James Island Drainage Improvements – 2 Locations

PROJECT MANUAL

Prepared for:
Town of James Island
1122 Dills Bluff Road
James Island, SC 29412

Prepared by:

Stantec Consulting Services Inc.
4969 Centre Pointe Drive, Suite 200
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(843) 740-7700

Stantec Project No. 171002439, 2448

May 8, 2023

Revisions

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SEALS PAGE

The following design professionals, by affixing their seal and signature on this page, certify that they have personally prepared, or have had prepared under their direct supervision, their respective portions of the Contract Documents, for use in this Project.

Stantec Consulting Services Inc.	Civil Engineer
	 5/8/2023

(END OF SECTION)

SECTION 001116
INVITATION TO BID

Selected contractors are invited to bid on the "James Island Drainage Improvements – 2 Locations" in James Island, SC for the Town of James Island. The work includes improving the storm drainage system within the Quail Run Subdivision and the Woodhaven Subdivision. Refer to location map below for the two projects:

Submit your Bid on the enclosed Bid Form and send or email to:

Stantec Consulting Services Inc.
4969 Centre Pointe Drive, Suite 200
North Charleston, South Carolina 29418
Attention: Justin Tye, P.E., PTOE (justin.tye@stantec.com)

Bids must be received no later than 2:00 PM local time on June 9, 2023.

A pre-bid meeting will not be held.

Bid Documents may be obtained electronically from Stantec Consulting by emailing Justin Tye at justin.tye@stantec.com.

A Bid Security, in the form of a surety bid bond and in the amount of 5 percent of the Total Bid will be required to be included with your Bid.

The selected Bidder will be required to furnish a Performance Bond and a Payment Bond, in the amount of 100 percent of the Total Bid, as defined in the Instructions to Bidders. The cost of the Bond shall be included in the Base Bid.

Bidder agrees that he may not withdraw or modify his proposal for a period of one hundred twenty (120) calendar days after the scheduled bid opening.

The successful Bidder will be required to obtain all applicable licenses (including a Town of James Island business license) and to comply with all applicable laws, ordinances, and codes. Certification of Insurance and Worker's Compensation Coverage will be required.

Refer to "Instructions to Bidders" for additional information regarding the preparation and submission of bids.

The owner reserves the right to waive any irregularities, or to reject any or all bids. The owner also reserves the right to not proceed with the project.

Any questions concerning this project shall be addressed to Justin Tye by emailing at justin.tye@stantec.com.

(END OF SECTION)

SECTION 002113
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1. DEFINITIONS

A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

B. Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

C. Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections.

D. A Bid is a complete and properly executed proposal to do the work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

E. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the work described in the Bidding Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.

F. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the work, as described in the Bidding Documents, is accepted.

G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the work as described in the Bidding Documents.

H. A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

I. A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the work.

1.2. BIDDER'S REPRESENTATIONS

A. The Bidder by making a Bid represents that:

1. The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the work for which the Bid is submitted, and for other portions of the project, if any, being bid concurrently or presently under construction.
2. The Bid is made in compliance with the Bidding Documents.
3. The Bidder has visited the site, become familiar with local conditions under which the work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.
4. The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

1.3. BIDDING DOCUMENTS

A. Copies:

1. Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the sum, if any, stated therein.
2. Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.
3. Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
4. The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.
2. Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request via electronic mail which shall reach the Architect at least ten (10) days prior to the date for receipt of Bids.
3. Interpretations, corrections and changes to the Bidding Documents will be made by Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

C. SUBSTITUTIONS

1. The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.
2. No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least seven days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

3. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
4. No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

D. ADDENDA

1. Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.
2. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
3. Addenda will be issued no later than three days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.
4. Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

1.4. BIDDING PROCEDURES

A. PREPARATION OF BIDS

1. Bids shall be submitted on the forms included with the Bidding Documents.
2. Bidder shall include three (3) copies of the bid form or one (1) copy electronically.
3. All blanks on the bid form shall be legibly executed in a non-erasable medium.
4. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.
5. Interlineations, alterations and erasures must be initialed by the signer of the Bid.
6. All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."
7. Where two or more Bids for designated portions of the work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.
8. Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

B. BID SECURITY

1. Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Invitation to Bid. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the

Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Article 1.6.B.

2. If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.
3. The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

C. SUBMISSION OF BIDS
1. All copies of the Bid, the bid security and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the project name, the Bidder's name and address and, if applicable, the designated portion of the work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.
2. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.
3. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.
4. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

D. MODIFICATION OR WITHDRAWAL OF BID
1. A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.
2. Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.
3. Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.
4. Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

1.5. CONSIDERATION OF BIDS

A. REJECTION OF BIDS

1. The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

B. ACCEPTANCE OF BID (AWARD)

1. It is the intent of the Owner to award a Contract to that Bidder which, in the Owner's opinion, demonstrates the best value with his Bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.
    a. Base Bid, Unit Prices for Contingency work, Alternates, and Diverse Suppliers participation are all considered important aspects of the work and as such, shall be considered in awarding the Contract.
        1. On the Bid Form, Bidders shall enter the requested information completely and in accordance with all instructions provided in the Bid Documents.

1.6. POST-BID INFORMATION

A. SUBMITTALS

1. The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:
    a. A designation of the work to be performed with the Bidder's own forces;
    b. Names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the work; and
    c. Names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the work.
2. The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the work described in the Bidding Documents.
3. Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

4. Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

1.7. PERFORMANCE BOND AND PAYMENT BOND

A. BOND REQUIREMENTS

1. If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.
2. If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.
3. If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

B. TIME OF DELIVERY AND FORM OF BONDS

1. The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Article 1.7.B.
2. Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.
3. The bonds shall be dated on or after the date of the Contract.
4. The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

1.8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. Unless otherwise required in the Bidding Documents, the Agreement for the work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the Basis of Payment Is a Stipulated Sum.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 004100
BID FORM

BID OF: _____
(BIDDER)

BID TO: Town of James Island
(AGENCY/OWNER)

PROJECT NAME: James Island Drainage Improvements – 2 Locations

BASE BID AGREEMENT:

The undersigned, having carefully examined all drawings, project details, specifications, and other documents comprising the Bidding Documents and acknowledging all Addenda as follows:

Addendum Number	Date

as well as having examined the premises and conditions affecting the work proposes to furnish all services, labor, materials and equipment called for by them for the entire work (including estimated Unit Price work as more fully described below) in accordance with said documents and Addenda.

