

CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS

for the:

20TH STREET REALIGNMENT

PREPARED FOR:

Gulf Coast State College



RFP 2-2018/2019

DEWBERRY PROJECT NO. 50094809

JULY 2018

PREPARED BY:



203 Aberdeen Parkway
Panama City, FL 32405
P 850/522-0644

877 C.R. 393 North
Santa Rosa Beach, FL 32459
P 850/267-0759

324 Marina Drive
Port St. Joe, FL 32456
P 850/227-7200

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Blountstown, FL 32424
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All construction activities not covered in the above specifications shall conform to Division II and Division III Specifications of the FDOT Standard Specifications for Road and Bridge Construction, latest edition and any implemented modifications of those specifications.

APPENDICES

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NOTICE TO RECEIVE SEALED BIDS

Gulf Coast State College (GCSC) will receive sealed bids from any qualified person, company or corporation interested in constructing:

20TH STREET REALIGNMENT

This projects includes the demolition and realignment of 20th street off of 23rd Street. The proposed 20th Street will be approximately 150 feet in length. The proposed project also includes the construction of a 5 foot wide concrete sidewalk connecting the sidewalks at 23rd Street to the Softball Complex. Fiber optic cable will be installed from the Softball Complex to a Junction Box on the west side of 23rd Street as shown in the construction plans.

The bid must conform to Section 287.133(3) Florida Statutes, on public entity crimes.

Plans and Specifications may be obtained on the College's procurement website:
<http://www.gulfcoast.edu/procurement>

The completion date for this project will be 150 days for Substantial Completion and 180 days for Final Completion from the date of the Notice to Proceed presented to the successful bidder.

Liquidated damages for failure to complete the project on the specified date will be set at \$200.00 per day.

Please indicate on the envelope that this is a sealed bid, for the "**20th Street Realignment**".

Bids will be received until **2:00 p.m. Central Time**, on **August 30, 2018** at the GCSC Maintenance and Operations Building Conference Room, 5230 West U.S. Highway 98, Panama City, Florida 32405, and will be opened and read aloud at **2:00 p.m. Central Time**. GCSC is an Equal Opportunity Employer/Handicapped Accessible/Fair Housing Jurisdiction.

Gulf Coast State College reserves the right to waive informalities in any bid, to accept and/or reject any or all bids, and to accept the bid that in their judgment will be in their best interest. All bids shall remain firm for a period of sixty days after the opening. A Pre-Bid Conference will not be held.

All bidders shall comply with all applicable State and local laws concerning licensing registration and regulation of contractors doing business to the State of Florida.

If you have any questions, please call Tonia Lawson at (850) 872-3843.

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. The Issuing Office for this project is:

*Dewberry
203 Aberdeen Parkway
Panama City, FL 32405*

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 This item has been intentionally left blank.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The Supplementary Conditions identify:

1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. There are no known Hazardous Environmental Conditions identified at the Site.

4.04 This item has been intentionally left blank.

4.05 This item has been intentionally left blank.

4.06 This item has been intentionally left blank.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions.

E. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

F. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

G. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

H. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are

acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.01 A Pre-Bid Conference will not be held.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than 10 days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or “or-equal” materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or “or-equal” item. No item of material or equipment will be considered by Engineer as a substitute or “or-equal” unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 12.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 6.06.
- 12.05 The Contractor or Subcontractor performing work on road or drainage construction, re-construction, or repair shall be FDOT qualified in Drainage, Grading, Flexible Paving, Hot Plant-Mixed Bituminous Course, Grassing, Seeding, and Sodding.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- 13.02 All blanks on the Bid Form shall be completed in ink or by typewriter and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each item listed therein. In the case of optional alternatives the words “No Bid,” “No Change,” or “Not Applicable” may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. If required by State where work is to be performed, the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be provided on the Bid Form shown.

- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The business address of the partnership shall be provided on the Bid Form. The official address of the partnership shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the business address of the firm must be provided on the Bid Form. The official address of the firm shall be shown.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located. Bidder's state contractor license number shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.01 *Lump Sum*

- A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 The Bid Form is to be completed and submitted with all the attachments outlined in Article 7 of the Bid Form. Bidders shall submit two (2) copies of the Bid Form and all attachments.
- 15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to GCSC Maintenance and Operations Building Conference Room, 5230 West U.S. Highway 98, Panama City, Florida 32405

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid or negotiated, that Bidder will be disqualified from further bidding on the Work. This provision to withdraw a Bid without forfeiting the Bid security does not apply to Bidder's errors in judgment in preparing the Bid.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities

proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose bid is in the best interests of the project.
- 19.07 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 22 – SALES AND USE TAXES

- 22.01 This item has been intentionally left blank.

ARTICLE 23 – RETAINAGE

- 23.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 24 – CONTRACTS TO BE ASSIGNED

- 24.01 This item has been intentionally left blank.

ARTICLE 25 – PARTNERING

- 25.01 This item has been intentionally left blank.

BID FORM

**20TH STREET REALIGNMENT
RFP 2-2018/2019**

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

GCSC Maintenance and Operations Building Conference Room, 5230 West U.S. Highway 98, Panama City, Florida 32405

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site.

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the

means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following Lump Sum price(s):

ITEM	DESCRIPTION	QTY	UNIT	ITEM COST
1	Mobilization, MOT, Construction Entrance, testing, as-built	1	LS	
2	Demolition and Erosion Control	1	LS	
3	Site Work (construction of 20 th Street, grading as shown in the plans, concrete sidewalk)	1	LS	
4	3” Conduit for fiber optic and Junction Boxes	1	LS	
5	Striping and Signage	1	LS	
6	Site Restoration, seed and sod, and stabilization			
BASE BID TOTAL (SUM OF ITEMS 1-6)				

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors (including portions of work for which they are responsible);
 - C. This item has been intentionally left blank.
 - D. Schedule of Values;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

F. Contractor's License No.: _____

G. FDOT qualification for Contractor or Subcontractor performing roadway work per Article 12.05 of the Instructions to Bidders.

H. Copies of Addenda

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in Florida is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____. *[If applicable]*

**GULF COAST STATE COLLEGE
20TH STREET REALIGNMENT
SCHEDULE OF VALUES**

RFP 2-2018/2019

MUST BE ATTACHED TO BID

Modifications, additions, or deletions to the project will be revised per the Schedule of Values prices

	UNIT	UNIT PRICE
15" HDPE	LF	
18" HDPE	LF	
24" HDPE	LF	
15" RCP	LF	
18" RCP	LF	
24" RCP	LF	
15" MES	EA	
18" MES	EA	
24" MES	EA	
FDOT TYPE F CURB	LF	
DEMOLITION AND REMOVAL OF CONCRETE	SY	
REMOVAL OF ASPHALT PAVEMENT	SY	
LIMEROCK BASE (LBR 100)	SY	
S.P. 9.5 ASPHALT	TON	
IMPORT FILL	CY	
EXCAVATION	CY	
4" 3,000 PSI CONCRETE WITH FIBERMESH	SY	
6" 3,000 PSI CONCRETE WITH FIBERMESH	SY	
6" GRANITE (#57 STONE)	SY	
THERMOPLASTIC STOP BAR	EA	
THERMOPLASTIC STOP MESSAGE	EA	
ASPHALT MILLING 2" AVERAGE DEPTH	SY	
SILT FENCE	LF	
SEED AND MULCH	SY	
ST. AUGUSTINE SOD	SY	
CENTIPEDE SOD	SY	
BERMUDA SOD	SY	

BID BOND

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

BIDDER *(Name and Address)*:

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

OWNER *(Name and Address)*:

Gulf Coast State College
 5230 West U.S. Highway 98
 Panama City, FL 32405

BID

Bid Due Date: August 30, 2018
 Description: 20th Street Realignment

BOND

Bond Number:
 Date *(Not earlier than Bid due date)*:
 Penal sum _____

(Words)

\$

(Figures)

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

BIDDER

SURETY

 Bidder's Name and Corporate Seal

(Seal)

 Surety's Name and Corporate Seal

(Seal)

By: _____
 Signature

By: _____
 Signature (Attach Power of Attorney)

 Print Name

 Print Name

 Title

 Title

Attest: _____
 Signature

Attest: _____
 Signature

 Title

 Title

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

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

Notice of Award

Date: _____, 2018

Project: 20th Street Alignment

Owner: Gulf Coast State College

Owner's Contract No.:

Contract:

Engineer's Project No.: 50094809

Bidder:

Bidder's Address:

You are notified that your Bid dated _____, 2018 for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for 20th Street Alignment.

The Contract Price of your Contract is _____ and 00/100----- Dollars (\$_____).

3 copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

3 sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [3] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Gulf Coast State College, Jim McDougall
Owner
By: _____
Authorized Signature
Director of Facilities

Title

Copy to Engineer

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

THIS AGREEMENT is by and between _____ Gulf Coast State College _____ (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

This projects includes the demolition and realignment of 20th street off of 23rd Street. The proposed 20th Street will be approximately 150 feet in length. The proposed project also includes the construction of a 5 foot wide concrete sidewalk connecting the sidewalks at 23rd Street to the Softball Complex. Fiber optic cable will be installed from the Softball Complex to a Junction Box on the west side of 23rd Street as shown in the construction plans.

ARTICLE 2 – THE PROJECT

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

20TH STREET REALIGNMENT

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Dewberry, which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 150 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 180 days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$200.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$200.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

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

- A. For all Work, a lump sum of: \$ _____

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

- B. This item has been intentionally left blank.
- C. This item has been intentionally left blank.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
- a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
- b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

6.03 *Final Payment*

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

ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum legal rate.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement
 - 2. Performance bond
 - 3. Payment bond
 - 4. General Conditions

5. Supplementary Conditions
 6. Specifications as listed in the table of contents, dated July 2018.
 7. Drawings consisting of sheets C1-C15 dated July 2018.
 8. Addenda (numbers __ to __, inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid
 - b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
 - c. Appendices.
 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed
 - b. Work Change Directives.
 - c. Change Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an

assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

This section was intentionally left blank.

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

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

OWNER:

CONTRACTOR

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____

(Where applicable)

Agent for service of process:

APPROVED AS TO FORM AND CORRECTNESS

BY _____

Title _____

Date: _____

Notice to Proceed

Date: _____

Project: 20th Street Realignment

Owner: Gulf Coast State College

Owner's Contract No.:

Contract:

Engineer's Project No.: 50094809

Contractor:

Contractor's Address: *[send Certified Mail, Return Receipt Requested]*

You are notified that the Contract Times under the above Contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is 150, and the number of days to achieve readiness for final payment is 180].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

_____ *[add other requirements]*.

_____ Gulf Coast State College, Jim McDougall

Owner

Given by:

_____ Authorized Signature

Director of Facilities

_____ Title

_____ Date

Copy to Engineer

PERFORMANCE BOND

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

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

OWNER (*Name and Address*):
Gulf Coast State College
5230 West U.S. Highway 98
Panama City, FL 32405

CONTRACT
Effective Date of Agreement:
Amount:
Description (*Name and Location*): 20th Street Alignment

BOND
Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
 - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract; or
 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
 - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

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

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

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

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*
Surety Agency or Broker:
Owner's Representative : Dewberry, 203 Aberdeen Parkway, Panama City, FL 32405 (850) 522-0644

PAYMENT BOND

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

CONTRACTOR (*Name and Address*):

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

OWNER (*Name and Address*):

Gulf Coast State College
5230 West U.S. Highway 98
Panama City, FL 32405

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*): 20th Street Alignment

BOND

Bond Number:

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

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

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

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

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

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

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

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

15. Definitions

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

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

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

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

Surety Agency or Broker:

Owner’s Representative : Dewberry, 203 Aberdeen Parkway, Panama City, FL 32405 (850) 522-0644



Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner): Gulf Coast State College	From (Contractor):	Via (Engineer): Dewberry
Project: 20th Street Realignment	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: 50094809

**Application For Payment
Change Order Summary**

Approved Change Orders	Number	Additions	Deductions		
				1. ORIGINAL CONTRACT PRICE.....	\$ _____
				2. Net change by Change Orders.....	\$ _____
				3. Current Contract Price (Line 1 ± 2).....	\$ _____
				4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates).....	\$ _____
				5. RETAINAGE:	
				a. 10% X _____ Work Completed.....	\$ _____
				b. 10% X _____ Stored Material.....	\$ _____
				c. Total Retainage (Line 5.a + Line 5.b).....	\$ _____
				6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c).....	\$ _____
				7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....	\$ _____
				8. AMOUNT DUE THIS APPLICATION.....	\$ _____
				9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above).....	\$ _____
TOTALS					
	NET CHANGE BY CHANGE ORDERS				

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By: _____ Date: _____

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____ Funding or Financing Entity (if applicable) _____ (Date)

Certificate of Substantial Completion

Project: 20 th Street Realignment	
Owner: Gulf Coast State College	Owner's Contract No.:
Contract:	Engineer's Project No.: 50094809

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- All Work under the Contract Documents: The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- Amended Responsibilities Not Amended

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:

The following documents are attached to and made part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer

Date

Accepted by Contractor

Date

Accepted by Owner

Date

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

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

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

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

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

B. *Intent of Certain Terms or Adjectives:*

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

C. *Day:*

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

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

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

2.02 Copies of Documents

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

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

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

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

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

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*

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

B. *Resolving Discrepancies:*

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

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

3.06 *Electronic Data*

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

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

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

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

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

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price

or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

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

5.03 Certificates of Insurance

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

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

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

6.02 *Labor; Working Hours*

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

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

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

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

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

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

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

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

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

1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

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

E. *Resubmittal Procedures:*

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

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 6. any inspection, test, or approval by others; or
 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

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

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

7.02 *Coordination*

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

7.03 *Legal Relationships*

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

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

8.12 *Compliance with Safety Program*

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

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

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

9.07 *Determinations for Unit Price Work*

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

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

9.10 *Compliance with Safety Program*

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

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

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

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

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

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

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

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

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

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 Notice of Defects

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

13.02 Access to Work

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

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

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

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

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

D. Reduction in Payment:

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

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

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

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

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

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

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

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

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

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

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

17.02 Computation of Times

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

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Supplementary Conditions

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

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

SC-2.03 *Commencement of Contract Times; Notice to Proceed*

SC-2.03.A. Delete Paragraph 2.03 A. in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the effective date of the agreement.

SC-4.02 *Subsurface and Physical Conditions*

This item has been intentionally left blank.

