry work.

END OF SECTION 06100

CSI SPECIFICATION

Benches



DuMor Inc.
P.O. Box 142
Mifflintown, PA 17059
800-598-4018 | DuMor.com

DIVISION 32 30 00 SITE IMPROVEMENTS
SECTION 32 33 00 SITE FURNISHINGS
SECTION 32 33 43 SITE SEATING AND TABLES
SECTION 32 33 43.13 SITE SEATING

SECTION-1 – GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Benches (Model 165)

1.2 QUALITY ASSURANCE

- A. Installer Qualification:** An experienced installer who has completed installation of site furnishings and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications:** Experienced site furniture manufacturer since 1984.

1.3 SUBMITTALS

- A. Product Data:** Include physical characteristics such as shape, dimensions and finish for each bench.
- B. Shop Drawings:** Provide installation details for each product.
- C. Samples for Verification:** For the following product, show the color of the powder coat finish.
- D. Maintenance Data:** For each product.
1. Provide recommended methods for repairing damage and abrasions to the powder coat finish.

1.4 DELIVERY, STORAGE, AND HANDLING

- A.** Store products in original undamaged packaging in a dry location until ready for installation.
- B.** Handle powder coated products with care to prevent any damage to the finish.

1.5 WARRANTY

- A.** All products manufactured by DuMor, Inc., are warranted against defect in materials and/or workmanship and in accordance with our published specifications. DuMor, Inc. further warrants our products as follows:
1. Limited twenty-year warranty against structural failure of all steel bench frames or complete steel bench assemblies, table frames, litter receptacle frames, steel planters and all cast iron and aluminum bench supports.
 2. Limited five-year warranty against structural failure of wood slats.
 3. Limited ten-year warranty against structural failure of recycled plastic. It is further warranted not to degrade, split, crack or splinter during this period.
 4. Limited three-year warranty on structural failure of all bike racks.
 5. Limited one-year warranty on any item not specifically discussed above.

SECTION-2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A.** Provide products from the following manufacturer:

CSI SPECIFICATION

Benches



DuMor Inc.
P.O. Box 142
Mifflintown, PA 17059
800-598-4018 | DuMor.com

1. DuMor Inc.
138 Industrial Circle
Mifflintown, PA 17059
Phone: 800-598-4018
Fax: 717-436-9839
Email: sales@dumor.com
Website: www.dumor.com

2.2 BENCHES - DuMor Model 165 Series

A. Materials:

1. Supports:

- a. End Supports shall be ASTM A48 Class 30 cast iron.

2. Seat assembly wood

- a. Seat straps shall be manufactured from 2" x 3" nominal wood slats.
- b. Support pipes shall be manufactured from 1 1/2" (1 15/16" OD) ASTM A513 schedule 40 steel tubing.
- c. Seat contour straps shall be manufactured from 1/4" x 3" ASTM A36 carbon steel flat bar and 1/4" x 1 1/2" ASTM A36 carbon steel flat bar.

3. Seat assembly recycled plastic

- a. Seat straps shall be manufactured from 2" x 3" nominal HDPE recycled plastic slats.
- b. Support pipes shall be manufactured from 1 1/2" (1 15/16" OD) ASTM A513 schedule 40 steel tubing.
- c. Seat contour straps shall be manufactured from 1/4" x 3" ASTM A36 carbon steel flat bar and 1/4" x 1 1/2" ASTM A36 carbon steel flat bar.

4. Intermediate armrests (optional):

- a. Intermediate armrests shall be manufactured from ASTM A48 Class 30 cast iron.

5. Anchoring:

- a. Stainless steel expansion anchors (1/2" x 3 3/4") provided.

B. Dimensions

1. 6 foot bench

- a. Overall: 75" long x 27 5/16" deep x 32" high

2. 8 foot bench

- a. Overall: 99" long x 27 5/16" deep x 32" high

C. Finish:

1. Powder Coating

- a. All parts are processed through an 8-stage iron phosphorous wash system.
- b. Parts are coated with a zinc-rich epoxy primer to an AVERAGE of 4-5 mils.
- c. Parts are then finished with a top coat of TGIC-polyester powder to an AVERAGE of 4-5 mils.
- d. Powder is cured at the powder manufacturers specifications using combination of infrared and convection heat for approximately 20 minutes.
- e. Finished parts shall comply with the following American Standard Test Method (ASTM) for coating and coating method: ASTM-D-523, ASTM-D-3363, ASTM-D-1737, ASTM-D-3359, ASTM-D-2794, ASTM-B-117 and ASTM-D-3451.

SECTION-3 – EXECUTION

3.1 INSTALLATION

CSI SPECIFICATION

Benches



DuMor Inc.
P.O. Box 142
Mifflintown, PA 17059
800-598-4018 | DuMor.com

- A.** Handle and install benches according to manufacturer's recommendations and installation instructions.
- B.** Some assembly required.