BASE BID (Transfer from Unit Price Schedule):

Bidder/proposer agrees to perform all work described in the specifications and shown on the drawings for the sum of:

_____ Dollars

($_____)

UNIT PRICES:

When changes in the work are ordered by the Owner, and such changes involve the following items, the following unit prices will be used to calculate adjustments to the Contract Sum. These unit prices shall be for the work as specified, including all labor, materials, equipment, accessories, shipping, preparation, insurance, testing, overhead, profit, applicable taxes, permits, fees, warranties and all other associated costs for the finished and completed work.

Submit unit price and proposal amount for the following items. This list may not include all components necessary to provide a completed product, therefore any applicable items necessary to provide a completed product should be considered in your unit

price response. Contractor shall make quantity take-offs using drawings to determine quantities to their satisfaction, reporting promptly any discrepancies which may affect bidding.

In case of errors in the extension of prices, unit price governs. In case of error in summations, corrected bid amounts will be totaled and will govern. The total cost column should add up to the total line and transfer to Base Bid.

Quail Run Subdivision Drainage Improvements – New Pipes					
Item	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total Cost**
1	Mobilization; Bonds and Insurance; Construction Stakes, Lines & Grades	1	LS		
2	Traffic Control	1	LS		
3	Clearing & Grubbing	1	LS		
4	Removal & Disposal of Asphalt Pavement	50	SY		
5	Site Excavation	1	LS		
6	Asphalt Replacement	50	SY		
7	29"x45" ERCP	1,035	LF		
8	Flap Gate	2	EA		
9	Catch Basin	3	EA		
10	Drop Inlet with 5'x5' Box	3	EA		
11	Junction Box	1	EA		
12	Water Quality Structure	2	EA		
13	Reset Fence	800	LF		
14	Permanent Grassing	0.3	ACRE		
15	Silt Fence	2,100	LF		
16	Inlet Structure Filter	6	EA		
				TOTAL	

Quail Run Subdivision Drainage Improvements – Slipline Pipe					
Item	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total Cost**
1	Mobilization; Bonds and Insurance; Construction Stakes, Lines & Grades	1	LS		
2	Traffic Control	1	LS		
3	Line Existing 18" Pipe	173	LF		
4	Line Existing 30" Pipe	286	LF		
				TOTAL	

Quail Run Subdivision Drainage Improvements – Clean Pipes					
Item	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total Cost**
1	Mobilization; Bonds and Insurance; Construction Stakes, Lines & Grades	1	LS		
2	Traffic Control	1	LS		
3	Clean Existing Pipe	254	LF		
				TOTAL	

Woodhaven Subdivision Drainage Improvements					
Item	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total Cost**
1	Mobilization; Bonds and Insurance; Construction Stakes, Lines & Grades	1	LS		
2	Traffic Control	1	LS		
3	Clearing & Grubbing	1	LS		
4	Removal & Disposal of Asphalt Pavement	65	SY		
5	Site Excavation	1	LS		
6	Asphalt Replacement	65	SY		
7	24" Smooth Wall Pipe	2,276	LF		
8	Drop Inlet	2	EA		
9	Drop Inlet with 4'x4' Box	10	EA		
10	Junction Box	4	EA		
11	Rip-Rap	30	TON		
12	Geotextile	38	SY		
13	Permanent Grassing	0.5	ACRE		
14	Silt Fence	2,400	LF		
15	Inlet Structure Filter	12	EA		
				TOTAL	

By signature of their Bid, Bidder acknowledges the following conditions regarding completion of the Unit Price Schedule:

1) That the Bidder's Quantity and Bidder's Unit Price has been entered for each line item of the Schedule and that the total for each line item was established by multiplying the Bidder's Quantity by the Bidder's Unit Price. Furthermore, that those totals have been summed for the Schedule and that the total exactly matches the number entered above for the Base Bid.
2) That the line items listed represent the Architect's opinion of those elements that will be required to complete the work and that the omission of specific line items shall not relieve the Bidder of responsibility for all work defined by the Bid Documents. Furthermore, that the blank spaces provided at the end of the Schedule have been utilized by the Bidder, where deemed necessary, to include those line items judged to have been omitted by the Architect.
3) That notwithstanding #2 above, Bidder has endeavored to include all work within the line items provided by the Architect and that blank spaces have been utilized by Bidder only where deemed essential to fully define the work.
4) That, in the event of minor changes in Project scope, the Bidder's Unit Prices shall provide the basis for calculating adjustments to the Contract Price.
5) That the Bidder's Unit Prices include all costs, profit and overhead and that no further surcharges shall be added.
6) That, where errors in math are encountered, the individual Bidder's Unit Price and Quantities shall govern and that a corrected Base Bid shall be calculated and used.
7) That the Bidder's Unit Prices will be kept confidential and will not be released to other Bidders.

BID HOLDING TIME:

The undersigned hereby agrees that this bid may not be revoked or withdrawn after time set for opening bids, but shall remain open for acceptance for a period of one hundred twenty (120) days following such time.

CONTRACT ACCEPTANCE:

In case the undersigned be notified in writing of acceptance of this bid within one hundred twenty (120) days after the time set for opening of bids, he agrees to execute, within ten days from notice, a Contract (AIA Standard Form of Agreement Between Contractor and Owner When A Stipulated Sum Forms the Basis of a Payment, AIA Form A101) for the work for the above- stated amount. At the same time, the undersigned agrees to furnish and deliver to the Owner, a Performance Bond and a Payment Bond, in the form issued by the American Institute of Architects (AIA Form A312), each in an amount equal to 100 percent of the Base Bid.

COMPLETION TIME:

The undersigned agrees to commence actual physical work at the site, with an adequate force and equipment, per the schedule outlined below. Furthermore, the

undersigned agrees to complete the work in accordance with the work Schedule described in the Division 1 Section "Summary", plus only those authorized time extensions as allowed by the General and Supplementary Conditions.

MILESTONE DATES:

1)	Bids Due	6/9/2023
2)	Award of Contract	6/30/2023
3)	Start Construction	7/10/2023
4)	Substantial Completion	5/31/2024
5)	Final Completion / Closeout Approval	6/28/2024

BID SECURITY:

Enclosed is a bid bond or certified check in the amount of:

_____ Dollars

($_____)

being not less than five percent of the Base Bid, payable to Owner. The undersigned agrees that the above- stated amount is the proper measure of liquidated damages that the Owner will sustain by failure of the undersigned to execute the Contract. The undersigned agrees that, if he is unwilling to execute the Contract within the ten day period from notice, or if he fails to furnish both a Performance Bond and a Payment Bond as described below, the obligation of the Bid Security will remain in full force and effect, and the moneys payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure.