SC-5.03 *Certificates of Insurance*

SC-5.03 Add the following new paragraph immediately after Paragraph 5.03.B:

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

SC-5.04 *Contractor's Liability Insurance*

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

- C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
 1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal
(e.g., Longshoreman's): Statutory

- c. Employer's Liability: \$1,000,000
2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:
- a. General Aggregate \$2,000,000
 - b. Products - Completed Operations Aggregate \$2,000,000
 - c. Personal and Advertising Injury \$1,000,000
 - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
 - f. Excess or Umbrella Liability
 - General Aggregate \$2,000,000
 - Each Occurrence \$1,000,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
- a. Bodily Injury:
 - Each person \$500,000
 - Each Accident \$1,000,000
 - b. Property Damage:
 - Each Accident \$500,000
 - c. Combined Single Limit of \$1,000,000
4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:
- a. Bodily Injury:
 - Each person \$1,000,000
 - Each Accident \$1,000,000

b. Property Damage:	
Each Accident	\$500,000
Annual Aggregate	\$1,000,000

SC-6.05 *Substitutes and “Or-Equals”; Engineer’s Evaluation*

SC-6.05.C. Amend the paragraph by making two subparagraphs under the title C. Engineer’s Evaluation. The paragraph text is retitled, 6.05.C.2 After Effective Date of Agreement. A new paragraph is added before this paragraph to read as follows:

1. During Bidding. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or “or-equal” materials and equipment as defined in paragraph 6.05 of the General Conditions, or those substitute materials and equipment approved by the Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or “or-equal” item. Request for Engineer’s clarification of materials and equipment considered “or-equal” prior to the Effective Date of the Agreement must be received by the Engineer at least 5 days prior to the date for receipt of Bids. No item of material or equipment will be considered by Engineer as a substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon the Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed substitute item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

SC-6.06 *Concerning Subcontractors, Suppliers, and Others*

SC-6.06 Add a new paragraph immediately after Paragraph 6.06.A:

- A. The Bidder shall submit, as an attachment to the Bid, the identity of each proposed Subcontractor and the portions of the work for which they are responsible.

SC-6.06 Add a new paragraph immediately after Paragraph 6.06.G:

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

SC-6.17 *Shop Drawings and Samples*

SC-6.17 Delete Paragraph 6.17.A.1a in its entirety and insert the following:

- a. Contractor shall submit 5 copies of all shop drawings for Engineer’s review and approval.

SC-9.03 *Project Representative*

SC-9.03.A Add the following language at the end of Paragraph 9.03.A:

A. The Engineer will provide periodic Project Representative services for this project.

SC-9.03 Add the following new paragraph immediately after Paragraph 9.03.A:

B. Regular Working Hours

1. Regular working hours are defined as up to nine (9) hours per day, Monday through Friday, beginning no earlier than 7:30 a.m. and ending no later than 5:00 p.m., excluding 30 minutes for lunch. Whenever the Contractor is performing any part of the work, with the exception of equipment maintenance and cleanup, Owner's representative and/or inspection may be required. Requests to work other than regular working hours must be submitted to the Owner's designated representative, at least 48 hours prior to any proposed weekend work or scheduled extended workweeks, to give the Owner ample time to arrange for representation and/or inspection during those periods. Periodic unscheduled overtime on weekdays will be permitted provided that twenty four hours notice is provided to the Owner's designated representative. Maintenance and cleanup may be performed during hours other than regular working hours with no notice. The Contractor shall not work on any Federal or City holidays unless previously approved by the Owner.
2. Contractor shall reimburse the Owner for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the Contractor's retainage prior to release of final payment. Engineering/inspection costs shall be calculated at the following rates:

Project Manager	\$135.00/hour
Project Engineer	\$ 95.00/hour
Inspector	\$ 55.00/hour

SC-14.02 *Progress Payments*

A. *Applications for Payments:*

SC-14.02.A.3 Add the following language at the end of Paragraph 14.02.A.3:

3. No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

C. *Payment Becomes Due:*

SC-14.02.C.1 Amend by replacing the word “Ten” with “Thirty”.

SC-16.01 Methods and Procedure

SC-16.01 Delete Paragraph 16.01.C in its entirety and insert the following in its place:

- C. If the Claim is not resolved by mediation, Engineer’s action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. Gives to the other party written notice of intent to submit the Claim in a court system of the County in which the work is located, or
 2. Agrees with the other party to submit the Claim to another dispute resolution process.

SC-16.01.D Add the following new paragraph immediately after Paragraph 16.01.C.

- D. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SC-16.01.C.1 shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer’s action or denial shall become final and binding.
- E. Claims resolved under Paragraph SC-16.01,C,1. shall be decided in the court system of the County in which the work is located by a non-jury trial.

Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project: 20 th Street Realignment	Owner: Gulf Coast State College	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.: 50094809

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:

Original Contract Price:

\$ _____

[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____

\$ _____

Contract Price prior to this Change Order:

\$ _____

[Increase] [Decrease] of this Change Order:

\$ _____

Contract Price incorporating this Change Order

\$ _____

CHANGE IN CONTRACT TIMES:

Original Contract Times: Working Calendar days

Substantial completion (days or date): _____

Ready for final payment (days or date): _____

[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____:

Substantial completion (days): _____

Ready for final payment (days): _____

Contract Times prior to this Change Order:

Substantial completion (days or date): _____

Ready for final payment (days or date): _____

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): _____

Ready for final payment (days or date): _____

Contract Times with all approved Change Orders:

Substantial completion (days or date): _____

Ready for final payment (days or date): _____

RECOMMENDED:

By: _____
Engineer (Authorized Signature)

Date: _____

Approved by Funding Agency (if applicable):

ACCEPTED:

By: _____
Owner (Authorized Signature)

Date: _____

ACCEPTED:

By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Change Order

Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

SECTION 00301
CERTIFICATE OF COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT

Bidder acknowledges sole responsibility for complying with the Florida Trench Safety Act (Act) and Occupational Safety and Health Administration's excavation safety standard 29 CFR 1926.650 (Subpart P as amended). Bidder further acknowledges that included in the various items of the proposal and in the Grand Total Base Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990. The bidder further identifies the costs to be summarized below:

	Trench Safety Method (Description)	Units of Measure (LF, SY)	Unit (Quantity)	Extended Cost	Unit Extended Cost
A.	_____	_____	_____	_____	_____
B.	_____	_____	_____	_____	_____
C.	_____	_____	_____	_____	_____
D.	_____	_____	_____	_____	_____
Total:				\$ _____	

Failure to complete the above may result in the bid being declared non-responsive. The costs indicated above are provided to comply with the Act and shall not constitute grounds for any additional compensation to that listed for the separate line items of the Bid Form.

By: _____

Bidder _____

Date _____

 Authorized Signature

END OF SECTION

SECTION 00302
SWORN STATEMENT UNDER SECTION 287.133(3)(a), FLORIDA STATUTES,
ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY
PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS

1. This sworn statement is submitted to _____

by _____

For _____

Whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____
(if the entity has no FEIN, include the Social Security Number of the individual signing this
sworn statement): _____

2. I understand that a “public entity crime” as defined in Section 287.133 (1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency of political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or such an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
3. I understand that “convicted” or “conviction” as defined in Paragraph 287.133 (1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that “affiliate” as defined in Paragraph 287.133 (1)(a) , Florida Statutes, means:
- a. A predecessor or successor of a person or a corporation convicted of a public entity crime,
- Or
- b. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes officers, directors, executives, partners, shareholders, employees, members and agents who are active in the management of an affiliate.

The ownership by one person of shares constituting a controlling interest in another person, or a pooling agreement of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person.

A person knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133 (1)(e), Florida Statute, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter in to a binding contract and which bids or applied to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity.

The term "persons" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [indicate which statement applies.]

_____Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, share holders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

However, there has been a subsequent proceeding before a Hearing Office of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vender list. [Attach a copy of the final order]

7. I understand by my execution of this document, I acknowledge that the entity submitting this sworn statement has been informed by the Gulf Coast Electric Cooperative, of the terms of Section 287.133(2)(a) of the Florida Statutes which read as follows:

“A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.”

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1(ONE) ABOVE IS FOR THE PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Signature

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

Personally known _____

OR Produced identification _____

Notary Public- State of _____

My commission expires _____

[printed, typed or stamped
commissioned name of notary
public]

END OF SECTION

SECTION 00303
STATEMENT UNDER SECTION 287.087
FLORIDA STATUTES, ON PREFERENCE TO BUSINESSES WITH
DRUG-FREE WORKPLACE PROGRAMS

IDENTICAL TIE BIDS:

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process.

Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business' policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace not later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program is such is available in the employee's community, by an employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

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

BIDDER SIGNATURE

END OF SECTION

**SECTION 01110
ENVIRONMENTAL PROTECTION**

1.01 SCOPE OF WORK

- A. The Work covered by this Section consists of furnishing all labor, materials and equipment and performing all Work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes; or violate any applicable environmental laws, rules, codes or regulations.
- B. The control of environmental pollution requires consideration of air, water and land, and involves management of noise, odor, and solid waste, as well as other pollutants.
- C. These Specifications are intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and surroundings. These are general guidelines. It is the CONTRACTOR'S responsibility to determine the specific construction techniques to meet these guidelines.
- D. The CONTRACTOR shall secure, if required, at its own cost, a surface water management permit from the Northwest Florida Water Management District (NFWMD) and approvals from Bay County and/or Panama City Beach for any construction dewatering activities associated with this project.

1.02 APPLICABLE REGULATIONS

The CONTRACTOR shall comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement.

1.03 NOTIFICATIONS

The OWNER through the PROJECT REPRESENTATIVE will notify the CONTRACTOR in writing immediately following identification of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and any required corrective action to be taken by CONTRACTOR. State or local agencies responsible for verification of certain aspects of the environmental protection requirements may notify the CONTRACTOR of any non-compliance with State or local requirements.

The CONTRACTOR shall, after receipt of such notice from the regulatory agency shall immediately notify the PROJECT REPRESENTATIVE in writing and immediately take correction action. If the CONTRACTOR fails or refuses to comply promptly, the OWNER may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the CONTRACTOR unless it is later determined that the CONTRACTOR was in compliance and subject to the other terms of the Contract Documents.

1.04 IMPLEMENTATION

- A. Prior to commencement of the Work, the CONTRACTOR shall meet with the PROJECT REPRESENTATIVE to develop mutual understandings relative to compliance with this specification and administration of the environmental pollution control program.
- B. The CONTRACTOR shall remove temporary environmental control features, when approved by the PROJECT REPRESENTATIVE, and incorporate permanent control features into the Project at the earliest practicable time, consistent with the approved construction schedule.

1.05 EROSION CONTROL

- A. The CONTRACTOR shall ensure sufficient precautions are taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials harmful to humans, fish, or other life, into the supplies and surface waters of the State. Control measures must be adequate to assure that turbidity in the receiving water will not be increased more than 10 nephelometric turbidity units (NTU), or as otherwise required by the State or other controlling body, in water used for public water supply or fish unless limits have been established for the particular water. In surface water used for other purposes, the turbidity must not exceed 25 NTU unless otherwise permitted. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.

Erosion evident within the limits of construction shall be the responsibility of the CONTRACTOR during the full term of the Contract and for the full 1 year guarantee period. Areas subject to erosion during this time shall be fully restored to original or design conditions (as applicable) within 10 days of notice to the CONTRACTOR.

- B. The CONTRACTOR shall provide positive means of erosion control such as shallow ditches around construction to carry off surface water. Erosion control measures, such as siltation basins, hay check dams, mulching, jute netting and other equivalent techniques, shall be used as appropriate. Flow of surface water into excavated areas shall be prevented.

Ditches around construction area shall be used to carry away water resulting from dewatering of excavated areas. At the completion of the Work, ditches shall be backfilled and the ground surface restored to original condition.

- C. The CONTRACTOR shall schedule and conduct all Work in a manner that will minimize the erosion of soils in the area of the Work. Erosion control measures shall be provided such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching or other special surface treatments as are required by regulatory authorities to prevent silting and muddying of streams, rivers, canals, impoundments, lakes, etc. All erosion control measures shall be in place prior to any construction activity in any area of the Work.

1.06 PROTECTION OF LAND RESOURCES

- A. Land resources within the Project boundaries and outside the limits of permanent Work shall be restored by CONTRACTOR to a condition, after completion of construction that will appear to be natural and not detract from the appearance of the project.
- B. Outside of areas requiring earthwork for the construction of the new facilities, the CONTRACTOR shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the PROJECT REPRESENTATIVE. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The CONTRACTOR shall in any event be responsible for any damage resulting from such use.
- C. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by the CONTRACTOR'S equipment, dumping or other operations, CONTRACTOR shall protect such trees by placing board, planks, or poles around them. Monuments and markers shall be similarly protected by CONTRACTOR before beginning operations near them.
- D. Any trees or other landscape feature scarred or damaged by the CONTRACTOR'S equipment or operations shall be restored as nearly as possible to its original condition. The PROJECT REPRESENTATIVE will decide what method of restoration shall be used and whether damaged trees shall be treated and healed or removed and disposed of.

All scars made on trees by CONTRACTOR's equipment, construction operations, or by the removal of limbs by CONTRACTOR larger than 1 inch in diameter shall be coated as soon as possible with an approve tree wound dressing.

All trimming or pruning by CONTRACTOR shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.

Climbing ropes shall be used where necessary for safety. Trees that are to remain, either within or outside established clearing limits, that are subsequently damaged by the CONTRACTOR and are beyond saving in the opinion of a certified nurseryman, shall be immediately removed and replaced in kind and maintained until growth is assured.

- E. The locations of the CONTRACTOR's lay down area, storage and other construction buildings, required temporarily in the performance of the Work, shall require written concurrence of the PROJECT REPRESENTATIVE. The preservation of the landscape and public perception shall be an imperative consideration in the selection of the lay down area and in the provision of any buildings. Drawings showing the lay down area and any buildings shall be submitted by CONTRACTOR for approval of the PROJECT REPRESENTATIVE.