CSI SPECIFICATION

Receptacles



DuMor Inc.
P.O. Box 142
Mifflintown, PA 17059
800-598-4018 | DuMor.com

DIVISION 32 30 00 SITE IMPROVEMENTS
SECTION 32 33 00 SITE FURNISHINGS
SECTION 32 33 23 SITE TRASH AND LITTER RECEPTACLES

SECTION-1 – GENERAL

1.1 SUMMARY

A. This section includes the following:

1. Receptacle (Model 70)

1.2 QUALITY ASSURANCE

A. Installer Qualification: An experienced installer who has completed installation of site furnishings and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: Experienced site furniture manufacturer since 1984.

1.3 SUBMITTALS

A. Product Data: Include physical characteristics such as shape, dimensions and finish for each bench.

B. Shop Drawings: Provide installation details for each product.

C. Samples for Verification: For the following product, show the color of the powder coat finish.

D. Maintenance Data: For each product.

1. Provide recommended methods for repairing damage and abrasions to the powder coat finish.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store products in original undamaged packaging in a dry location until ready for installation.

B. Handle powder coated products with care to prevent any damage to the finish.

1.5 WARRANTY

A. All products manufactured by DuMor, Inc., are warranted against defect in materials and/or workmanship and in accordance with our published specifications. DuMor, Inc. further warrants our products as follows:

1. Limited twenty-year warranty against structural failure of all steel bench frames or complete steel bench assemblies, table frames, litter receptacle frames, steel planters and all cast iron and aluminum bench supports.
2. Limited five-year warranty against structural failure of wood slats.
3. Limited ten-year warranty against structural failure of recycled plastic. It is further warranted not to degrade, split, crack or splinter during this period.
4. Limited three-year warranty on structural failure of all bike racks.
5. Limited one-year warranty on any item not specifically discussed above.

SECTION-2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Provide products from the following manufacturer:

CSI SPECIFICATION

Receptacles



DuMor Inc.
P.O. Box 142
Mifflintown, PA 17059
800-598-4018 | DuMor.com

1. DuMor Inc.
138 Industrial Circle
Mifflintown, PA 17059
Phone: 800-598-4018
Fax: 717-436-9839
Email: sales@dumor.com
Website: www.dumor.com

2.2 RECEPTACLE - DuMor Model 70 Series

A. Materials:

1. Receptacle Body Wood
 - a. Receptacle body shall be manufactured from 3/16" x 4" ASTM A36 carbon steel flat bar and 2" x 3" nominal wood slats.
2. Receptacle Body Recycled Plastic "PL"
 - a. Receptacle body shall be manufactured from 3/16" x 4" ASTM A36 carbon steel flat bar and 2" x 3" nominal HDPE recycled plastic slats.
3. Cover:
 - a. Cover shall be molded from HDPE.
 - b. Optional: Bonnet top, dome top, push top or recycling top.
4. Liner:
 - a. Liner shall be HDPE with 22 gallon capacity.
5. Anchoring:
 - a. Stainless steel expansion anchors (1/2" x 3 3/4") provided.

B. Dimensions

1. 22 gallon receptacle
 - a. Overall: 25 7/16" diameter x 30 11/16" high

C. Finish:

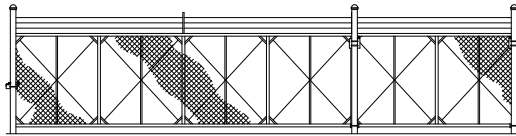
1. Powder Coating
 - a. All parts are processed through an 8-stage iron phosphorous wash system.
 - b. Parts are coated with a zinc-rich epoxy primer to an AVERAGE of 4-5 mils.
 - c. Parts are then finished with a top coat of TGIC-polyester powder to an AVERAGE of 4-5 mils.
 - d. Powder is cured at the powder manufacturers specifications using combination of infrared and convection heat for approximately 20 minutes.
 - e. Finished parts shall comply with the following American Standard Test Method (ASTM) for coating and coating method: ASTM-D-523, ASTM-D-3363, ASTM-D-1737, ASTM-D-3359, ASTM-D-2794, ASTM-B-117 and ASTM-D-3451.

SECTION-3 – EXECUTION

3.1 INSTALLATION

- A. Handle and install receptacles according to manufacturer's recommendations and installation instructions.
- B. Some assembly may be required.

**FORTRESS HEAVY DUTY
CANTILEVER SLIDE GATE
(ORNAMENTAL)**



PART 1 - GENERAL:

1.01 SECTION INCLUDES:

- A. The work in this section shall include furnishing all labor, materials, equipment and appliances necessary to complete all Fortress Heavy Duty Cantilever Slide Gate(s) required for this project in strict accordance with this specification section and drawings.