PERFORMANCE BOND AND PAYMENT BOND

The selected Bidder will be required to furnish a Performance Bond and a Payment Bond, in the amount of 100 percent of the Base Bid, as defined in the Instructions to Bidders. The cost of the Bond shall be included in the Base Bid.

LIST OF PRIME AND SUBCONTRACTORS

The undersigned states that the following is a full and complete list of proposed prime contractor and subcontractors on this Project and the class of work to be performed by each, and that such list will not be added to nor altered without written consent of the Owner.

Prime Contractor, Subcontractor & Address Class of Work to be Performed

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

Date:_____ Firm Name:_____

Signed:_____ Title:_____

Submitted by,

Firm Name:_____

Address:_____

SC Contractor's License #:_____

By:_____

Title:_____

SEAL IF BIDDER IS A CORPORATION

(END OF SECTION)

SECTION 004313
BID SECURITY FORMS

BID FORM SUPPLEMENT

A completed bid bond form is required to be attached to the Bid Form.

BID BOND FORM

AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.

Copies of AIA standard forms may be obtained from The American Institute of Architects; https://www.aiacontracts.org/; email: DocsTechSupport@aia.org; (800) 942-7732.

(END OF SECTION)

SECTION 011000
SUMMARY

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes the following:
   1. Work covered by the Contract Documents.
   2. Work schedule.
   3. Concurrent work by public utilities.
   4. Use of premises.
   5. Work restrictions.
   6. Specification formats and conventions.
   7. Regulatory Requirements

1.3. WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: James Island Drainage Improvements – 2 Locations
   1. Project Location: Between Highwood Circle and Shortwood Street.

B. Owner: Town of James Island
   1122 Dills Bluff Road
   James Island, SC 29412
   1. Representative: Niki Grimball

C. Engineer: Stantec Consulting Services, Inc.
   4969 Centre Pointe Drive, Suite 200
   North Charleston, South Carolina 29418
   Phone: (843) 740-7700

D. Generally and without force or effect on the Contract requirements, the work consists of the following:
   1. Improving the storm drainage system within the Woodhaven Subdivision.

E. Testing Agency: Contractual responsibilities for testing are identified in Division 1 Section "Quality Requirements". Specific testing requirements are identified in individual Sections as applicable.

F. Construction Surveying: Contractor shall provide construction surveying and stakeout using personnel meeting the Land Surveyor Qualifications set forth in the Division 1 Section "Execution".

1.4. WORK SCHEDULE

A. The work shall be completed in a single phase and shall be Substantially Complete, such that the improvements have received approval and acceptance for operation and maintenance by the authorities having jurisdiction, within the number of calendar days indicated on the Bid Form plus only those authorized time extensions as allowed by the General and Supplementary Conditions, after the Notice to Proceed.

B. Final Completion shall be achieved within thirty consecutive calendar days from the execution date of the "Certificate of Substantial Completion."

C. Contractor also agrees to pay as liquidated damages the sum of two hundred and fifty dollars ($250.00) for each consecutive calendar day thereafter that the work fails to reach completion within the time allowed.
D. Before commencing work, submit a schedule showing the sequence, commencement, and completion dates for the work.

1.5. CONCURRENT WORK BY PUBLIC UTILITIES
A. Cooperate fully with public utility contractors so that work may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the work of this Contract with work performed under separate contracts by public utilities.

1.6. USE OF PREMISES
A. General: Contractor shall have full use of premises for construction operations, including use of project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of project.
B. Coordinate with existing properties to provide temporary access during construction. Provide 72 hours notice to work that will interrupt property owners along project corridor.
C. Construction Laydown Area: Contractor shall coordinate with the Owner regarding the location of the construction laydown area, in order to provide temporary storage of equipment and supplies for the duration of the project. This area shall be maintained with the proper fencing, signage, locking devices, and any other applicable safety standards to prevent injury and hazards, and protect the Owner, construction personnel, and the general public.
D. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of project site beyond areas in which the work is indicated.
E. Environmentally Sensitive Areas: Encroachment into wetlands, buffers, and other environmental sensitive areas is prohibited except in areas where specifically indicated and permitted by authorities having jurisdiction.
F. Temporary Facilities: No work trailer onsite is allowed.

1.7. WORK RESTRICTIONS
A. On-Site Work Hours: Work hours are limited Monday through Friday from 7 am to 7 pm and on Saturday from 8 am to 5 pm. No work is permitted on Sunday.
    1. Coordinate intended work schedule for that week with the Owner at each weekly progress meeting.
B. Holidays: Work is prohibited on New Year's Day, Easter, Memorial Day, July 4th, Labor Day, Thanksgiving and Christmas.
    1. Holidays that fall on a Monday or Friday will include a work prohibition on the weekend.
    2. Thanksgiving holiday will include a work prohibition on the subsequent Friday and weekend.
C. Noise: During all work hours, Contractor shall endeavor to keep noise levels to the minimum required for operations in progress.
    1. Turn off or bring to idle machinery not in current use.
    2. Move maintenance and other portable operations to locations where disturbance of nearby property owners is less likely.

3. Maintain equipment such that its noise level is not greater than typical for a given type.
4. Where practical, use equipment of the minimum size and noise level for a given operation.

D. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Engineer's written permission.

1.8. SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
1. Section Identification: The Specifications use Section numbers and titles to help cross- referencing in the Contract Documents. Sections in the project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.9. REGULATORY REQUIREMENTS

A. Authorities Having Jurisdiction: Conform to requirements of all authorities having jurisdiction.
1. Where conflicts exist between the requirements of the Contract Documents and those of authorities having jurisdiction, the higher quality or more restrictive requirement shall apply.

2. Submit copies of all permits and licenses, required by governing authorities having jurisdiction, to Owner and Engineer.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 012200
UNIT PRICES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

B. Related Sections:

1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Individual Specification Sections referenced in the List of Unit Prices included in Part 3.

1.3. DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the work as a price per unit of measurement for materials, equipment, or services, or a portion of the work, added to or deducted from the Contract Sum by appropriate modification, if the scope of work or estimated quantities of work required by the Contract Documents are increased or decreased.