- F. If temporary roads or embankments and excavations for plant and/or work areas are proposed, the CONTRACTOR shall submit the following for approval by the PROJECT REPRESENTATIVE at least ten days prior to scheduled start of such temporary work.
 - 1. A layout of all temporary roads, excavations and embankments to be constructed within the work area.
 - 2. Details of temporary road construction.
 - 3. Drawings and cross sections of proposed embankments and their foundations, including a description of proposed materials.
 - 4. A landscaping drawing showing the proposed restoration of the area. Removal of any trees and shrubs outside the limits of existing clearing area shall be indicated. The drawing shall also indicate location of required guard posts or barriers required to control vehicular traffic passing close to trees and shrubs to be maintained undamaged. The drawing shall provide for the obliteration of construction scars as such and shall provide for a natural appearing final condition of the area. Modification of the CONTRACTOR'S approved drawings shall be made only with the written concurrence of the PROJECT REPRESENTATIVE.

No unauthorized road construction, excavation or embankment construction including disposal areas will be permitted.

- G. The CONTRACTOR shall remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess materials, or any other vestiges of construction as requested by the PROJECT REPRESENTATIVE. Any construction disturbed area shall be restored to near natural conditions.
- H. All debris and excess material will be disposed of by CONTRACTOR outside wetland or floodplain areas in an environmentally sound and lawful manner.

1.07 PROTECTION OF AIR QUALITY

- A. The use of burning for the disposal of refuse and debris will not be permitted.
- B. The CONTRACTOR shall maintain all excavations, embankment, stockpiles, access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which could cause the standards for air pollution to be exceeded, and which would cause a hazard or nuisance to others.
- C. An approved method of stabilization consisting of sprinkling or other similar methods will be permitted to control dust. The use of petroleum products is prohibited. The use of chlorides may be permitted with concurrence from the appropriate regulatory authority.
- D. Sprinkling must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the CONTRACTOR must have sufficient competent equipment on the job to accomplish needed sprinkling. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1.08 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

During the life of this Contract, CONTRACTOR shall maintain all facilities constructed for pollution control as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created. All pollution control devices shall be inspected regularly to ensure they are operating correctly.

1.09 NOISE CONTROL

- A. The CONTRACTOR shall make every effort to minimize noises caused by operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with State and Federal Regulations.

- B. Sound levels measured by the PROJECT REPRESENTATIVE shall not exceed 55 dBA from 8:00 PM to 7:00 AM or 65 dBA from 7:00 AM to 8:00 PM. This sound level to be measured at the OWNER'S property line. Sound levels of equipment shall not exceed 95 dBA at any time. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to acceptable levels. Work stoppage for excessive noise shall not relieve the CONTRACTOR of the other portions of this specification including, but not limited to Contract Time and Contract Price.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

**SECTION 02110
SITE CLEARING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of site clearing is shown on drawings.
- B. Site clearing work includes, but is not limited to:
 - 1. Protection of existing trees.
 - 2. Removal of trees and other vegetation.
 - 3. Topsoil stripping.
 - 4. Clearing and grubbing.
 - 5. Removing above-grade improvements.
 - 6. Removing below-grade improvements.

1.03 JOB CONDITIONS

- A. Traffic:
 - 1. Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
 - 2. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements:
 - 1. Provide protection necessary to prevent damage to existing improvements indicated to remain in place.
 - 2. Protection improvements on adjoining properties and on OWNER's property.

- C. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

1.04 Protection of Existing Trees and Vegetation:

- A. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
- B. Provide temporary guards to protect trees and vegetation to be left standing.

1.05 Salvable Improvements:

- A. Carefully remove items indicated to be salvaged, and store on OWNER's premises where indicated or directed.

PART 2 - PRODUCTS

Not applicable to work of this section.

PART 3 - EXECUTION

3.01 SITE CLEARING

- A. General:
 - 1. Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction.
 - 2. Remove such items elsewhere on the site or premises as specifically indicated. Removal includes digging out stumps and roots.
 - 3. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.
- B. Topsoil:
 - 1. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches.
 - 2. Satisfactory topsoil is reasonably free of topsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

3. Remove heavy growths of grass from areas before stripping.
4. Stop topsoil stripping a sufficient distance, where trees are indicated to be left standing, to prevent damage to main root system.
5. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust.
6. Dispose of unsuitable or excess topsoil same as waste material, herein specified.

C. Clearing and Grubbing:

1. Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing.
2. Completely remove stumps, roots, and other debris protruding through the ground surface.
3. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.
4. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
5. Place fill material in horizontal layers not exceeding 6-inch loose depth, and thoroughly compact to a density equal to adjacent original ground.
6. Removal of Improvements:
7. Remove existing above-grade and below-grade improvements necessary to permit construction, and other work as indicated.

3.02 DISPOSAL OF WASTE MATERIALS

- A. Burning on OWNER's Property: Burning is not permitted on OWNER's property unless OWNER's approval is obtained and proper authorities are notified.
- B. Removal from OWNER's Property: Remove waste materials and unsuitable materials from OWNER's property and dispose of off site in legal manner.

END OF SECTION

**SECTION 02200
EARTHWORK**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

1.03 QUALITY ASSURANCE

- A. Codes and Standards:
 - 1. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Service:
 - 1. Employ, at CONTRACTOR's expense, a testing laboratory subject to approval by the ENGINEER to perform soil testing and inspection service for quality control during earthwork operations.

1.04 SUBMITTALS

- A. Test Reports-Excavating: Submit following reports directly to ENGINEER from the testing services; with copy to CONTRACTOR:
 - 1. Test reports on fill material. (Modified Proctor Tests)
 - 2. Field density test reports. (Modified Proctor Tests)
 - 3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.

1.05 JOB CONDITIONS

- A. Existing Utilities:
 - 1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with OWNER and utility companies in keeping respective services and facilities in operation. CONTRACTOR shall bear all costs of repairing damaged utilities to the satisfaction of utility owner.
 3. Do not interrupt existing utilities serving facilities occupied and used by OWNER or others, during occupied hours, except when permitted in writing by ENGINEER and then only after acceptable temporary utility services have been provided.
 4. Provide minimum of 48-hour notice to engineer, and receive notice to proceed before interrupting any utility.
 5. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
- B. Use of explosives:
1. The use of explosives is not permitted.
- C. Protection of Persons and Property:
1. Barricade open excavations occurring as part of this work and post with warning lights.
 2. Operate warning lights as recommended by authorities having jurisdiction.
 3. Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
 4. Perform excavation within drip-line of large trees to remain by hand, and protect the root system from damage or dryout in the manner prescribed in sections under "Sitework."

PART 2 - PRODUCTS

2.01 SOILS MATERIALS

- A. Subbase Material:
1. Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.

B. Backfill and Fill Materials:

1. Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter. The fill material should be sand containing little fines.
2. Prior to placing the fill material, the existing material shall be stripped of all soils containing a significant percentage of organics and all loose soils which cannot be readily compacted.
3. If existing materials do not meet these requirements, it may be necessary to backfill with select materials other than those on the job site.

PART 3 - EXECUTION

3.01 EXCAVATION

A. Excavation:

1. Excavation is Unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
2. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of ENGINEER. Unauthorized excavation, as well as remedial work directed by ENGINEER, shall be at CONTRACTOR's expense.
3. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom of elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to ENGINEER.
4. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classifications, unless otherwise directed by engineer.

B. Additional Excavation:

1. When excavation has reached required subgrade elevations, notify ENGINEER who will make an inspection of conditions.
2. If unsuitable bearing materials are encountered at required subgrade elevations, notify ENGINEER who will make an inspection of conditions.

3. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by the ENGINEER.
 4. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.
- C. Stability of Excavations:
1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
 2. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

3.04 SHORING AND BRACING

- A. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
- B. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
- C. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- D. Dewatering:
 1. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area. The cost of all dewatering operations including well pointing and “sock pipe” shall be the responsibility of the CONTRACTOR. The ENGINEER may direct the CONTRACTOR to provide dewatering if deemed necessary.
 2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 3. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

E. Material Storage:

1. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
2. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.
3. Dispose of excess soil material and waste materials as herein specified.

F. Excavation for Structures:

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of service, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

G. Excavation for Trenches:

1. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6-inch to 9-inch clearance on both sides of pipe or conduit and a maximum of 30 inches total width.
2. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
3. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch layer of crushed stone or gravel prior to installation of pipe.
4. For pipes or conduit 5 inches or less in nominal size and for flat-bottomed multiple-duct conduit units, do not excavate beyond indicated depths. Hand excavate bottom cuts to accurate elevations and support pipe or conduit on undisturbed soil.
5. For pipes or conduit 6 inches or larger in nominal size, tanks and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated, to 6 inches below bottom of work to be supported.

6. Except as otherwise indicated, excavate for waterbearing piping so top of piping is not less than 3 feet below finished pavement grade, but not less than 2 feet 6 inches below finish grade.
7. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.
8. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
9. Use care in backfilling to avoid damage or displacement of pipe systems.

3.02 COMPACTION

A. General:

1. Control soil compaction during construction, providing minimum percentage of density specified for each area classification indicated below.
2. All compaction requirements for this section are specified on the construction plans.

B. Moisture Control:

1. Where subgrade of layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during subsequent to compaction operations.
2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing, until moisture content is reduced to a satisfactory value.

3.03 BACKFILL AND FILL

A. General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below:

1. In excavations, use satisfactory excavated or borrow material.

2. Under grassed areas, use satisfactory excavated or borrow material.
 3. Under walks and pavements, use subbase material, or satisfactory excavated or borrow material, or combination of both.
 4. Under piping and conduit, use subbase material where subbase is indicated under piping or conduit; shape to fit bottom 90 degrees of cylinder.
- B. Backfill excavation as promptly as work permits, but not until completion of the following;
1. Acceptance of construction below finish grade.
 2. Inspection, testing, approval, and recording locations of underground utilities.
 3. Removal of concrete formwork.
 4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
 5. Removal of trash and debris.
 6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
- C. Ground Surface Preparation:
1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
 2. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break-up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
- D. Placement and Compaction:
1. The lower portion of backfill, to a compacted level of one foot above the top of the pipe, shall be hand placed in layers of lifts not to exceed six inches of compacted depth and each layer compacted individually by means of hand tampers. Above that level, place lifts in layers not to exceed twelve inches of compacted depth and machine filling and tamping may be used.

2. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each lift to required percentage of minimum soil density for each area classification as designated herein. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
3. Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

3.04 GRADING

A. General:

1. Uniformly grade areas within limits of grading under this section, including adjacent transition areas.
2. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

B. Grading Outside Building Lines:

1. Grade areas adjacent to building lines to drain away from structures and to prevent ponding.

C. Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below required subgrade elevations.
2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below required subgrade elevation.
3. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2-inch above or below required subgrade elevations.

D. Grading Surface of Fill Under Building Slabs:

1. Grade smooth and even, free from voids, compacted as specified, and to required elevation.

2. Provide final grades within a tolerance of 1/2-inch when tested with a 10 feet straightedge.
3. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage for each area classification.

3.05 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction:

1. Provide testing service by a qualified soil testing firm, subject to ENGINEER's approval, to inspect and approve subgrades and fill layers before further construction work is performed.

B. Paved Areas:

1. Make at least one field density test of subgrade for every 2000 square feet of paved area but in no case less than 3 tests, nor less than 1 per driveway or crossing. In each compacted fill layer, make one field density test for every 2,000 square feet of paved area but in no case less than 3 tests, nor less than 1 per driveway or crossing.

C. Non-Paved Areas:

1. Perform at least 1 field density test per 3,000 square feet of fill per every vertical foot of height, and perform at least 1 field density test per 1,000 feet of pipe installed per every 2 feet of vertical trench depth.

- #### D.
- If in opinion of ENGINEER, based on testing service reports and inspection, subgrade or fills which have been placed below are specified density, provide additional compaction and testing at no additional expense.

3.06 MAINTENANCE

A. Protection of Graded Areas:

1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

- #### B.
- Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

C. Reconditioning Compacted Areas:

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

D. Sodded Areas:

1. See Section 02211, "Sodding" for requirements of sodded areas.

3.07 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Disposal of all spoil material resulting from construction shall be the responsibility of the CONTRACTOR.

END OF SECTION

**SECTION 02210
GRASSING**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

DESCRIPTION OF WORK:

Extent of grassing work is as specified or shown on the construction plans. All other areas disturbed during construction operations shall be seeded.

QUALITY ASSURANCE:

All seed used shall be labeled in accordance with U. S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitation for bids. All seed shall be furnished in sealed standard containers, unless exception is granted in writing by Owner. Seed which has become wet, moldy, or otherwise damaged in transit or in storage shall not be used. Fertilizer shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, shall not be used. Seed, fertilizer and other grassing materials shall be stored under cover and protected from damage which would make them unacceptable for use.

SUBMITTALS:

Approvals, except those required for field installations, field applications, and field tests shall be obtained before delivery of materials or equipment to the project. The results of laboratory tests performed on the topsoil material shall be submitted. The reports shall include the pH level, the amount of organic matter, and available phosphoric acid and potash of the soil intended for use in the work. Certificate of conformance will be required for the following:

1. Grass seed shall be certified by registered, certified seed association or a registered testing laboratory not more than ten months prior to seeding.
2. Sprigs
3. Fertilizer
4. Topsoil
5. Lime
6. Mulching

PART 2 - PRODUCTS

TOPSOIL:

If the quantity of existing stored or excavated topsoil is inadequate for planting, sufficient additional topsoil shall be furnished. Topsoil furnished shall be a natural, fertile, friable soil, possessing characteristics of representative productive soils in the vicinity. It shall be obtained from naturally well-drained areas. Topsoil shall be without admixture of subsoil and free from johnson grass (Sorghum halepense), nut grass (Cyperus rotundus) and objectionable weeds and toxic substances.

SOIL AMENDMENTS:

Lime: Ground Limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 50 percent will pass a 100-mesh sieve and 90 percent will pass a 20-mesh sieve.

Fertilizer: 16-16-16 formulation of which 60 percent of the nitrogen is in the urea-formaldehyde form and shall conform to the applicable State Fertilizer laws. It shall be granulated so that 80 percent is held on a 16-mesh screen, uniform in composition, dry and free-flowing.

Mulch: Clean hay or fresh straw.

GRASS MATERIALS:

Grass Seed: Federal Specifications JJJ-S-181 and shall satisfy the following requirements:

<u>Seed</u>	<u>Min. % Pure Seed</u>	<u>Min. % Germination and Hard Seed</u>	<u>Max. % Weed Seed</u>
Bermuda Grass, (Cynodon Dactylan)	80%	15%	.25%

Seed failing to meet the purity or germination requirements by no more than twenty-five percent may be used, but the quantity shall be increased to yield the required rate of pure live seed. Seed failing to meet the weed seed requirements shall not be used.