1.02 REFERENCES:

- A. Underwriters Laboratory Gate Operator Requirements (UL 325). See 3.02 C.
 - 1. Automated / operated vehicular gates are not to be used for pedestrian traffic. Separate pedestrian gates must always be provided if pedestrian traffic is expected.
- B. ASTM F 2200 – Standard Specification for Automated Vehicular Gate Construction. See 2.01 C.
- C. ASTM F 1184 – Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2. See 3.02 B.
- D. American Welding Society AWS D1.2 Structural Welding Code. See 2.01 D and 2.03 D.

1.03 SUBMITTAL:

- A. Product Data:
 - 1. Provide manufacturer's catalog cuts with printed specifications and installation instructions.
 - 2. If operated gate system, furnish two (2) copies of operation and maintenance data covering the installed products.
- B. Shop Drawings:
 - 1. Supply shop drawings showing the gate system, including details of all major components.
 - 2. Include complete details of gate construction, gate height, and post spacing dimensions.
- C. Certification of Performance Criteria:
 - 1. Manufacturer of gate system shall provide certification stating the gate system includes the following material components that provide superior performance and longevity. Alternate designs built to minimum standards that do not include these additional structural features shall not be accepted.
 - a. Gate track system shall be keyed to interlock into gate frame member (providing 200% additional strength when compared to weld only keyless systems). When interlocked with and welded to the "keyed" frame top member, gate track forms a composite structure.

- b. Gate shall have a minimum counterbalance length of 50% opening width which provides a 36% increase in lateral resistance (when compared to ASTM minimum of 40% counterbalance). If gate is ever to be automated, counterbalance section shall be filled with fabric or other specified material.
- c. To provide superior structural integrity, major vertical members shall be spaced at intervals less than the gate frame height and each vertical member, including pickets, shall be welded in place.
- d. Entire gate frame (including counterbalance section) shall include 2 adjustable stainless or galvanized steel cables (minimum 3/16") per bay to allow complete gate frame adjustment (maintaining strongest structural square and level orientation).
- e. Gate truck assemblies shall be tested for continuous duty and shall have precision ground and hardened components. Bearings shall be pre-lubricated and contain shock resistant outer races and captured seals.
- f. Gate truck assemblies shall be supported by a minimum 5/8" plated steel bolt with self aligning capability, rated to support a 2,000 # reaction load.
- g. Hanger brackets shall be hot dipped galvanized steel with a minimum 3/8" thickness that is also gusseted for additional strength.
- h. Gate top track and supporting hangar bracket assemblies shall be certified by a licensed professional engineer to withstand a 2,000 lb. vertical reaction load without exceeding allowable stresses.

D. Certifications:

- 1. Gate in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction per section 2.01 C.
- 2. If operated gate system, gate operator shall be in compliance with UL 325 as evidenced by UL listing label attached to gate operator.
- 3. The aluminum welders and welding process must be certified per section 2.03 D.
- 4. Manufacturer shall supply gate design performance certification as per section 1.03 C.

PART 2 - PRODUCTS:

2.01 CANTILEVER SLIDE GATE MANUFACTURERS:

- A.** The cantilever sliding gate system shall be manufactured by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 - (800) 328 - 4283.
- B.** Approved substitution – All other systems must be submitted to the design team in accordance with substitution requirements as set forth in the general provisions of the specification manual for approval prior to the bid date. Products submitted after the bid date will not be approved.
- C.** Gate manufacturer shall certify gate is manufactured in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction. See 1.03 D.1.
- D.** Gate manufacturer shall provide independent certification as to the use of a documented Welding Procedure Specification and Procedure Qualification Record to insure conformance to the AWS D1.2 welding code. Upon request, Individual Certificates of

Welder Qualification documenting successful completion of the requirements of the AWS D1.2 code shall also be provided. See 1.03 C.2.

2.02 GATE DIMENSIONS:

- A.** Fortress Heavy Duty Cantilever Slide Gate dimensions shall be as shown on the detail drawings.

2.03 GATE CONSTRUCTION DETAILS:

A. Gate Frame:

1. The gate frame shall be fabricated from 6063-T6 aluminum alloy extrusions. The top member shall be a 3" x 5" (76mm x 127mm) aluminum structural channel/tube extrusion weighing not less than 3.0 lb/lf (4.4kg/m) for Internal Picket designs or 2.6 lb/lf (3.8kg/m) for External Picket designs. To maintain structural integrity this frame member shall be "keyed" to interlock with the "keyed" track member. If fabricated as a single horizontal piece, the bottom member shall be a 2" x 5" (51mm x 127mm) aluminum structural tube weighing not less than 2.0 lb/lf (2.9kg/m). If fabricated in two horizontal pieces, the bottom member shall be a 5" (127mm) aluminum structural channel weighing not less than 2.6 lb/lf (3.8kg/m). When the gate frame is manufactured in two horizontal pieces or sections, they shall be spliced in the field (the gate frame shall be fabricated in one or multiple sections depending on size requirements or project constraints).