1.4. PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1. LIST OF UNIT PRICES

A. See Unit Price Schedule in Section 004100

(END OF SECTION)

SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3. MINOR CHANGES IN THE WORK

A. Engineer will issue supplemental instructions authorizing Minor Changes in the work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4. PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within five (5) business days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5. CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6. CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Engineer may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 012900
PAYMENT PROCEDURES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3. SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
   1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with Continuation Sheets.
      b. Submittals Schedule.
      c. Contractor's Construction Schedule.
   2. Submit the Schedule of Values to Engineer at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
   3. Sub-schedules: Where the work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the Schedule of Values:
      a. Project name and location.
      b. Name of Engineer.
      c. Engineer's project number.
      d. Contractor's name and address.
      e. Date of submittal.
   2. Submit draft of AIA Document G703 Continuation Sheets.
   3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
   4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
   5. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
      a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
    a. Include each Change Order or Construction Change Directive as a new line item on the Schedule of Values.

1.4. APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required. Submitting electronically is acceptable.
    1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the work must submit waivers.
4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of Unit Prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the work.
9. Initial progress report.
10. Report of preconstruction conference.
11. Certificates of insurance and insurance policies.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the work claimed as substantially complete.
1. Include documentation supporting claim that the work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the work.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."

7. Evidence that claims have been settled.
8. Final, liquidated damages settlement statement.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 013100
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on project including, but not limited to, the following:
   1. Coordination.
   2. Administrative and supervisory personnel.
   3. Project meetings.
   4. Requests for Information (RFIs).

1.3. DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4. COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
   4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's Construction Schedule.
   2. Preparation of the Schedule of Values.
   3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Startup and adjustment of systems.
8. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5. ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to project superintendent, provide other administrative and supervisory personnel as required for proper performance of the work.

1.6. PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at project site, unless otherwise indicated.
   1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.
   2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
   3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three (3) days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 10 days after execution of the Agreement. Hold the conference at project site. Conduct the meeting to review responsibilities and personnel assignments.
   1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with project and authorized to conclude matters relating to the work.
   2. Agenda: Discuss items of significance that could affect progress, including the following:
      a. Tentative construction schedule.
      b. Phasing.
      c. Critical work sequencing and long-lead items.
      d. Designation of key personnel and their duties.
      e. Procedures for processing field decisions and Change Orders.
      f. Procedures for RFIs.
      g. Procedures for testing and inspecting.
      h. Procedures for processing Applications for Payment.
      i. Distribution of the Contract Documents.
      j. Submittal procedures.
      k. Preparation of Record Documents.

l. Use of the premises.
m. Work restrictions.
n. Owner's occupancy requirements.
o. Responsibility for temporary facilities and controls.
p. Construction waste management and recycling.
q. Parking availability.
r. Office, work, and storage areas.
s. Equipment deliveries and priorities.
t. First aid.
u. Security.
v. Progress cleaning.
w. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at project site where required by individual Specification Sections and before each construction activity that requires coordination with other construction.
1. Attendees:
a. Contractor's project supervisor.
b. Installer.
c. Representative of authority have jurisdiction (where required by authority).
d. Representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow (where necessary to assure proper installation).
2. Advise Engineer of scheduled meeting dates and invite attendance.
3. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
a. The Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility problems.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written instructions.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Requirements of authorities having jurisdiction.

t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.

4. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
5. Reporting: Distribute minutes of the meeting to Engineer, each party present, and to parties who should have been present.
6. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with project and authorized to conclude matters relating to the work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of project.
a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
1. Review schedule for next period.
b. Review present and future needs of each entity present, including the following:
1. Interface requirements.
2. Sequence of operations.
3. Status of submittals.
4. Deliveries.
5. Off-site fabrication.
6. Access.
7. Site utilization.
8. Temporary facilities and controls.
9. Work hours.
10. Hazards and risks.
11. Progress cleaning.
12. Quality and work standards.

13. Requirements of authorities having jurisdiction.
14. Status of correction of deficient items.
15. Field observations.
16. RFIs.
17. Status of proposal requests.
18. Pending changes.
19. Status of Change Orders.
20. Pending claims and disputes.
21. Documentation of information for payment requests.
22. Closeout Procedures (where applicable).

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.7. REQUESTS FOR INFORMATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at project meeting, prepare and submit an RFI in the form specified.
    1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
    2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
    3. Ensure that RFI's are not frivolous by carefully reviewing Contract Documents to confirm that the required information is not overlooked. Engineer reserves the right to request compensation by Contractor for time spent responding to repeated submittals of RFI's for information clearly provided in the Contract Documents.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
    1. Project name.
    2. Date.
    3. Name of Contractor.
    4. Name of Engineer.
    5. RFI number, numbered sequentially.
    6. Specification Section number and title and related paragraphs, as appropriate.
    7. Drawing number and detail references, as appropriate.
    8. Field dimensions and conditions, as appropriate.
    9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
    10. Contractor's signature.
    11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: AIA Form G716.
1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.

E. Engineer's Action: Engineer will review each RFI, determine action required, and return it. Allow five (5) working days for Engineer's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Engineer's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.
2. Engineer's action may include a request for additional information, in which case Engineer's time for response will start again.
3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within five (5) days of receipt of the RFI response.

F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within five (5) days if Contractor disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log after weekly or after each update, whichever is longer.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the work, including the following:
   1. Contractor's Construction Schedule.
   2. Submittals Schedule.
   3. Field condition reports.

1.3. SUBMITTALS

A. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

B. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

1.4. COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the work from parties involved.
   2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.5. RAIN DELAYS

A. Rain Day: For rain delays, the Contractor shall be entitled to a one day extension of time for each day in any given month that the actual rain days measured at the Charleston International Airport, or an otherwise mutually agreed upon location, exceed the NOAA average monthly rainfall for the month (rounded to the day). In order to qualify as a rain day, there must be at least one-hundredth of an inch precipitation on the date in question.

B. The rain gauge (Charleston International Airport), or an otherwise mutually agreed upon location, shall be used as the determinate for daily rain measurement. The Contractor shall submit any request for rain days by the tenth day of the following month. Rain and weather delay extensions of time are non-compensable delays and the Contractor shall be entitled to no additional compensation as consequence of rain and weather related extensions hereunder.