PART 3 - EXECUTION

GRADING:

Areas to be grassed shall be graded to remove depressions, undulations, and irregularities in the surface before grassing.

PLACING TOPSOIL:

Areas to be grassed shall have a minimum topsoil cover of two inches. Topsoil shall not be placed when the subgrade is excessively wet, extremely dry or in a condition otherwise detrimental to the proposed planting or proper grading.

TILLAGE:

The area to be grassed shall be thoroughly tilled to a depth of four inches using a plow and disc harrow or rotary tilling machinery until a suitable bed has been prepared and no clods or clumps remain larger than 1-1/2 inches in diameter.

APPLICATION OF LIME:

The pH of the soil shall be determined. If the pH is below 5.0, sufficient lime shall be added to provide a pH between 5.5 and 6.5. The lime shall be thoroughly incorporated into the top three to four inches of the soil. Lime and fertilizer may be applied in one operation.

APPLICATION OF FERTILIZER:

Fertilizer shall be applied at the rate of 6 pounds per 1,000 square feet and shall be thoroughly incorporated into the top three to four inches of soil.

PLANTING SOIL:

All areas disturbed during construction shall be seeded as specified herein. Immediately before seeds are sown and after fertilizer and lime are applied, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable, and of uniformly fine texture. Areas to be grassed shall be seeded evenly with a mechanical spreader, raked lightly, rolled with a 200-pound roller, and watered with a fine spray.

1. Seed shall be applied at the following rate:

<u>Seed</u>	<u>Rate of Application</u>
Argentine Bahia Grass (Paspalum notatum)	6 lbs./1000 sq. ft. 260 lbs./acre
Bermuda Grass, (Cynodon Dactylan)	6 lbs./1000 sq. ft. 260 lbs./acre

2. Seeded areas shall be mulched at the rate of not less than 1-1/2" loose measurement over all seeded areas. Spread by hand, blower, or other suitable equipment. Mulch shall be cut into the soil with equipment capable of cutting the mulch uniformly into the soil. Mulching shall be done within 24 hours of the time seeding is completed. All seeded areas shall be mulched, no exceptions. Hydro-seed must also be mulched.

ROLLING:

After seeding and mulching, a cultipacker, traffic roller, or other suitable equipment shall be used for rolling the grassed areas. Areas shall then be watered with a fine spray.

WINTER COVER:

All areas to be grassed shall be protected against erosion at all times. For protection during winter months (November 1st through March 31st) Italian rye grass shall be planted at the rate of four pounds per 1,000 square feet on all areas which are not protected by permanent grass. This does not alleviate the contractor from the required seeding.

CLEAN-UP:

All excess soil, excess grass materials, stones, and other waste shall be removed from the site daily and not allowed to accumulate.

MAINTENANCE:

Maintenance shall begin immediately following the last operation of grassing and continue until final acceptance. Maintenance shall include watering, mowing, replanting, and all other work necessary to produce a uniform stand of grass. Grassing will be considered for final acceptance when the permanent grass is healthy and growing on 97 percent of the area with no bare areas wider than 12 inches.

ACCEPTANCE:

The Contractor shall submit to the Owner two copies of a written request for final acceptance of the grassing work. The request shall be submitted at least ten days prior to the anticipated date of acceptance. The condition of the grass will be noted, the Contractor will be notified if maintenance is to continue.

END OF SECTION

**SECTION 02211
SODDING**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Sod Installation

1.02 REFERENCES

- A. ASPA - American Sod Producers Association - Guideline Specifications to Sodding.
- B. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.03 DEFINITIONS

- A. Weeds: Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Hill, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sod on pallets. Protect exposed roots from dehydration.
- B. Do not deliver more sod that can be laid within 24 hours.

PART 2 - PRODUCTS

2.01 ACCEPTABLE SOD GROWERS

- A. Nurseries and Sod Growers in the surrounding area who have a 5-year record are acceptable.

2.02 MATERIALS

- A. Sod:
 - 1. ASPA approved, field grown grade; cultivated grass sod; for low maintenance and traffic durability, with strong fibrous root system, free of stone, burned or bare spots; containing no more than 5 weeds per 1000 square feet.

- B. Approved Sods:
 - 1. Bermuda, (Cynodon Dactylon).

2.03 HARVESTING SOD

- A. Machine cut sod and load on pallets in accordance with ASPA guidelines.
- B. Cut sod in area not exceeding one square yard, with minimum 1/2 inch and maximum one inch topsoil base.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify that prepared soil base is ready to receive the work of this Section.
- B. Beginning of installation means acceptance of existing site conditions.

3.02 PREPARATION OF SUBSOIL

- A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials and undesirable plants and their roots. Do not bury foreign material beneath areas to be sodded. Remove contaminated subsoil.

3.03 LAYING SOD

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod immediately on delivery to site and within 24 hours after harvesting to prevent deterioration.
- C. Lay sod tight with no open joints visible, and no overlapping; stagger end joints 12-inches overlapping; minimum. Do not stretch or overlap sod pieces.
- D. Lay smooth. Align with adjoining grass areas. Place top elevation of sod 1/2 inch below adjoining paving or curbs.
- E. On slopes 6 inches per foot and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.
- F. Prior to placing sod, on slopes exceeding 8 inches per foot or where indicated, place wire mesh over topsoil. Securely anchor in place with wood pegs sunk firmly into the ground.

- G. Water sodded areas immediately after installation. Saturate sod to 4 inches of soil.
- H. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities.
- I. Sod shall be laid in all ditch areas and slopes that are equal to or steeper than 1 vertical to 3 horizontal or in areas determined by the Engineer to “erosion problem” areas. Sod shall be pinned down for stabilization in these areas.

END OF SECTION

**SECTION 02222
TRENCHING, BACKFILLING AND COMPACTING**

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of trenching, backfilling and compacting is shown on the drawings.
- B. This section includes furnishing equipment, labor and materials, and performing all operations necessary and incidental to perform the required work.

PART 2 – PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 CLEARING THE SITE

- A. The site of the work shall be cleared of all trees, shrubs, paving and objectionable material which interfere with the prosecution of the proposed work. Trees and shrubs which will not interfere with construction shall be protected from damage. Clearing shall be considered as an incidental item of excavation.

3.02 EXCAVATION

- A. General:
 - 1. Perform excavation described of whatever substance encountered to the dimensions and depths specified or shown on the drawings.
 - 2. Undercutting will not be permitted, except when ordered by the ENGINEER. Material suitable for backfill shall be stockpiled near the site.
 - 3. Rock or other material undesirable for backfill shall be spoiled outside the area in a neat manner, as directed by the ENGINEER.
 - 4. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends or cuts to branches over 1/2-inch diameter shall be treated with an asphalt base pruning paint.
 - 5. Backfill over exposed roots as soon as possible.

B. Rock:

1. Where encountered in the trench bed, rock shall be excavated to a depth of 1/4 of the pipe diameter below the bottom of the pipe but in no case less than 4-inches.
2. All undercut trench excavation shall be backfilled and tamped with materials as specified in the following paragraphs under Unstable Subgrade.

C. Unstable Subgrade:

1. In the event that unsuitable material is encountered at or below the excavation depth specified or shown on the drawings, the ENGINEER shall be notified.
2. Such material shall be removed and replaced with suitable material. Methods and materials used for replacement shall be one of the following as directed by the ENGINEER in writing.
 - a. Suitable earth or sand, compacted in the trench. Materials shall be furnished as a part of the Bid Proposal item covering excavation and backfill.
 - b. Gravel or crushed limerock, compacted in the trench and paid for under the appropriate item.
 - c. Existing materials, stabilized after removal and then replaced and compacted in the trench at no additional cost to the OWNER.
2. The Engineer shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe structure to be supported, and the availability and character of stabilizing materials.

D. Trenches:

1. Keep pipe laying operation as close to the excavation operation as possible during the prosecution of the work. The ENGINEER reserves the right to stop the excavation at any time when, in his opinion, the excavation is opened too far in advance of the pipe laying.
2. Pipe trenches shall be excavated to a depth that will insure a minimum of 36-inches of cover for ductile iron and PVC pipe and 54-inches of cover for polyethylene pipe, except service laterals.

- a. Trenches shall be only of sufficient width to provide a free working space on each side of the pipe.
 - b. To prevent excess pressure on the pipe, the maximum width of trench at the top of the pipe and at the bottom of the trench shall not be greater than 2-feet more than the greatest exterior diameter of the pipe.
 - c. If this maximum width is exceeded, it shall be the CONTRACTOR's responsibility to provide, at no additional cost to the OWNER, such additional bedding or select backfill materials as the ENGINEER may require.
 - d. The excavation below the spring line shall be made to conform as near as possible to the shape of the lower third of the pipe.
 - e. To protect the pipe lines from unusual stresses, all work shall be done in open trenches.
 - f. Excavation shall be made for bells of all pipes and of sufficient depth to permit access to the joint for construction and inspections. In no case will the bells be used to support the body of the pipe.
3. In order to avoid existing utilities, at times it may be necessary for the pipe to be laid deeper than the minimum cover specified in the preceding paragraph. At such time the CONTRACTOR will not be allowed extra compensation for additional excavation involved.
 4. In case excavation has been made deeper than necessary, a layer of concrete, fine gravel or other material satisfactory to the ENGINEER shall be placed, at no extra cost, to secure a firm foundation for the lower third of each pipe.
 - a. Where possible, excavated material shall be placed so as not to interfere with public travel.
 - b. Bridging shall be provided to afford necessary access to public or private premises.
 - c. Bridging shall be considered as part of the excavation operation and shall be supplied at no additional cost to the OWNER.

- E. Structural: (For inlets, manholes, valve pits and similar structures)
1. Remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, and the ENGINEER may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12-inches in the clear between their outer surfaces and the embankment of timber that may be used to protect them. Backfill of earth under structures will not be permitted. Excess excavation for structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the CONTRACTOR.
 2. After excavation for a structure is completed, the CONTRACTOR shall notify the ENGINEER to that effect. No concrete or reinforcing steel shall be placed until the ENGINEER has approved the depth of the excavation and the character of the foundation material.
- F. Sheeting and Shoring:
1. The CONTRACTOR shall provide all trench and structural bracing, sheeting or shoring necessary to construct and protect the excavation, existing utilities, structures and private property of all types and as required for the safety of the employees. Sheeting shall be removed or cut off by the CONTRACTOR during backfilling operations as directed by the ENGINEER. Sheeting which is left in place by order of the ENGINEER will be paid for under the item, Lumber left in Place. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces.

3.03 DRAINAGE

- A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the ENGINEER in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level suitable to a residential area. The CONTRACTOR will not be allowed to discharge water into the OWNER's storm drainage system without the written approval of the ENGINEER. Approval will be subject to the condition that the storm sewer be returned to its original condition.

- B. The CONTRACTOR is responsible for carrying the water to the nearest ditch or body of water and for obtaining the necessary permission to use same. The CONTRACTOR shall be financially responsible for any nuisance created due to carrying off water from his drainage system.

3.04 BACKFILL

A. Trenches:

1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipeline is provided. Clean earth, sand, crushed limerock or other material approved by the ENGINEER shall be used for backfill. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall solidly tamped around the pipes in layers to a level at least 1-foot above the top of the pipe. Each layer shall be compacted to a maximum thickness of 6-inches.
2. In unpaved areas, the remainder of the backfill shall be deposited and then compacted by puddling, water flooding or mechanical tampers. Mechanical tamping of layers in unpaved areas shall be to a maximum thickness of 12-inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in layers and compacted by hand or mechanical tampers to a maximum thickness of 6-inches. Compaction shall be carried out to achieve a density of at least 98% of the maximum density as determined by AASHTO, Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to 1-foot over the pipe, as specified, provided the method is first approved by the ENGINEER and the density requirements are met.
3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300-feet of trench cut. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the CONTRACTOR to restore the surface to the original grade wherever settlement occurs.

B. Wet Trenches (CONTRACTOR's Option):

1. Backfill for the pipe bed in wet trenches shall be crushed, graded limerock, compacted in the trench. After the pipe is laid, a graded limerock backfill shall be placed and worked in around the haunches to a point 6-inches above the pipe. The width of the limerock material around the pipe shall not be less than the outside diameter of the pipe plus 6-inches on each side of the pipe. Material shall be carefully distributed along the pipe so as to provide full and uniform support under and around the pipe. Six inches above the top of the pipe and up to the water level, material from the excavations with no rock or earth exceeding 4-inches in any one dimension shall then be lifted to the trench and released at the water level. Material shall be uniformly distributed for the full width of the trench. Backfill and compaction above the water level in the trench shall be as specified above. All costs for graded limerock placed in wet trenches shall be included in the cost of stage excavation and backfill for the various sizes of pipe.

C. Bedding and Backfill - Flexible Pipe:

1. For polyvinyl chloride pipe, the bedding and backfill materials shall be such as to limit the vertical ring deflection to 5% of the inside pipe diameter. A deflection greater than 5% of the inside diameter shall be cause for rejection of the pipe.
2. Class IV or Class V materials as defined in ASTM D2321-74 shall not be used for bedding, haunching or initial backfill for flexible pipes.
3. For polyvinyl chloride plastic pipe, bedding shall be in accordance with ASTM D2321-74, using Class I, II or III materials, except under wet conditions. In any area where the pipe will be installed below existing or future groundwater levels or where the trench could be subject to inundation, Class I material shall be placed to the springline of the pipe.
4. A minimum of effort is needed to compact the material. However, in the initial stage of placing this type of material, take care to ensure that sufficient material has been worked under the haunch of the pipe to provide adequate side support. Take precautions to prevent movement of the pipe during placing of the material under the pipe haunch. Except for the protection of the pipe from large particles of backfill material, little care need be taken and no compaction is necessary in placing backfill material in the balance of the initial backfill area above the pipe. Where unstable trench wall exist because of migratory materials, such as water-bearing silts or fine sand, take care to prevent the loss of side support through the migratory action.

5. All bedding requirements for flexible pipe specified in the preceding paragraphs shall be included in the price bid for the applicable pipe material and no additional compensation for bedding material will be allowed.

D. Structural:

1. After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, forms shall be removed and the excavation shall be cleared of all trash and debris.
2. Material for backfilling shall consist of the excavation, borrow sand or other approved materials, and shall be free of trash, lumber or other debris.
3. Backfill shall be placed in horizontal layers not in excess of 9-inches in thickness, and have a moisture content such that a density may be obtained to prevent excessive settlement or shrinkage.
4. Each layer shall be compacted by hand or approved machine tampers with extreme care being exerted not to damage pipe or structures.
5. Backfill shall be placed and compacted evenly against the exposed surfaces to prevent undue stress on any surface.