B. Vertical Members (Ornamental picket):

1. Ornamental Picket (Internal and External): The vertical members at the ends of the opening portion of the frame shall be 2" x 2" (51mm x 51mm) in the cross section weighing not less than 1.1 lb/lf (1.6kg/m). The major vertical members separating each bay shall be 1" x 2" (25mm x 51mm) in cross section weighing not less than .82 lb/lf (1.2kg/m).

C. Gate Track:

1. The gate frame shall have a separate semi-enclosed "keyed" track, extruded from 6005A-T61 or 6105-T5 aluminum alloy, weighing not less than 2.9 lb/lf (4.2kg/m). The track member is to be located on only one side of the top primary. When interlocked with and welded to the "keyed" top member, it forms a composite structure with the top of the gate frame. Welds to be placed alternately along the top and side of the track at 9" (229mm) centers with welds being a minimum of 2" (51mm).

- D.** All welds on the gate frame shall conform to Welding Procedure Specification and Procedure Qualification Record to insure conformance to the AWS D1.2 Structural Welding Code. All individual welders shall be certified to AWS D1.2 welding code. See 1.03 D.3.

E. Gate Mounting:

1. The gate frame is to be supported from the track by two (2) swivel type, self-aligning, 4-wheeled, sealed lubricant, ball-bearing truck assemblies.
2. The bottom of each support post shall have a bracket equipped with a pair of 3" (76mm) UHMW guide wheels Wheel cover protectors shall be included with bottom guides to comply with UL325.

3. Gap protectors shall be provided and installed, compliant with ASTM F 2200-05.
- F. Diagonal "X" bracing of 3/16" or 1/4" diameter stainless or galvanized steel cable shall be installed throughout the entire gate frame.
 - G. The gate shall be completed by installation of approved filler as specified.
 1. Ornamental Picket: Picket sizes shall be 1" (25mm) square. Pickets may extend through only the clear opening portion or through the entire length of the gate as required. If a motorized gate operator is to be applied to the gate and the specified picket spacing allows for openings in the gate frame that exceed 2 1/4" (57mm), a secondary gate filler shall be secured at each end of the gate frame and tied at each 1" x 2" (25mm x 51mm) or 2" x 2" (51mm x 51mm) vertical member. The secondary gate filler shall extend to a minimum height of 72" (1.2m) above grade and shall be sized to prevent a 2 1/4" (57mm) diameter sphere from passing through openings anywhere along the length of the gate frame, and in that portion of the adjacent fence that the gate covers in the open position.

2.04 POSTS:

- A. A single set of support posts shall be minimum 4" O.D. (102mm) round SS40 or 4" x 4" x 3/16" wall square steel tubing, grade 500. Gate posts shall be galvanized or coated and supported in concrete footings as specified by the design team.

2.05 FINISH:

- A. Gate to be mill finish aluminum or color coated with polyester powder as specified. If powder coated, the gate (including track member) and all accessories shall be pretreated chemically by sand blasting or other acceptable method to ensure proper coating adherence.

2.06 WARRANTY:

- A. The truck assembly shall be warranted against manufacturing defects by the manufacturer for a period of (5) five years from date of sale.

PART 3 - EXECUTION:

- 3.01 Final grades and installation conditions shall be examined. Installation shall not begin until all unsatisfactory conditions are corrected.

3.02 INSTALLATION:

- A. Equipment in this section shall be installed in strict accordance with the company's printed instructions unless otherwise shown on the contract drawings.
- B. The gate and installation shall conform to ASTM F 1184 standards for aluminum cantilever slide gates, Type II, Class 2. See 1.02 C.
- C. If the gate system is to be automated, the gate and installation shall also comply with ASTM F 2200 and UL 325. See 1.02 A and 102 B.

3.03 SYSTEM VALIDATION:

- A. The complete system shall be adjusted to assure it is performing properly.
- B. The system shall be operated for a sufficient period of time to determine that the system is in proper working order.
- C. For operated gate systems - test and explain safety features:
 1. Each system feature and device is a separate component of the gate system.

2. Read and follow all instructions for each component.
3. Ensure that all instructions for mechanical components, safety devices and the gate operator are available for everyone who will be using the gate system.
4. The warning signs shipped with the gate operator must be installed in prominent position on both sides of the gate.
5. Ensure the owner is clear with regard to the safety points concerning the basic operational guidelines of the safety features of the gate operator system. These safety points are listed in the gate operator manual and must be read prior to system use.

Note: Tymetal Corp. reserves the right to modify and/or make changes as deemed necessary without previous notice.