PART 2 PRODUCTS

2.1. CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
B. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

2.2. CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt- chart-type, Contractor's Construction Schedule within 15 days of date established for the Notice to Proceed.
B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
   1. For construction activities that require three (3) months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.3. REPORTS

A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information on AIA Form G716. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 EXECUTION

3.1. CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
   1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
   2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
   3. As the work progresses, indicate Actual Completion percentage for each activity.
B. Distribution: Distribute copies of approved schedule to Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in performance of construction activities.

(END OF SECTION)

SECTION 013300
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3. DEFINITIONS

A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.4. SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals, subject to the following terms:

1. The computer generated CAD Drawings are the property of Engineer and are protected by copyright. Contractor is granted a license to use the CAD Drawings for his personal, noncommercial use only. Contractor shall not reproduce, sell, distribute, publish, circulate, commercially exploit, or modify the CAD Drawings, or any portion thereof, without the written permission of Engineer.
2. Engineer makes the CAD Drawings available to Contractor "as is" and makes no warranty, expressed or implied, with regard to the CAD Drawings. All implied warranties including the warranties of the merchantability and fitness for a particular use are hereby excluded. In no event shall Engineer be liable for any lost profits, lost savings, or other consequential, special, or indirect damages, even if Engineer has been advised of such losses or damages. In any event, the liability of Engineer arising out of any legal claim (whether tort, contract, or otherwise) in connection of the CAD Drawings will not exceed fifty dollars.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt

of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

D. Identification: Place a permanent label or title block on each submittal for identification.
   1. Indicate name of firm or entity that prepared each submittal on label or title block.
   2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.

E. Deviations: Highlight or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will discard submittals received from sources other than Contractor.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked "Approved" or "Accepted".

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Use only final submittals with mark indicating "Accepted" or "Approved".

PART 2 PRODUCTS

2.1. ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Submit Product Data before or concurrent with Samples.
   4. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract

Documents or standard printed data, unless submittal of Engineer's CAD Drawings are otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Design calculations.
    j. Compliance with specified standards.
    k. Notation of coordination requirements.
    l. Notation of dimensions established by field measurement.
    m. Relationship to adjoining construction clearly indicated.
    n. Seal and signature of professional engineer if specified.
    o. Wiring Diagrams: Differentiate between manufacturer-installed and field- installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Number of Copies: Submit two opaque (bond) copies of each submittal. Engineer will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
    1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
    2. Identification: Attach label on unexposed side of Samples that includes the following:
        a. Generic description of Sample.
        b. Product name and name of manufacturer.
        c. Sample source.
        d. Number and title of appropriate Specification Section.
    3. Disposition: Maintain sets of approved Samples at project site, available for quality- control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
        a. Samples that may be incorporated into the work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
        b. Samples not incorporated into the work, or otherwise designated as Owner's property, are the property of Contractor.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the work and their intended location.
F. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
G. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

2.2. INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.
   1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
   2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
   3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
B. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific project.
E. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
G. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
H. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
I. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
J. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

K. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 EXECUTION

3.1. CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2. ENGINEER'S ACTION

A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. No Exception Taken: Where submittals are marked "No Exception Taken", the Engineer does not object to proceeding with that part of work covered by the submittal provided it complies with requirements of Contract Documents; final acceptance will depend upon that compliance.
2. Make Corrections Noted: When submittals are marked "Make Corrections Noted," the Engineer does not object to proceeding with that part of work covered by the submittal provided it complies with notations or corrections on submittal and requirements of Contract Documents; final acceptance will depend on that compliance.
3. Revise and Resubmit: When submittal is marked "Revise and Resubmit," do not proceed with that part of work covered by submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare new submittal in accordance with notations; resubmit without delay. Repeat if necessary to obtain different action mark.
4. Rejected: When submittal is marked "Rejected," do not proceed with that part of work covered by submittal, including purchasing, fabrication, delivery, or other activity. Submittal was deemed nonresponsive, unacceptable, or inadequate to the extent that notations or corrections were not practical. Contact Engineer for further instructions.
5. Submit Specified Item: When submittal is marked "Submit Specified Item," do not proceed with that part of work covered by submittal, including purchasing, fabrication, delivery, or other activity. Resubmit, without delay, with additional information in accordance with notations. Repeat if necessary to obtain different action mark.

C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

(END OF SECTION)

SECTION 014000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1.3. SUBMITTALS

A. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the work.

1.4. QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Authorities Having Jurisdiction: Conform to requirements of all authorities having jurisdiction.

1. Where conflicts exist between the requirements of the Contract Documents and those of authorities having jurisdiction, the higher quality or more restrictive requirement shall apply.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for

this project, whose work has resulted in construction with a record of successful in- service performance.

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this project and with a record of successful in- service performance, as well as sufficient production capacity to produce required units.

E. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

F. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this project.

G. Mockups: Before installing portions of the work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed work:
   1. Build mockups in location and of size indicated or, if not indicated, as directed by Engineer.
   2. Notify Engineer seven days in advance of dates and times when mockups will be constructed.
   3. Demonstrate the proposed range of aesthetic effects and workmanship.
   4. Obtain Engineer's approval of mockups before starting work, fabrication, or construction.
      a. Allow seven days for initial review and each re-review of each mockup.
   5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.
   6. Demolish and remove mockups when directed, unless otherwise indicated.

1.5. QUALITY CONTROL

A. Testing Responsibilities: Contractor will engage the testing agency indicated below to perform quality control services.
   1. These services shall be included as a component of the Contractor's overhead for work defined by the Contract Documents and additional compensation will not be provided except for additional testing, as authorized by Change Orders.

B. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced work that failed to comply with the Contract Documents.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of

operations to permit assignment of personnel. Provide the following, as applicable:

1. Access to the work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Security and protection for samples and for testing and inspecting equipment at project site.

E. Coordination: Coordinate sequence of activities to accommodate required quality- assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1. TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the work tested or inspected.
3. Date test or inspection results were transmitted to Engineer.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at project site. Post changes and modifications as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.