3.05 RESTORATION OF SURFACE IMPROVEMENTS

A. Roadways, including shoulders, alleys and driveways of shell, limerock, stabilized soil or gravel, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other surface improvements on public or private property which have been damaged or removed in excavation, shall be restored to conditions equal to or better than conditions existing prior to beginning work.

1. Restoration of shoulders shall consist of seeding and mulching or stabilizing with limerock as selected by the ENGINEER.
2. The cost of doing this work shall be included in the cost of the various applicable items.
3. General Quality Control will be used as an aid in determining conditions prior to construction.

B. Materials for unpaved roadways, road shoulders, alleys, or driveways, shall be compacted as described in the plans. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no separate payment will be made, unless a separate bid item is provided.

3.06 FINE GRADING

- A. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours shown on the drawings. Lumber, earth clods, rocks and other undesirable materials shall be removed from the site.

3.07 DISPOSAL OF MATERIALS

- A. Such portions of the excavated materials as needed and as suitable, shall be used for backfilling and grading about the completed work to the elevations as shown of the drawings or as directed. Excavated material in excess of the quantity required for this purpose shall be disposed of by the CONTRACTOR in those areas designated by the OWNER and as shown on the drawings. The CONTRACTOR shall leave the earth over the trenches or other excavations in a neat and uniform condition acceptable to the OWNER.

3.08 PAVEMENT REPLACEMENT

- A. Asphalt pavement shall be removed by saw cutting on a straight line with edges as vertical as possible. Concrete pavement or asphalt surfaced concrete shall be removed by cutting with a concrete saw in as straight a line and vertically as possible. Materials to replace State Highway paving shall conform to the specifications required by the Florida Department of Transportation Specifications for Type S-I asphaltic concrete surface course, or as specifically shown in the plans.
- B. Prior to replacing concrete or asphalt pavement replacement, a limerock base shall be laid. The base for concrete pavement shall be 6-inches of compacted thickness, and that for asphalt pavement shall be 8-inches of compacted thickness. The base course for each shall be compacted to a minimum of 98% of the maximum density as determined by AASHTO, Method T-180. The OWNER will have tests made by an independent testing laboratory to verify compaction results. One test will be made for each block of continuous trench cut.
- C. Non-asphalt pavement replacement shall be replaced of like material and thickness. Asphalt or built-up asphalt pavement shall be replaced with like material or concrete as directed by the ENGINEER. Where asphalt or built-up asphalt pavement is replaced by concrete, the concrete shall have a minimum of 6-inches in thickness and be reinforced with 6 by 6 no. 6 gage welded wire fabric. Concrete for paving shall be 3,000 psi design strength. Where the pavement replacement is of like material, it shall be replaced in thickness equal to or better than that existing at the time of removal.
- D. Unless the base is sealed or other temporary paving applied over areas to be repaved, pavement shall be replaced not later than 3-weeks after completion of backfill.

3.09 TESTS

- A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the CONTRACTOR and at such locations as may be recommended by the ENGINEER. If the densities as determined by the specified tests fall below the required minimums, the CONTRACTOR shall pay for all retests.

3.10 SIDEWALK, CURB AND GUTTER REMOVAL AND REPLACEMENT

- A. Sidewalk, curb and gutter removal and replacement required in the construction of this work shall be done by the CONTRACTOR. Reasonable care shall be exercised in removing sidewalk and curb and gutter, and the CONTRACTOR shall either stockpile or dispose of this material as directed by the ENGINEER. Brick, concrete or built-up asphalt sidewalk replacement and curb and gutter replacement shall be replaced of like material in a manner and condition equal to or better than that existing at the time of removal. Materials and methods of replacing State Highway sidewalks or curbs shall conform to the Department of Transportation specifications.

END OF SECTION

SECTION 02960 RESTORATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The work includes the restoration of driveways, lawn areas, trees and plants, roadways, sprinkler systems, walks and any other existing improvement affected by the proposed work.
- B. This section includes furnishing equipment, labor and materials, and performing all necessary and incidental operations to perform the required work.

PART 2 – PRODUCTS

2.01 SOD

- A. Any slope equal to or steeper than 1 vertical to 3 horizontal shall be sodded and the sod shall be pinned down for stabilization.
- B. The CONTRACTOR shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, re-staking sod, filling, leveling and repairing of any washed or eroded areas, as may be necessary.

2.02 PLANTS AND TREES

- A. Existing damaged plants and trees shall be replaced by plants and trees of equal type, quality and size whenever possible. All new plants and trees shall be sound, healthy, vigorous and free from defects, decay, disfiguring, bark abrasions, plant diseases, insect pests, their eggs or larvae. The new plants shall be approved by the ENGINEER before placing.
- B. Existing plants may be removed, preserved, and replaced at the CONTRACTORs option. Plants shall be handled by an approved nursery.
- C. Plants shall be watered and cared for until new growth appears. Dead and dying plants shall be immediately replaced. Plants used shall be in accordance with the standards for Florida No. 1 or better as given in Grades and Standards for Nursery Plants Part 1.
- D. Plants shall conform to the sizes indicated by the OWNER.
- E. Trees shall be guaranteed for one year. If the replaced tree dies within one year of project completion it shall be replaced by the CONTRACTOR at no expense to the City.

2.03 MULCH

- A. Match existing mulch.

2.04 WATER

- A. The water used in the performance of this Contract shall be of drinking water quality, clean and free from injurious amounts of oil, acid, alkali, or organic matter. The CONTRACTOR shall purchase all testing water from the County.

2.05 PLANTING MIXTURE:

- A. The 18 inch planting mixture, when required, shall consist of a thorough mixture of 40% peat and 60% sand. The peat shall be Florihome peat or equivalent and the sand shall be clean and free from debris of any kind.

2.06 FERTILIZER

- A. Fertilizer shall be pelletized 13-13-13, or approved equal.

PART 3 - EXECUTION

3.01 LANDSCAPING RESTORATION

- A. Lawn Areas: Any lawn area affected by the required work shall be restored to a condition equal or better than the conditions existing before the commencement of work.
- B. Balled Plants: Plants where required shall be adequately balled with firm natural balls of soil, sized as set forth in "Horticultural Standards." Balls shall be firmly wrapped with burlap or equally approved strong cloth. No balled plant will be planted if the ball is cracked or broken before or during the process of planting.
- C. Preparation of Plant Pits: All plant pits shall be circular in outline and have vertical sides. Tree pits shall be two feet wider than the width of the ball and one foot deeper than the depth of the ball. Shrubs that are either B&B or 3 gallons + shall have pits that are two feet wider than the width of the plant ball and 6 inches deeper than the depth of the ball. Smaller shrubs shall have pits that are at least one foot wider than the width of the plant ball and 6 inches deeper than the ball depth.
- D. Setting Plants: All plants except as otherwise specified, shall be centered in pits. Deep planting shall be avoided and unless otherwise specified, plants shall be set at such a level that after settlement they will bear the same relation to the required grade as they have to the natural grade before being transplanted.

- E. Balled and burlapped plants and palm trees shall be placed on 6 inches to 12 inches of tamped planting mixture and adjusted so as to be at the proper level. The rope and burlap shall be cut away and the burlap folded down to the bottom of the pit. Very large B&B plants shall remain wrapped until fully backfilled and then just the upper portion of the burlap shall be removed. Backfill of planting mix shall be placed halfway up the pit and then water tamped. After this water has drained away, backfill around the ball to grade and water tamp again. Finally, form a ridge of soil around the edge of the pit to form a saucer and full area three times with water.
- F. Water: Water to be used initially during plant installation shall be furnished by the CONTRACTOR. The existing irrigation system, where damaged, shall be promptly repaired after the installation of the plants.
- G. Options as to Methods: Any plant may be furnished container grown instead of balled if all other requirements are met.
- H. Immediately before sod is placed, 8-8-8 fertilizer shall be applied at the rate of approximately 500 pounds per acre, by broadcasting and raking into the planting area.
- I. Sod shall be firmly embedded by light tamping. Wherever necessary to prevent an erosion condition caused by vertical edges at the outer limits of the sodded area, the sod shall be tamped so as to produce a featheredge at the outer limits. The sod shall be kept in a moist condition after it is planted. Water shall not be applied between the hours of 8 A.M., and 4 P.M., nor when there is danger of freezing.
- J. The CONTRACTOR shall, at his expense, maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, filling, leveling and repairing of any washed or eroded areas, as may be necessary.

3.02 PAVEMENT REPLACEMENT

- A. Asphalt pavement shall be removed by saw cutting on a straight line with edges as vertical as possible. Concrete pavement or asphalt surfaced concrete shall be removed by cutting with a concrete saw in as straight a line and vertically as possible.
- B. Non-asphalt pavement replacement shall be replaced of like material and thickness. Asphalt or built-up asphalt pavement replacement shall be replaced with like material or concrete as directed by the ENGINEER.

1. Where asphalt or built-up asphalt pavement is replaced by concrete, the concrete shall have a minimum of 6 inches in thickness and be reinforced with 6 by 6 No. 6 gage welded wire fabric. Where the pavement replacement is of like material, it shall be replaced in thickness equal to or better than that existing at the time of removal.
- C. Road cuts across City or County roads shall not be cut.
- D. Unless the base is sealed or other temporary paving applied over driveway areas to be repaved, pavement shall be replaced not later than three weeks after completion of backfill.

3.03 CURB REMOVAL AND REPLACEMENT

- A. Curb removal and replacement required in the construction of this work shall be done by the CONTRACTOR. Reasonable care shall be exercised in removing the curb, and the CONTRACTOR shall either stockpile or dispose of this material as directed by the ENGINEER. Curb shall be replaced of like material in a manner and condition equal to or better than that existing at the time of removal. Materials and methods of replacing State Highway sidewalks or curbs shall conform to the Department of Transportation specifications.

3.04 TESTS

- A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the CONTRACTOR at such locations as may be recommended by the ENGINEER. If the densities as determined by the specified tests fall below the required minimums, the CONTRACTOR shall pay for all retests.

END OF SECTION

**SECTION 02500
PAVING QUALITY CONTROL SYSTEM**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The CONTRACTOR shall furnish and maintain a quality control system that will provide reasonable assurance that all materials and products submitted to the ENGINEER for acceptance conform to the contract requirements whether manufactured or processed by the CONTRACTOR or procured from suppliers or subcontractors.
- B. The CONTRACTOR shall perform or have performed the inspection and tests required to substantiate product conformance to contract requirements and shall also perform or have performed all inspections and tests otherwise required by the contract.
- C. The CONTRACTOR shall have a Quality Control Technician, who has been certified by FDOT as a Certified Asphalt Plant Technician; available at the asphalt plant at all times the CONTRACTOR is producing asphalt mix for the contract.
- D. The CONTRACTOR's quality control procedures, inspection, and tests shall be documented and that information is available for review by the ENGINEER throughout the life of the contract.
- E. The CONTRACTOR's person in responsible charge of the paving operations shall also be certified by the FDOT as an Asphalt Paving Technician and shall possess a valid certificate of qualification, and be present during all paving operations.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 ENGINEER'S INSPECTION:

- A. The ENGINEER reserves the right to inspect materials not manufactured within the CONTRACTOR's facility.
- B. The ENGINEER inspection shall not constitute acceptance nor shall it in any way replace the CONTRACTOR's inspection or otherwise relieve the CONTRACTOR of his responsibility to furnish an acceptable material or product.
- C. When inspection of the subcontractor's or supplier's product is performed by the ENGINEER, such inspection shall not be used by the CONTRACTOR as evidence of effective inspection of such subcontractor's or supplier's product.

END OF SECTION

SECTION 02510
GENERAL CONSTRUCTION REQUIREMENTS FOR ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This Section specifies the general construction requirements for all plant-mixed hot bituminous pavements.

1.02 LIMITATIONS OF OPERATIONS:

- A. Weather Limitations:
 - 1. Plant Operations shall not begin unless all weather conditions are suitable for the laying operations.

1.03 LIMITATIONS OF LAYING OPERATIONS:

- A. General:
 - 1. The mixture shall be spread only when the surface, upon which it is to be laid has been previously prepared, is intact, firm and properly cured, and is dry.
 - 2. Unless otherwise approved by the Engineer, no mixture shall be spread that cannot be finished and compacted during daylight hours.
- B. Temperature:
 - 1. The mixture shall be spread only when the air temperature (the temperature in the shade away from artificial heat) is 40E F and above for layers greater than one inch (100 pounds per square yard) in thickness and 45E F and above for layers one inch (100 pounds per square yard) or less in thickness.
 - 2. No mixture shall be placed when there is evidence that the base is frozen.
- C. Wind:
 - 1. The mixture shall not be spread when the wind is blowing to such an extent that proper and adequate compaction cannot be maintained or when sand, dust, etc. are being deposited on the surface being paved, to the extent that the bond between layers will be diminished.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PREPARATION OF ASPHALT CEMENT:

- A. The asphalt cement shall be delivered to the asphalt plant at a temperature not to exceed 350EF and shall be maintained within a range of 230EF to 350EF in advance of mixing operations.
- B. Heating within these limits shall be constant and wide fluctuations of temperature during a day's production will not be permitted.

3.02 PREPARATION OF AGGREGATES:

- A. Stockpiles:
 - 1. Each aggregate component shall be placed in an individual stockpile, which shall be separated from the adjacent stockpiles, either by space or by system of bulkheads.
 - 2. The intermingling of different materials in stockpiles shall be prevented at all times. Each stockpile, including RAP, shall be identified as shown on the Mix Designs.

3.03 PREVENTION OF SEGREGATION:

- A. In the event that the method used for stockpiling coarse aggregate results in segregation of the aggregate, the Engineer will require that the stockpiles be built up in layers not higher than four feet, with each layer completely in place before the next is started.
- B. Stockpiles shall not be formed by depositing material in one place or by coning.

3.04 BLENDING OF AGGREGATES:

- A. Blending or proportioning from railroad cars will not be permitted.
- B. All aggregates shall be stockpiled prior to blending or placing in the cold hoppers.
- C. All aggregates to be blended or proportioned shall be placed in separate bins at the cold hopper and proportioned by means of securely positioned calibrated gates or other approved devices.