3.2. REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

(END OF SECTION)

SECTION 014200
REFERENCES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3. INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4. ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
   1. AABC - Associated Air Balance Council; www.aabc.com.
   2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
   3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
   4. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
   5. ABMA - American Boiler Manufacturers Association; www.abma.com.
   6. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
   7. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
   8. AF&PA - American Forest & Paper Association; www.afandpa.org.
   9. AGA - American Gas Association; www.aga.org.
   10. AI - Asphalt Institute; www.asphaltinstitute.org.
   11. AIA - American Institute of Architects (The); www.aia.org.
   12. AISC - American Institute of Steel Construction; www.aisc.org.
   13. AISI - American Iron and Steel Institute; www.steel.org.
   14. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
   15. ANSI - American National Standards Institute; www.ansi.org.
   16. APA - APA - The Engineered Wood Association; www.apawood.org.
   17. APA - Architectural Precast Association; www.archprecast.org.
   18. API - American Petroleum Institute; www.api.org.
   19. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
   20. ASCE - American Society of Civil Engineers; www.asce.org.
   21. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
   22. ASSE - American Society of Safety Engineers (The); www.asse.org.
   23. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
   24. ASTM - ASTM International; www.astm.org.
   25. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
   26. AWEA - American Wind Energy Association; www.awea.org.
   27. AWI - Architectural Woodwork Institute; www.awinet.org.
   28. AWS - American Welding Society; www.aws.org.
   29. AWWA - American Water Works Association; www.awwa.org.
   30. BICSI - BICSI, Inc.; www.bicsi.org.
   31. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
   32. CDA - Copper Development Association; www.copper.org.
   33. CEA - Consumer Electronics Association; www.ce.org.
   34. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
   35. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
   36. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
   37. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.

38. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
39. CSI - Construction Specifications Institute (The); www.csinet.org.
40. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
41. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
42. EVO - Efficiency Valuation Organization; www.evo-world.org.
43. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
44. FSC - Forest Stewardship Council U.S.; www.fscus.org.
45. GS - Green Seal; www.greenseal.org.
46. HI - Hydraulic Institute; www.pumps.org.
47. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
48. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
49. IAS - International Accreditation Service; www.iasonline.org.
50. ICC - International Code Council; www.iccsafe.org.
51. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
52. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
53. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
54. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
55. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
56. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
57. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
58. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
59. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
60. ISO - International Organization for Standardization; www.iso.org.
61. LPI - Lightning Protection Institute; www.lightning.org.
62. MCA - Metal Construction Association; www.metalconstruction.org.
63. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
64. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
65. MHIA - Material Handling Industry of America; www.mhia.org.
66. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
67. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
68. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
69. NBI - New Buildings Institute; www.newbuildings.org.
70. NCMA - National Concrete Masonry Association; www.ncma.org.
71. NEBB - National Environmental Balancing Bureau; www.nebb.org.
72. NECA - National Electrical Contractors Association; www.necanet.org.

73. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
74. NEMA - National Electrical Manufacturers Association; www.nema.org.
75. NETA - InterNational Electrical Testing Association; www.netaworld.org.
76. NFPA - National Fire Protection Association; www.nfpa.org.
77. NFRC - National Fenestration Rating Council; www.nfrc.org.
78. NLGA - National Lumber Grades Authority; www.nlga.org.
79. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
80. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
81. NSF - NSF International; www.nsf.org.
82. NSPE - National Society of Professional Engineers; www.nspe.org.
83. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
84. NWFA - National Wood Flooring Association; www.nwfa.org.
85. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
86. PDI - Plumbing & Drainage Institute; www.pdionline.org.
87. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
88. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
89. SAE - SAE International; www.sae.org.
90. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
91. SDI - Steel Deck Institute; www.sdi.org.
92. SDI - Steel Door Institute; www.steeldoor.org.
93. SIA - Security Industry Association; www.siaonline.org.
94. SJI - Steel Joist Institute; www.steeljoist.org.
95. SMA - Screen Manufacturers Association; www.smainfo.org.
96. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
97. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
98. SPIB - Southern Pine Inspection Bureau; www.spib.org.
99. SPRI - Single Ply Roofing Industry; www.spri.org.
100. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
101. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
102. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
103. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
104. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
105. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
106. TMS - The Masonry Society; www.masonrysociety.org.
107. TPI - Truss Plate Institute; www.tpinst.org.
108. TPI - Turfgrass Producers International; www.turfgrasssod.org.
109. TRI - Tile Roofing Institute; www.tileroofing.org.
110. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
111. USC - University of South Carolina; www.sc.edu.
112. USGBC - U.S. Green Building Council; www.usgbc.org.

113. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
114. WASTEC - Waste Equipment Technology Association; www.wastec.org.
115. WI - Woodwork Institute; www.wicnet.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
   1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
   2. ICC - International Code Council; www.iccsafe.org.
   3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
   1. COE - Army Corps of Engineers; www.usace.army.mil.
   2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
   3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
   4. DOD - Department of Defense; www.quicksearch.dla.mil.
   5. DOE - Department of Energy; www.energy.gov.
   6. EPA - Environmental Protection Agency; www.epa.gov.
   7. FAA - Federal Aviation Administration; www.faa.gov.
   8. FG - Federal Government Publications; www.gpo.gov/fdsys.
   9. GSA - General Services Administration; www.gsa.gov.
   10. HUD - Department of Housing and Urban Development; www.hud.gov.
   11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
   12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
   13. SD - Department of State; www.state.gov.
   14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
   15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
   16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
   17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
   18. USP - U.S. Pharmacopeial Convention; www.usp.org.
   19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
   1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
   2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.

3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
    1. SCDHEC – South Carolina Department of Health and Environmental Control; www.scdhec.gov.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.3. QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

B. Authorities Having Jurisdiction: Conform to requirements of all authorities having jurisdiction.

1. Where conflicts exist between the requirements of the Contract Documents and those of authorities having jurisdiction, the higher quality product shall be used.

1.4. PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.5. PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 PRODUCTS

2.1. PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Engineer will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

5. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
6. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
7. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.
8. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2. PRODUCT SUBSTITUTIONS

A. Timing: Engineer will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Engineer.

B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
    1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    2. Requested substitution does not require extensive revisions to the Contract Documents.
    3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    4. Substitution request is fully documented and properly submitted.
    5. Requested substitution will not adversely affect Contractor's Construction Schedule.

6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the work.
8. Requested substitution has been coordinated with other portions of the work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 017300
EXECUTION

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes general procedural requirements governing execution of the work including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. General installation of products.
   4. Coordination of Owner-installed products.
   5. Progress cleaning.
   6. Starting and adjusting.
   7. Protection of installed construction.
   8. Correction of the work.

1.3. SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.4. QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Authorities Having Jurisdiction: Conform to requirements of all authorities having jurisdiction.
   1. Where conflicts exist between the requirements of the Contract Documents and those of authorities having jurisdiction, the higher quality or more restrictive requirement shall apply.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1. EXAMINATION

A. Existing Conditions: The existence and location of site improvements, underground and other utilities, and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of site improvements, underground utilities and other utilities, and other construction affecting the work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water-service piping, and underground electrical services.
   2. Furnish location data for work related to project that must be performed by public utilities serving project site.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Written Report: Where a written report listing conditions detrimental to performance of the work is required by other Sections, include the following:
      a. Description of the work.
      b. List of detrimental conditions, including substrates.
      c. List of unacceptable installation tolerances.
      d. Recommended corrections.
   2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the work indicates acceptance of surfaces and conditions.

3.2. PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the work properly. Recheck measurements before installing each product. Where portions of the work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

3.3. CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.

B. General: Engage a land surveyor to lay out the work using accepted surveying practices.
   1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of project.
   2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
   3. Inform installers of lines and levels to which they must comply.
   4. Check the location, level and plumb, of every major element as the work progresses.
   5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
   6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4. FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.
B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the work. Preserve and protect permanent benchmarks and control points during construction operations.
    1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
    2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
    1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
    2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the work.
    3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5. INSTALLATION

A. General: Locate the work and components of the work accurately, in correct alignment and elevation, as indicated.
    1. Make vertical work plumb and make horizontal work level.
    2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
D. Conduct construction operations so no part of the work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of

other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the work.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6. PROGRESS CLEANING

A. General: Clean project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
H. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7. STARTING AND ADJUSTING
A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8. PROTECTION OF INSTALLED CONSTRUCTION
A. Provide final protection and maintain conditions that ensure installed work is without damage or deterioration at time of Substantial Completion.
B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9. CORRECTION OF THE WORK
A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
B. Restore permanent facilities used during construction to their specified condition.
C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

(END OF SECTION)

SECTION 017700
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Inspection procedures.
   2. Warranties.
   3. Final cleaning.

1.3. SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
   1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the work is not complete.
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
   6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   7. Where applicable, make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   8. Complete startup testing of systems.
   9. Submit test/adjust/balance records.
   10. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.
   11. Advise Owner of changeover in heat and other utilities.
   12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
   13. Complete final cleaning requirements, including touchup painting.
   14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify

Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4. FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
   2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the work identified in previous inspections as incomplete is completed or corrected.

1.5. LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A or other approved form.
   1. Organize list of spaces in sequential order.
   2. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Engineer.
      d. Name of Contractor.
      e. Page number

1.6. WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the work where commencement of warranties other than date of Substantial Completion is indicated.
B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the work that are completed and

occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by- 11-inch paper.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," project name, and name of Contractor.

D. Where required, provide warranties, bonds, and certifications to authorities having jurisdiction as necessary for their acceptance of the work for operation and maintenance.

PART 2 PRODUCTS

2.1. MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.1. FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire project or for a portion of project:
      a. Clean project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
      b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
      c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
      d. Remove tools, construction equipment, machinery, and surplus material from project site.
      e. Remove snow and ice to provide safe access.
      f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.

Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove labels that are not permanent.
h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
i. Wipe surfaces of equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
j. Replace parts subject to unusual operating conditions.
k. Leave project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from project site and dispose of lawfully.

(END OF SECTION)

SECTION 017823
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory manuals.
   2. Emergency manuals.
   3. Systems and equipment operation manuals.
   4. Systems and equipment maintenance manuals.
   5. Product maintenance manuals.

B. Related Requirements:
   1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3. DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4. CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
   1. Engineer and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
   2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:
   1. Submit on digital media acceptable to Engineer. Enable reviewer comments on draft submittals.
   2. Submit one paper copy.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Engineer and Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Engineer and Commissioning Authority will return copy with comments.
   1. Correct or revise each manual to comply with Engineer's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Engineer's and Commissioning

Authority's comments and prior to commencing demonstration and training.

E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5. FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
   1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
   2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
   1. Binders: Heavy-duty, three-ring, vinyl-covered, [loose-leaf] [post-type] binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
      a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary, to provide essential information for proper operation or maintenance of equipment or system.
      b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
   2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross- referenced to Specification Section number and title of Project Manual.
   3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
   4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
   5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6. REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
   1. Title page.
   2. Table of contents.
   3. Manual contents.

B. Title Page: Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name and contact information for Contractor.
   6. Name and contact information for Construction Manager.
   7. Name and contact information for Engineer.
   8. Name and contact information for Commissioning Authority.
   9. Names and contact information for major consultants to the Engineer that designed the systems contained in the manuals.
   10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
   1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7. OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and

maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8. EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:
   1. Type of emergency.
   2. Emergency instructions.
   3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
   1. Fire.
   2. Flood.
   3. Gas leak.
   4. Water leak.
   5. Power failure.
   6. Water outage.
   7. System, subsystem, or equipment failure.
   8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:
   1. Instructions on stopping.
   2. Shutdown instructions for each type of emergency.
   3. Operating instructions for conditions outside normal operating limits.
   4. Required sequences for electric or electronic systems.
   5. Special operating instructions and procedures.

1.9. SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
   1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
   2. Performance and design criteria if Contractor has delegated design responsibility.
   3. Operating standards.
   4. Operating procedures.
   5. Operating logs.
   6. Wiring diagrams.
   7. Control diagrams.
   8. Piped system diagrams.
   9. Precautions against improper use.
   10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:
   1. Product name and model number. Use designations for products indicated on Contract Documents.
   2. Manufacturer's name.
   3. Equipment identification with serial number of each component.
   4. Equipment function.
   5. Operating characteristics.
   6. Limiting conditions.
   7. Performance curves.
   8. Engineering data and tests.
   9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:
   1. Startup procedures.
   2. Equipment or system break-in procedures.
   3. Routine and normal operating instructions.
   4. Regulation and control procedures.
   5. Instructions on stopping.
   6. Normal shutdown instructions.
   7. Seasonal and weekend operating instructions.
   8. Required sequences for electric or electronic systems.
   9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed and identify color coding where required for identification.

1.10. SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
   1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
      a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.
   6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
   1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of maintenance manuals.

1.11. PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
    1. Include procedures to follow and required notifications for warranty claims.

PART 2 PRODUCTS (Not Used)
PART 3 EXECUTION (Not Used)

(END OF SECTION)

SECTION 017839
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.