3.05 COLD BINS:

A. Adequacy of Bins:

1. The separate bin compartments of the cold aggregate feeder shall be so constructed as to prevent any spilling or leakage of aggregate from one bin to another.
2. Each bin compartment shall be of such capacity and design as to permit a uniform flow of aggregates.
3. All bin compartments shall be mounted over a feeder of uniform speed, which shall deliver the specified proportions of the separate aggregates to the drier at all times.
4. If necessary, the bins shall be equipped with vibrators to insure a uniform flow of the aggregates at all times.

3.06 GATES:

- A. Each bin compartment shall be provided with a gate that is adjustable in a vertical direction.
- B. The gate shall be so designed that it can be held securely at any specified vertical opening.
- C. The gates shall be equipped with a measuring device for measuring the vertical opening of the gates from a horizontal plane level with the bottom of the feeder.

3.07 MINERAL FILLER:

- A. If mineral filler is required in the mix, it shall be fed or weighed-in separately from the other aggregates.

3.08 HEATING AND DRYING:

- A. The aggregates shall be heated and dried before screening.
- B. The temperature of the aggregates shall be heated and dried before screening.
- C. The temperature of the aggregates shall be controlled that the temperature of the completed mixture at the plant will fall within the permissible range allowed by these specifications.

3.09 SCREENING UNIT:

A. OVERSIZE AGGREGATE:

1. Any oversized pieces of aggregate shall be removed by the use of a scalping screen.
2. This oversized material shall not be returned to the stockpile for reuse unless it has been crushed and reprocessed into sizes that will pass the scalping screen.

B. SCREENING:

1. Unless otherwise permitted by the Engineer, the quantity of aggregates being discharged onto the screens shall not be in excess of the capacity of the screens to actually separate the aggregates into the required sizes.
2. A minimum of ten percent plus-ten material will be permitted in the minus-ten bin.
3. The maximum amount of minus-ten material allowed in the plus-ten bins will be determined by the Engineer, in accordance with its effect on the uniformity of the mix.

C. MIXING DIFFERENT MATERIALS:

1. Unless written permission is obtained, coarse aggregates of different types shall not be mixed; nor shall coarse aggregates of different types be used alternately in sections less than one mile in length.

3.10 PREPARATION OF THE MIXTURE

A. BATCH MIXING:

1. Aggregates:
 - a) The dried aggregates and mineral filler (if required), prepared in the manner previously described, and combined in batches to meet the job mix formula by weighing each separate bin size, shall be conveyed to the empty mixer.
2. Bitumen:
 - a) The hot asphalt cement, accurately measured, shall be introduced into the mixer simultaneously with, or after, the hot aggregates.

b) Mixing shall continue until the mixture is thoroughly uniform, with all particles fully coated.

3. Mixing time:

a) The mixing time shall begin when the measuring devices for both the asphalt and the aggregates indicate that all the material is in the mixer, and shall continue until the material begins to leave the mixing unit.

b) The mixing time will vary in relation to the nature of the aggregates and the capacity of the mixer shall be as designated by the Engineer but in no case shall it be less than 35 seconds.

B. CONTINUOUS MIXING:

1. The dried aggregates and mineral filler (if required), prepared as specified and proportioned to meet the job mix formula by volumetric measurements, shall be introduced into the mixer in synchronization with the accurate feeding of the hop asphalt cement.

2. The rate of flow of material to the pug mill shall be such that the maintained depth of the mix will not exceed the tips of the paddles when in the upright position.

3. Mixing shall be sufficient to produce a thoroughly and uniformly coated mixture.

C. MIXING TEMPERATURE:

1. The ingredients of the mix shall be heated and combined in such a manner as to produce a mixture, which shall be at a temperature, when discharged from the pug mill or surge bin, within the range of 230EF to 310EF and within the tolerance shown in Table 1.

Table 1	
<u>Temperature Tolerance From Job Mix Formula</u>	
Any Single Measurement	"25EF
Average of Any Five Consecutive Measurements	"15EF

2. Any load or portion of a load of asphalt mix at the plant or on the road with mix temperature exceeding 335EF shall be rejected for use on the project.

3. Temperature of the completed mixture shall be determined by a quick-reading thermometer through a hole in the side of the loaded truck immediately after loading. The hole shall be located within the middle third of the length of the body, and at a distance of from six to ten inches above the surface supporting the mixture. If a truck body already has a hole located in the general vicinity of the above-specified location, this will be acceptable. At the Engineer's discretion, the temperature of the load may be taken over the top of the truck in lieu of using the hole in the side of the truck.
4. The mix temperature will be taken at the plant on the first five loads each day and on an average of once every five loads thereafter. If the temperature fails to fall within the specified tolerance range, the Contractor will be required to take corrective action.

3.11 MAXIMUM PERIOD OF STORAGE:

- A. The maximum time that any mix may be kept in a hot storage or surge bin is 72 hours.

3.12 CONTRACTOR'S RESPONSIBILITY FOR MIXTURE REQUIREMENTS:

- A. The responsibility for producing a homogeneous mixture, free from moisture and with no segregated materials, and meeting all requirements of the specifications for the mixture, including compliance with the design limits, shall lie entirely with the Contractor.
- B. These requirements shall apply also to all mixes produced by the drum mixer process and all mixes processed through a hot storage or surge bin, both before and after storage.

3.13 TRANSPORTATION OF THE MIXTURE

- A. The mixture shall be transported in tight vehicles previously cleaned of all foreign material.
- B. The inside surface of the truck bodies after cleaning shall be thinly coated with soapy water or an approved emulsion containing not over five percent oil.
- C. The coating shall be applied prior to the first loading each day and repeated as necessary throughout the day's operations.
- D. After the truck bodies are coated before any mixture is placed therein, they shall be raised to drain out all excess liquids.
- E. Each load shall be covered during cool and cloudy weather and at any time there is a probability of rain.

3.14 PREPARATION OF APPLICATION SURFACES

A. CLEANING:

1. Prior to the laying of the mixture, the surface of the base or pavement to be covered shall be cleaned of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.

B. PATCHING AND LEVELING COURSES:

1. Where a surface course is constructed on an existing pavement of old base which is irregular, and wherever so indicated in the plans, the existing surface shall be brought to proper grade and cross section by the application of patching or leveling courses.

C. APPLICATION OVER SURFACE TREATMENT:

1. Where a surface course is to be placed over a newly constructed surface treatment, all loose material shall be swept from the paving area and disposed of by the contractor.

D. COATING SURFACES OF CONTACTING STRUCTURES:

1. All structures which will be in actual contact with the asphalt mixture, with the exception of the vertical faces of existing pavements and curbs or curb and gutter, shall be painted with a uniform coating of asphalt cement to provide a closely bonded, watertight joint.

3.15 TACK COAT

A. TACK COAT REQUIRED:

1. A tack coat will be required on existing pavements that are to be overlaid with an asphalt mix and between successive layers of all asphalt mixes.

B. TACK COAT AT ENGINEER'S OPTION:

1. A tack coat will be required on the following surfaces only when so directed by the Engineer:
2. Freshly primed bases
3. Surface Treatment

3.16 PLACING MIXTURE

A. Requirements Applicable To All Types:

1. Alignment of Edges:

- a) All asphaltic concrete mixtures other than adjacent to curb and gutter or other true edges, shall be laid by the string line method, to assure the obtaining of an accurate, uniform alignment of the pavement edge.

2. Temperature of Spreading:

- a) The temperature of the mix at the time of spreading shall be within "25E F of the established mix temperature selected by the Contractor.
- b) The minimum frequency for taking mix temperatures on the road will be an average of one per five trucks. If the temperature fails to fall within the specified tolerance range, corrective action by the contractor will be required.

3. Rain and Surface Conditions:

- a) Transportation of asphalt mixtures shall immediately cease from the plant when rain begins at the roadway.
- b) Asphalt mixtures shall not be placed while rain is falling, or when there is water on the surface to be covered.
- c) As an exception, mixture caught in transit may be placed at the Contractor's risk if the only option is to waste this mixture, and provided the surface has been tacked (as required) prior to the rain and the surface broomed in front of the spreading operation.
- d) Such mixture will be evaluated separately and if it should prove unsatisfactory in any way, in the opinion of the Engineer, it shall be removed and replaced with satisfactory mixture at the Contractor's expense.

4. Speed of Spreading:

- a) The forward speed of the asphalt spreader shall be as established by the Engineer.

5. Number of Crews Required:
 - a) For each paving machine being operated, the Contractor will be required to use a separate crew; each crew operating as a full unit.
6. Checking Depth of Layer:
 - a) The depth of each layer shall be checked at frequent intervals, not to exceed 25 feet.
 - b) Any deviation from the required thickness, in excess of the allowable tolerance, shall be immediately corrected.
7. Hand Spreading:
 - a) In limited areas where the use of the spreader is impossible or impracticable, the mixture may be spread and finished by hand.
8. Straight-edging and Back-patching:
 - a) Straight-edging and back-patching shall be done after initial compaction has been obtained and while the material is still hot.

3.17 REQUIREMENTS APPLICABLE TO COURSES OTHER THAN LEVELING:

A. Spreading and Finishing:

1. Upon arrival, the mixture shall be dumped in the approved mechanical spreader and immediately spread and struck-off to the full width required and to such loose depth for each course that, when the work is completed, the required weight of mixture per square yard, or the specified thickness, will be secured.
2. An excess amount of mixture shall be carried ahead of the screed at all times.
3. Hand raking shall be done behind the machine as required.

B. Thickness of Layers:

1. Unless otherwise noted in the plans each course shall be constructed in layers of the thickness shown on FDOT Standard Index No. 513.
2. Type S-III Asphaltic Concrete shall be constructed in layers of thickness of not less than: inch nor greater than 13 inches.

C. Laying Width:

1. If necessary due to the traffic requirements, the mixture shall be laid in strips in such a manner as to provide for the passage of traffic.
2. Where the road is closed to traffic, the mixture may be laid to the full width, by machines traveling in echelon.

D. Correcting Defects:

1. Before any rolling is started the surface shall be checked, any irregularities adjusted, and all drippings, fat sandy accumulations from the screed, and fat spots from any source shall be removed and replaced with satisfactory material.
2. No skin patching shall be done.
3. When a depression is to be corrected while the mixture is hot, the surface shall be well scarified before the addition of fresh mixture.

3.18 REQUIREMENTS APPLICABLE ONLY TO LEVELING COURSES:

A. Patching Depressions:

1. Before any leveling course is spread, all depressions in the existing surface more than one inch deep shall be filled by spot patching with leveling course mixture and then thoroughly compacted.

B. Spreading Leveling Courses:

1. All courses of leveling shall be placed by the use of two motor graders - one of which is equipped with a spreader box - unless otherwise shown in the plans.
2. Other types of leveling devices may be used after the Engineer has approved them.

C. Rate of Application:

1. When the total asphalt mix provided for leveling exceeds 50 pounds per square yard, the mix shall be placed in two or more layers, with the average spread of any layer not to exceed 50 pounds per square yard.
2. When Type S-III Asphaltic Concrete is used for leveling, the average spread of a layer shall not be less than 50 pounds per square yard nor more than 75 pounds per square yard.

3. The quantity of mix for leveling shown in the plans represents the average for the entire project; however, the rate of application may vary throughout the project as directed by the Engineer.
4. When leveling in connection with base widening, the Engineer may require that all the leveling mix be placed prior to the widening operation.

D. Placing Leveling Course Over Existing Pavement:

1. When a leveling course is specified to be placed over cracked concrete pavement (including existing concrete pavement covered with an asphaltic surface), the first layer of leveling shall be placed as soon as possible but no later than 48 hours after cracking the concrete.
2. The remainder of the leveling course shall be placed in the normal sequence of operations.

E. Removal of Excess Joint Material:

1. Where a leveling course is to be placed over existing concrete pavement or bridge decks, the excess joint filler in the cracks and joints shall be trimmed flush with the surface prior to placing the first layer of the leveling course.

3.19 COMPACTING MIXTURE:

A. Provisions Applicable To All Types:

1. Equipment and Sequence:
 - a) For each paving or leveling train in operation, the Contractor shall furnish a separate set of rollers, with their operators.
 - b) The following equipment, sequence and coverage are suggested for use based on past successful performance; however, when density is required, the Contractor may select his own equipment, sequence and coverage of rolling to meet the minimum density requirement specified. Regardless of the rolling procedure used, the final rolling must be completed before the internal pavement temperature has dropped below 175E F.
 - c) Seal rolling, using tandem steel rollers (either vibratory or static) weighing 5 to 12 tons, following as close behind the spreader as is possible without pickup, undue displacement or blistering of the material. Vibratory rollers shall be used in the static mode for layers of one inch or less in thickness.

- d) Rolling with self-propelled pneumatic-tired rollers, following up as close behind the seal rolling as the mix will permit. The roller shall cover every portion of the surface with at least five passes.
- e) Final rolling with the 8 to 12-ton tandem steel roller, to be done after the seal rolling and pneumatic-tired rolling have been completed, but before the internal pavement temperature has dropped below 175E F.
- f) Once the Contractor has selected the equipment and established the rolling procedures to achieve required density, then the Contractor must continue to use the same equipment and rolling procedure for the entire project. The Engineer must be notified prior to changing the rolling process.
- g) Compaction at Crossovers, Intersections, etc: when a separate paving machine is being used to pave the crossovers, one 8- to 10-ton tandem steel roller may do the compaction of the crossovers. If crossovers and intersections are placed with the main run of paving, a traffic roller shall also be used in the compaction of these areas.

2. Rolling Procedures:

- a) The initial rolling shall be longitudinal. Where the lane being placed is adjacent to a previously placed lane, the center joint shall be pinched or rolled, prior to the rolling of the rest of the lane.
- b) Rolling shall proceed across the mat, overlapping the adjacent pass by at least six inches. The motion of the roller shall be slow enough to avoid displacement of the mixture, and any displacement shall be corrected at once by the use of rakes, and the addition of fresh mixture is required. Final rolling shall be continued until all roller marks are eliminated.

3. Speed of Rolling:

- a) Rolling with the self-propelled, pneumatic-tired rollers shall proceed at a speed of 6 to 10 miles per hour, and the area covered by each roller shall not be more than 3,000 square yards per hour.

4. Number of Pneumatic-tired Rollers Required:

- a) A sufficient number of self-propelled pneumatic-tired rollers shall be used to assure that the rolling of the surface for the required number of passes will not delay any other phase of the laying operation nor result in excessive cooling of the mixture before the rolling is complete.

- b) In the event that the rolling falls behind, the laying operation shall be discontinued until the rolling operations are sufficiently caught up.

5. Compaction of Areas Inaccessible to Roller:

- a) Areas which are inaccessible to a roller (such as areas adjacent to curbs, headers, gutters, bridges, manholes, etc.) shall be compacted by the use of hand tamps or other satisfactory means.

6. Correcting Defects:

- a) The rollers shall not be allowed to deposit gasoline, oil or grease onto the pavement, and any areas damaged by such deposits shall be removed and replaced as directed by the Engineer.
- b) While rolling is in progress, the surface shall be tested continuously and all discrepancies corrected to comply with the surface requirements.
- c) All drippings, fat or lean areas and defective construction of any description shall be removed and replaced.
- d) Depressions that develop before the completion of the rolling shall be remedied by loosening the mixture and adding new mixture to bring the depressions to a true surface.
- e) Should any depression remain after the final compaction has been obtained, the full depth of the mixture shall be removed and replaced with sufficient new mixture to form a true and even surface.
- f) All high spots, high joints and honeycomb shall be corrected as directed by the Engineer.
- g) Any mixture remaining unbonded after rolling shall be removed and replaced.
- h) Any mixture that becomes loose or broken, mixed or coated with dirt or in any way defective, prior to laying the wearing course shall be removed and replaced with fresh mixture that shall be immediately compacted to conform with the surrounding area.

3.20 JOINTS:

A. Transverse Joints:

1. Placing of the mixture shall be as continuous as possible and the roller shall not pass over the unprotected end of the freshly laid mixture except when the laying operation is to be discontinued long enough to permit the mixture to become chilled.
2. When the laying operation is thus interrupted, a transverse joint shall be constructed by cutting back on the previous run to expose the full depth of the mat.

B. Longitudinal Joints:

1. For all layers of pavement except the leveling course, placing of each layer shall be accomplished to cause longitudinal construction joints to be offset 6 to 12 inches laterally between successive layers.
2. The Engineer may waive this requirement where offsetting is not feasible due to the sequence of construction.

3.21 SURFACE REQUIREMENTS:

A. Contractor Responsibility:

1. The Contractor shall be responsible for obtaining a smooth surface on all pavement courses placed and therefore should straightedge all intermediate and final courses with a 15-foot rolling straightedge.
2. A 15-foot manual straightedge shall be furnished by the Contractor and shall be available at the job site at all times during the paving operation for checking joints and surface irregularities.

B. Texture of the Finished Surface of Paving Layers:

1. The finished surface shall be of uniform texture and compaction.
2. The surface shall have no pulled, torn, or loosened portions and shall be free of segregation, sand streaks, sand spots, or ripples.
3. Any area of the surface that does not meet the foregoing requirements shall be corrected.
4. Unless written permission is obtained, asphalt concrete mixtures containing aggregates which will cause a different color appearance shall not be used in the final wearing surface in sections less than one mile in length.

END OF SECTION

SECTION 02512 STABILIZING

DESCRIPTION:

The work specified in this Section consists of the stabilizing of designated portions of the roadbed to provide a firm and unyielding subgrade, having the required bearing value specified in the plans. When so called for in the plans this work shall also include the additional strengthening of the subbase, by additional stabilizing of the upper portion of the previously stabilized subgrade, within the limits called for. The work shall be constructed in accordance with these specifications and the lines, grades, thicknesses, and notes shown in the plans.

STABILIZED SUBGRADE:

For stabilized subgrade the type of materials, Commercial or Local, is at the Contractor's option. The stabilizing is designated as Type B, compliance with the bearing value requirements will be determined by the Limerock Bearing Ratio Method.

It is the Contractor's responsibility that the finished roadbed section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added. Also, full payment will be made for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing materials from other sources, within the limits of the stabilizing.

After the roadbed grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material, of the type selected by him, necessary for compliance with the bearing value requirements. The Contractor shall notify the Engineer of the approximate quantity to be added, and the spreading and mixing-in of such quantity of materials shall meet the approval of the Engineer as to uniformity and effectiveness.

MATERIALS:

1. **Commercial and Local Materials:** The particular type of stabilizing material to be used shall meet the requirements of Section 914 of FDOT Standard Specifications for Road and Bridge Construction.
2. **Use of Materials from Existing Base:** When the utilization of materials from an existing base is called for, (as all, or a portion, of the stabilizing additives) the Engineer will direct the locations, placing and distribution of such materials, and this work shall be done prior to the spreading of any additional commercial or local materials. Removal of any section of existing base will not be required until the need for it in maintaining traffic is fulfilled. No materials from an existing base will be eligible for payment as Commercial Materials.

The utilization of materials from an existing base may be called for in combination with either of the designated types of stabilizing.

CONSTRUCTION METHOD:

1. **General:** Prior to the beginning of stabilizing operations, the area to be stabilized shall have been constructed to an elevation such that upon completion of stabilizing operations the completed stabilized subgrade will conform to the lines, grades and cross section shown in the plans. Prior to the spreading of any additive stabilizing material, the surface of the roadbed shall be brought to a plane approximately parallel to the plane of the proposed finished surface.

The subgrade to be stabilized may be processed in one course, unless the equipment and methods being used do not provide the required uniformity, particle size limitation, compaction and other desired results, in which case, the Engineer will direct that the processing be done in more than one course.

2. **Application of Stabilizing Material:** When additive stabilizing materials are required, the designated quantity shall be spread uniformly over the area to be stabilized.

When materials from an existing base are to be utilized in the stabilizing at a particular location, all of such materials shall be placed and spread prior to the addition of other stabilizing additives.

Commercial stabilizing material shall be spread by the use of mechanical material spreaders except that where use of such equipment is not practicable other means of spreading may be used, but only upon written approval of the proposed alternate method.

3. **Mixing:** The mixing shall be done with rotary tillers, or other equipment meeting the approval of the Engineer. At the Contractor's election, the mixing of the materials may be accomplished in a plant of an approved type suitable for this work. The area to be stabilized shall be thoroughly mixed throughout the entire depth and width of the stabilizing limits.

The mixing operations, as specified, (either in place or in a plant) will be required regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may direct that the mixing operations (and the work of stabilizing) be waived and no payment for stabilization will be made for such sections of the roadway.

4. **Maximum Particle Size of Mixed Materials:** At the completion of mixing, all particles of material within the limits of the area to be stabilized shall pass a 3 ½ inch ring. Any

particles not meeting this requirement shall be removed from the stabilized area or shall be broken down so as to meet this requirement.

5. **Compaction:** Except where a stabilized subbase is also to be constructed after the mixing operations have been completed and requirements for bearing value, uniformity and particle size have been satisfied, the stabilized are shall be compacted, in accordance with Density Requirements of this section. The materials shall be compacted at a moisture content permitting the specified compaction. If the moisture content of the material is improper for attaining the specified density, either water shall be added or the material shall be permitted to dry until the proper moisture content for the specified compaction is reached.
6. **Finish Grading:** The completed stabilized subgrade shall be shaped to conform with the finished lines, grades and cross section indicated in the plans. The subgrade shall be checked by the use of elevation stakes, or other means approved by the Engineer.
7. **Requirements for Condition of Completed Subgrade:** After the stabilizing and compacting operations have been completed the subgrade shall be firm and substantially unyielding, to the extent that it will support construction equipment and will have the bearing value required by the plans.

All soft and yielding material, and any other portions of the subgrade which will not compact readily, shall be removed and replaced with suitable material and the whole subgrade brought to line and grade, with proper allowance for subsequent compaction.

8. **Maintenance of Completed Subgrade:** After the subgrade has been completed as specified above, the Contractor shall maintain it free from ruts, depressions and any damage resulting from the hauling or handling of materials, equipment, tools, etc. It shall be the Contractor's responsibility to maintain the required density until the subsequent base or pavement is in place. Such responsibility shall include nay repairs, replacement, etc., of curb and gutter, sidewalk, etc., which might become necessary in order to recompact the subgrade in the event of underwash or other damage occurring to the previously compacted subgrade. Any such work required for recompaction shall be at the Contractor's expense. Ditches and drains shall be constructed and maintained along the completed subgrade section.

BEARING VALUE REQUIREMENTS:

1. **General:** Bearing value samples will be obtained and tested at completion of satisfactory mixing of the stabilized area. For any area where the bearing value obtained is deficient from the value indicated in the plans, in excess of the tolerances established herein, additional stabilizing material shall be spread and mixed. This reprocessing shall be done for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet beyond the limits of the area in which the bearing value is deficient.

The Contractor shall make his own determination of the quantity of additional stabilizing material to be used in reprocessing.

2. **Tolerances in Bearing Value Requirements:** The following undertolerances from the specified bearing value, will be allowed as based on tests performed on samples obtained after mixing operations have been completed:

<i>Specified Bearing Value</i>	<i>Undertolerance</i>
LBR 40	5.0
LBR 35	4.0
LBR 30 (and under)	2.5
All Florida Bearing Values	5.0

DENSITY REQUIREMENTS:

1. **General:** Within the entire limits of the width and depth of the areas to be stabilized, the minimum density acceptable at any location will be 98 percent of the maximum density as determined by AASHTO T 180.

END OF SECTION 02512

**SECTION 02516
LIMEROCK BASE COURSE**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of contract apply to the work of this section.

1.02 DESCRIPTION OF WORK:

- A. This item shall consist of a base course composed of limerock constructed on a subgrade prepared in accordance with the specifications and in conformity with the line, grades and typical cross-section as shown on the drawings.
- B. The construction methods shall conform to the requirements of Section 200 of the Department of Transportation (DOT) Standards Specifications.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. All material shall be secured from sources approved by the ENGINEER, and shall be furnished by the CONTRACTOR.
- B. Limerock material shall conform to Section 911 of the Standard Specifications.

2.02 EQUIPMENT:

- A. The rock shall be spread by mechanical rock spreaders, equipped with a device which strikes off the rock uniformly to laying thickness, and capable of producing an even distribution of the rock.
- B. For crossovers, intersections and ramp areas; for roadway widths of 20 feet or less; for the main roadway area when forms are used and for any other areas where the use of a mechanical spreader is not practicable; spreading may be done by bulldozers or blade graders.

PART 3 - EXECUTION

3.01 TRANSPORTING LIMEROCK:

- A. The limerock shall be transported to the point where it is to be used, over rock previously placed if practicable, and dumped on the end of the preceding spread.

- B. Hauling over the subgrade and dumping on the subgrade will be permitted when, in the ENGINEER's opinion, these operations will not be detrimental to the base.

3.02 SPREADING LIMEROCK:

A. Method of Spreading:

1. The limerock shall be spread uniformly.
2. All segregated areas of fine or coarse rock shall be removed and replaced with properly graded rock.

B. Number of Courses:

1. When the specified compacted thickness of the base is greater than six inches, the base shall be constructed in two courses.
2. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subgrade.

3.03 COMPACTING AND FINISHING BASE:

A. General:

1. Single-Course Base:

- a) For single-course base, after the spreading is completed the entire surface shall be scarified and then shaped so as to produce the required grade and cross section after compaction.

2. Double-Course Base:

- a) For double-course base, the first course shall be cleaned of foreign material and bladed and brought to a surface cross section approximately parallel to that of the finished base.
- b) Prior to the spreading of any material for the upper course, the density tests for the lower course shall be made and shall be determined, by the engineer, that the required compaction has been obtained.
- c) After the spreading of the material for the second course is completed, its surface shall be finished and shaped so as to produce the required grade and cross section after compaction, and be free of scabs and laminations.

3. Moisture Content:
 - a) When the material does not have the proper moisture content to insure the required density, wetting or drying will be required.
 - b) When water is added, it shall be uniformly mixed-in by disking to the full depth of the course which is being compacted.
 - c) Wetting or drying operations shall involve manipulation, as a unit, of the entire width and depth of the course that is being compacted.
4. Density Requirements:
 - a) As soon as proper conditions of moisture are attained, the material shall be compacted to a density of not less than 98 percent of maximum density as determined by AASHTO T-180.
 - b) The minimum density which will be acceptable at any location outside the traveled roadway (such as intersections, crossovers, turnouts, etc.) shall be 95 percent of such maximum.

3.04 TESTING SURFACE, PROTECTION, AND MAINTENANCE:

A. Density Tests:

1. Density Testing shall be performed at a rate of 1 test per 100 Lineal Feet per lift.
2. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such areas shall be completed prior to making the density tests on the finished base.

B. Correction of Defects/Contamination of Base Material:

1. If, at any time, the subgrade material should become mixed with the base course materials, the CONTRACTOR shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace materials removed with clean base material, which shall be shaped and compacted as specified above.

C. Cracks and Checks:

1. If cracks or checks appear in the base, either before or after priming, which, in the opinion of the ENGINEER, would impair the structural efficiency of the base, the CONTRACTOR shall remove the cracks or checks by

rescarifying, reshaping, adding base material where necessary, and recompacting.

D. Compaction of Widening Strips:

1. Where base construction consists of widening strips and the trench width is not sufficient to permit use of standard base compaction equipment, compaction shall be accomplished by use of vibratory compactors, trench rollers or other special equipment which will achieve the density requirements specified herein.
2. When multiple-course base construction is required by the plans or specifications, the required compaction shall be achieved in each course prior to spreading material for the overlaying course.

E. Testing Surface:

1. The finished surface of the base course shall be checked with a template cut to the required crown and with a 15-foot straightedge laid parallel to the centerline of the road.
2. Scarifying and removing or adding base material as required, after which the entire area shall be recompacted as specified hereinbefore, shall correct all irregularities greater than 1/4 inch.
3. In the testing of the surface, the measurements will not be taken in small holes caused by individual pieces of rock having been pulled out by the grader.

3.05 PRIMING AND MAINTAINING:

A. Priming:

1. The prime coat shall be applied only when the base meets the specified density requirements and the moisture content in the top half of the base does not exceed 90 percent of the optimum moisture of the base material.
2. At the time of priming, the base shall be firm, unyielding and in such condition that no undue distortion will occur.

B. Maintaining:

1. The CONTRACTOR will be responsible for assuring that the true crown and template are maintained, with no rutting or other distortion, and that the base meets all the requirements, at the time the surface course is applied.

3.06 THICKNESS REQUIREMENTS:

A. Measurements:

1. Thickness of the base shall be measured at intervals of not more than 200 feet.
2. Measurements shall be taken at various points on the cross section, through holes not less than three inches in diameter.