1.3. SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit one set of marked-up Record Prints.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one copy of each Product Data submittal.
   1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 PRODUCTS

2.1. RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
   1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an understandable drawing technique.
      c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
      b. Revisions to details shown on Drawings.
      c. Locations and depths of underground utilities.
      d. Revisions to routing of piping and conduits.
      e. Actual equipment locations.
      f. Changes made by Change Order.
      g. Changes made following Engineer's written orders.
      h. Details not on the original Contract Drawings.
      i. Field records for variable and concealed conditions.

j. Record information on the work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Engineer.
   e. Name of Contractor.

2.2. RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3. RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4. MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 EXECUTION

3.1. RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of project.
B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

(END OF SECTION)

SECTION 311000
SITE CLEARING

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Stripping and stockpiling rock.
6. Removing above- and below-grade site improvements.
7. Disconnecting, capping or sealing, and removing site utilities or abandoning site utilities in place.
8. Temporary erosion and sedimentation control.

1.3. DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4. MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5. INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.

2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Topsoil stripping and stockpiling program.

C. Rock stockpiling program.

D. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

E. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.

1.6. QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

B. Rock Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.7. FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Architect.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises as directed.

D. Utility Locator Service: Notify SC811 for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control and/or plant-protection measures are in place.

F. Tree- and Plant-Protection Zones: Protect according to requirements as shown in the Plans.

G. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1. PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed.
C. Protect existing site improvements to remain from damage during construction.
    1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2. TEMPORARY EROSION AND SEDIMENTATION CONTROL
A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3. TREE AND PLANT PROTECTION
A. Protect trees and plants remaining on-site.
B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations.

3.4. EXISTING UTILITIES
A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.
    1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
    1. Arrange with utility companies to shut off indicated utilities.
    2. Owner will arrange to shut off indicated utilities when requested by Contractor.
C. Locate, identify, and disconnect utilities indicated to be abandoned in place.
D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
    1. Notify Architect not less than five (5) days in advance of proposed utility interruptions.
    2. Do not proceed with utility interruptions without Architect's written permission.
E. Excavate for and remove underground utilities indicated to be removed.

3.5. CLEARING AND GRUBBING
A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
    1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.

2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6. TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.
B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7. STOCKPILING ROCK

A. Remove naturally formed rocks that measure more than 1 foot across in least dimension. Do not include excavated or crushed rock.
1. Separate or wash off non-rock materials from rocks, including soil, clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

B. Stockpile rock without intermixing with other materials. Cover to prevent windblown debris from accumulating among rocks.
1. Limit height of rock stockpiles to 36 inches.
2. Do not stockpile rock within protection zones.
3. Dispose of surplus rock. Surplus rock is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus rock to allow later use by the Owner.

3.8. SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.9. DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.

C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

(END OF SECTION)

SECTION 329200
GRASSING

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2. INFORMATIONAL SUBMITTALS

A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
   1. Certification of each seed mixture. Include identification of source and name and telephone number of supplier.

B. Product Certificates: For fertilizers, from manufacturer.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to project.

1.3. CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance during a calendar year. Submit before expiration of required maintenance periods.

1.4. QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment.

1.5. DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in the SCDOT 2007 Standard Specifications for Highway Construction Section 813.

C. Bulk Materials:
   1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
   2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
   3. Accompany each delivery of bulk materials with appropriate certificates.

1.6. FIELD CONDITIONS

A. Planting Restrictions: Plant during the periods as specified in the SCDOT Technical Specification for Seeding (SC-M-810-3)

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 PRODUCTS

2.1. TEMPORARY VEGETATION

A. Temporary vegetation is to be used to stabilize disturbed areas that would otherwise lay bare for long periods of time before they are worked or stabilized. It is also used where permanent vegetation growth is not necessary or appropriate. The SCDOT Supplemental Technical Specification for Seeding (SC-M-810-3) should be utilized for guidance in temporary vegetation.

2.2. PERMANENT VEGETATION:

A. Permanent vegetation is to be applied on all areas not covered by permanent structures, either (1) a uniform (e.g., evenly distributed, without large bare areas) vegetative cover with a density of seventy (70) percent has been established, or (2) equivalent permanent stabilization measure (such as the use of landscaping mulch, riprap, pavement, or gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with vegetation. In addition to the methods and schedules presented in this section, the SCDOT Technical Specification for Seeding (SC-M-810-3) should be utilized for guidance in permanent vegetation practices.

PART 3 EXECUTION

3.1. TEMPORARY VEGETATION

A. Temporary vegetation is used on exposed soil surfaces such as denuded areas, soil stockpiles, dikes, dams, banks of sediment basins/traps, and temporary road banks. Temporary vegetation prevents and limits costly maintenance operations on other sediment control structures. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased. Temporary stabilization may be accomplished by the application of mulch.

3.2. PERMANENT VEGEATION

A. Permanent vegetation is used on exposed soil surfaces such as denuded areas, soil stockpiles, dikes, dams, banks of sediment basins, banks of sediment traps, and road banks. Permanent vegetation prevents and limits costly maintenance operations on other sediment control structures. Sediment cleanout requirements for sediment basins, sediment traps and silt fence are reduced if the drainage area is seeded when grading and construction operation are not taking place. Permanent stabilization is required within fourteen (14) days after construction activity is complete.

(END OF SECTION)

SECTION 334100
STORM DRAINAGE PIPES AND STRUCTURES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2. DEFINITIONS

A. RCP: Reinforced Concrete Pipe

PART 2 PRODUCTS

2.1. PIPES

A. Materials and sizes as indicated on Drawings.

B. Unless otherwise specified on the Plans, materials are to comply with the SCDOT Supplemental Technical Specification for Permanent Pipe Culverts (SC-M-714).

2.2. STRUCTURES

A. Types and sizes as indicated on Drawings.

B. Unless otherwise specified on the Plans, materials are the comply with the SCDOT Standard Drawings Section 719 and the SCDOT 2007 Standard Specifications for Highway Construction Section 719.

PART 3 EXECUTION

3.1. PIPES

A. Unless otherwise specified on the Plans, construct pipes according to the SCDOT Supplemental Technical Specification for Permanent Pipe Culverts (SC-M-714).

3.2. STRUCTURES

A. Unless otherwise specified on the Plans, construct structures according to the SCDOT 2007 Standard Specifications for Highway Construction Section 719.

(END OF SECTION)