B. Areas Requiring Correction:

1. Where the compacted base is deficient by more than 1/2 inch from the thickness called for in the plans, the CONTRACTOR shall correct such areas by scarifying and adding rock.
2. The base shall be scarified and rock added for a distance of 100 feet in each direction from the edge of the deficient area.
3. The affected areas shall then be brought to the required state of compaction and to the required thickness and cross section.

END OF SECTION

**SECTION 02520
ASPHALT TESTING**

Test results for testing asphalt densities, thickness and mix design shall be as specified by the Florida Department of Transportation Handbook for Road and Bridge Construction (latest edition).

PART 1 - GENERAL

1.01 TESTING AND ACCEPTANCE:

- A. All roads over 1,000 feet will require coring for in-place density and asphalt thickness.
- B. The cores will be cut at 1,000-foot intervals.
- C. All expenses for these tests are to be paid by the CONTRACTOR.
- D. All test results are to be turned in to ENGINEER before final 25% payment for road will be made.
- E. Payment will be based on the following table, with target density being 96% of mix design lab density.

PAYMENT SCHEDULE FOR DENSITY CORES (Based on Average Density for Each Road)	
PERCENT OF TARGET DENSITY	PERCENT OF PAY
98.0 and above	100
97.0 to less than 98.0	95
96.0 to less than 97.0	90
Less than 96.0*	75

- F. If ENGINEER deems asphalt is acceptable to remain in place, otherwise ENGINEER may require removal and replacement of asphalt.

1.02 THICKNESS:

A. Allowable Deficiencies:

1. The thickness shall be determined from the length of the core borings.
2. The maximum allowable deficiency from the specified thickness shall be ¼ inch.

B. Pavement Exceeding Allowable Deficiency in Thickness:

1. When Deficiency is Seriously in Excess:

- a. Where the deficiency in thickness is in excess of _ inch, for pavement of less than 2½ inches in specified thickness the CONTRACTOR shall correct the deficiency either by replacing the full thickness for a length extending at least 50 feet from each end of the deficient area, or (when permitted by the ENGINEER) by overlaying as directed by the ENGINEER.
- b. The CONTRACTOR will receive no compensation for any pavement removed, or for the work of removing such pavement.

2. When Deficiency is Not Seriously in Excess:

- a. When the deficiency in the thickness of the pavement is over ¼ inch but not more than _ inch, for pavement of specified thickness less than 2½ inches the CONTRACTOR will be allowed to leave such pavement in place, but without compensation.
- b. The areas of such pavement for which no square yard payment will be made shall be the product of the total distance between acceptable cores, multiplied by the width of the lane which was laid at the particular pass in which deficient thickness was indicated.
- c. All costs of the overlaying and compacting shall be borne by the CONTRACTOR.

3. Correcting Deficiency by Adding New Surface Material:

- a. For any case of excess deficiency of the pavement, the CONTRACTOR will be permitted, if approved by the ENGINEER for each particular location, to correct the deficient thickness by adding new surface material and compacting to the same density as the adjacent surface.

- b. The area to be corrected and the thickness of new material added shall be as specified by ENGINEER.
- c. All costs of the overlaying and compacting shall be borne by the CONTRACTOR.

1.03 MIX DESIGN:

- A. An FDOT approved mix design will be provided to the ENGINEER or representative prior to beginning construction, and will not change without written consent of the ENGINEER prior to any change.

1.04 TRUCK TICKETS:

- A. The CONTRACTOR will provide truck tickets to the ENGINEER or representative on a regular basis or as requested by the ENGINEER.

1.05 DAILY ASPHALT PLANT TESTING:

- A. A minimum of one extraction, gradation to be done daily, as well as test performed for stability and flow to be done on each day's production of 100 tons or more. The results of these tests are to be provided to the engineer on a weekly basis.

STRICT COMPLIANCE OF THIS SECTION WILL BE ADHERED TO

END OF SECTION

SECTION 02711 THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS

PART 1 Description.

Apply new thermoplastic traffic stripes and markings, or refurbish existing thermoplastic traffic stripes and markings, in accordance with the Contract Documents.

PART 2 Materials.

2.1 Thermoplastic: Use only thermoplastic materials listed on the Department's Approved Product List (APL). The Engineer will take random samples of all material in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

2.1.1 Initial or Recapped Stripes and Markings: Use materials meeting the requirements of 971-1 and 971-5.

2.1.2 Refurbishing Existing Stripes and Markings: Use materials meeting the requirements of 971-1 and 971-5.

2.1.3 Preformed Stripes and Markings: Use Materials meeting the requirements of 971-1 and 971-6.

2.2 Glass Spheres: Use only glass spheres listed on the APL, meeting the requirements of 971-1 and 971-2. The Engineer will take random samples of all glass spheres in accordance with ASTM D1214 and the Department's Sampling, Testing and Reporting Guide schedule.

2.3 Sand: Use materials meeting the requirements of 971-5.4.

PART 3 Equipment.

Use equipment capable of providing continuous uniform heating of striping materials to temperatures exceeding 390°F, mixing and agitation of the material reservoir to provide a homogeneous mixture without segregation. Use equipment that will maintain the striping material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which can produce varying width traffic stripes and which meets the following requirements:

(a) capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of striping material and capable of following straight lines and making normal curves in a true arc.

(b) is capable of applying glass spheres to the surface of the completed stripe by a double drop application for initial traffic striping and marking and a single drop application for recapping and refurbishing. The bead dispenser for the first bead drop shall be attached to the striping machine in such a manner that the beads are dispensed closely behind with the thermoplastic material. The second bead dispenser bead shall be attached to the striping machine in such a manner that the beads are dispensed immediately after the first bead drop application. Glass spheres dispensers shall be equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the glass spheres in a manner such that the spheres appear uniform on the entire traffic stripes and markings surface with, 50 to 60% embedment.

(c) equipped with a special kettle for uniformly heating and melting the striping material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.

(d) meet the requirements of the National Fire Protection Association, state, and local authorities.

PART 4 Application.

4.1 General: Remove existing pavement markings such that scars or traces of removed markings will not conflict with new stripes and markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.

Before applying traffic stripes and markings, remove any material that would adversely affect the bond of the traffic stripes and markings by a method approved by the Engineer.

Before applying traffic stripes to any portland cement concrete surface, apply a primer, sealer or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of portland cement concrete pavement.

Apply traffic stripes or markings only to dry surfaces, and when the ambient air and surface temperature is at least 50°F and rising for asphalt surfaces and 60°F and rising for concrete surfaces.

Apply striping to the same tolerances in dimensions and in alignment specified in 710-5. When applying traffic stripes and markings over existing markings, ensure that no more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

Apply thermoplastic material to the pavement either by spray, extrusion or other means approved by the Engineer.

Conduct field tests in accordance with FM 5-541. Take test readings representative of the striping performance. Remove and replace traffic stripes and markings not meeting the requirements of this Section at no additional cost to the Department.

Wait at least 14 days after constructing the final asphalt surface course to place thermoplastic traffic stripes and markings. Provide temporary pavement markings during the interim period prior to opening the road to traffic.

4.1.1 Preformed Thermoplastic: Apply markings only to dry surfaces and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.

4.2 Thickness:

4.2.1 Initial or Recapped Stripes and Markings: Apply or recap traffic stripes or markings such that all lane lines, center lines, transverse markings and traffic stripes and markings within traffic wearing areas, will have a thickness of 0.10 to 0.15 inch when measured above the pavement

surface.

Also, all gore, island, and diagonal stripe markings, bike lane symbols and messages, wherever located, will have a thickness of 0.09 to 0.12 inch when measured above the pavement surface.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

4.2.2 Refurbishing Existing Traffic Stripes and Markings: Apply a minimum of 0.06 inch of thermoplastic material. Ensure that the combination of the existing stripe and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch for all lines.

Measure, record and certify on Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

4.3 Retroreflectivity: Apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than $450 \text{ mcd/lx}\cdot\text{m}^2$ and not less than $350 \text{ mcd/lx}\cdot\text{m}^2$, respectively for all longitudinal lines. All transverse lines, messages and arrows will attain an initial retroreflectivity of not less than $300 \text{ mcd/lx}\cdot\text{m}^2$ and $250 \text{ mcd/lx}\cdot\text{m}^2$ for white and yellow respectively. All pedestrian crosswalks, bike lane symbols or messages in a proposed bike lane shall attain an initial retroreflectivity of not less than $275 \text{ mcd/lx}\cdot\text{m}^2$.

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

4.4 Glass Spheres:

4.4.1 Longitudinal Lines: For initial traffic striping and marking, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishing, apply a single drop of Type 3 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

4.4.2 Transverse Stripes and Markings: Apply a single drop of Type 1 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all thermoplastic pedestrian crosswalk lines and bike lane symbols at the rates determined by the manufacturer's recommendations.

4.4.3 Preformed Markings: These markings are factory supplied with glass spheres and skid

resistant material. No additional glass spheres or skid resistant material should be applied during installation.

PART 5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the thermoplastic materials. Furnish the Engineer with the manufacturer's name and batch numbers of the thermoplastic materials and glass spheres to be used. Ensure that the approved batch numbers appear on the thermoplastic materials and glass spheres packages.

PART 6 Protection of Newly Applied Traffic Stripes and Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department

PART 7 Observation Period.

Longitudinal pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of reflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of 711-4.3. The Department reserves the right to check the retroreflectivity any time prior to the end of the observation period.

Replace, at no additional expense to the Department, any longitudinal pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

PART 8 Corrections for Deficiencies.

Recapping applies to conditions where additional striping material is applied to new or refurbished traffic stripes or markings to correct a deficiency. Recap a 1.0 mile section centered around the deficiency with additional striping material or by complete removal and reapplication at no additional cost to the Department.

If recapping will result in a thickness exceeding the maximum allowed, the traffic stripes or markings will be removed and reapplied.

PART 9 Submittals.

9.1 Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

(a) Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

(b) The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

PART 10 Method of Measurement.

The quantities to be paid for under this Section will be as follows:

(a) The length, in net miles, of 6 inch solid traffic stripe, authorized and acceptably applied.

(b) The total traversed distance in gross miles of 10-30 or 3-9 skip line. The actual applied line is 25% of the traverse distance, for a 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.

(c) The net length, in feet, of all other types of lines and stripes, authorized and acceptably applied.

(d) The area, in square feet, of removal of existing pavement markings, acceptably removed.

(e) The number of pavement messages, symbols and directional arrows, authorized and acceptably applied.

PART 11 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

- Item No. 02711- Thermoplastic
- Traffic Stripes, Solid - per net mile.
- Traffic Stripes, Solid - per foot.
- Traffic Stripes, Skip - per gross mile.
- Dotted/Guideline - per foot.
- Messages - each.
- Arrows - each.
- Yield Markings - per foot.
- Thermoplastic, Remove - per square foot.

END OF SECTION

**SECTION 03310
CONCRETE WORK**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions, apply to work of this section.

1.02 DESCRIPTION OF WORK

- A. Extent of concrete work is shown on Drawings.

1.03 SUBMITTALS

- A. Product Data:

- 1. Submit data proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by ENGINEER.

- B. Shop Drawings, Reinforcement:

- 1. Submit original shop drawings for fabrication, bending, and placement of concrete reinforcement.
- 2. Comply with American Concrete Institute (ACI) 315 “Manual of Standard Practice for Detailing Reinforced Concrete Structures” showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement.
- 3. Include special reinforcement required for openings through concrete structures.

- C. The ENGINEER’s review is for general engineering applications and features only. Design of formwork for structural stability and efficiency is the CONTRACTOR’s responsibility.

- D. Laboratory Test Reports:

- 1. Submit laboratory test reports for concrete materials and mix design test.

1.04 QUALITY ASSURANCE

A. Codes and Standards:

1. Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - a) ACI 301 “Specifications for Structural Concrete for Buildings.”
 - b) ACI 318 “Building Code Requirements for Reinforced Concrete.”
 - c) Concrete Reinforcing Steel Institute (CRSI) “Manual of Standard Practice.”

B. Concrete Testing Services:

1. A testing laboratory shall be engaged that is acceptable to the ENGINEER to perform material evaluation tests and to design concrete mixes.
2. Materials and installed work may require testing and retesting at anytime during progress of work.
3. Tests, including retesting of rejected materials for installed work, shall be done at the CONTRACTOR’s expense.

1.05 PROJECT CONDITIONS

A. Protect Footings Against Freezing:

1. Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against the possibility of freezing.
2. Maintain cover for time period as necessary.

B. Protect adjacent finish materials against spatter during concrete placement.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

A. Forms for Exposed Finish Concrete:

1. Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces.
2. Furnish in largest practicable sizes to minimize number of joints.

- B. Use plywood complying with U. S. Product Standard PS-1 “B-B (Concrete Form) Plywood,” Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- C. Forms for Unexposed Finish Concrete:
 - 1. Plywood, lumber, metal, or other acceptable material.
 - 2. Provide lumber dressed on at least two edges and one side for tight fit.
- D. Form Coatings:
 - 1. Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- E. Form Ties:
 - 1. Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal.
 - 2. Provide units which will leave no metal closer than 1 ½ inches to surface.
 - 3. Provide ties which, when removed, will leave holes not larger than 1 inch in diameter in concrete surface.

2.02 REINFORCING MATERIALS

- A. Reinforcing Bars:
 - 1. American Society of Testing and Materials (ASTM) A 615
 - 2. Grade 60.
 - 3. Deformed.
- B. Steel Wire:
 - 1. ASTM A 82
 - 2. Plain.
 - 3. Cold-drawn steel.

- C. Welded Wire Fabric:
 - 1. ASTM A 185.
 - 2. Welded steel wire fabric.
- D. Welded Deformed Steel Wire Fabric:
 - 1. ASTM A 497.
- E. Supports for Reinforcement:
 - 1. Use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place.
 - 2. Use wire bar type supports complying with CRSI specifications.
- F. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.03 CONCRETE MATERIALS

- A. Portland Concrete:
 - 1. ASTM C 150, Type I.
 - 2. Use one brand of cement throughout project, unless otherwise acceptable to the ENGINEER.
- B. Normal Weight Aggregates:
 - 1. ASTM C 33, and as herein specified.
 - 2. Provide aggregates from a single source for exposed concrete.
 - 3. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
- C. Water:
 - 1. Drinkable.

2.04 RELATED MATERIALS

- A. Polyvinyl Chloride (PVC) Waterstops:
 - 1. Corps of Engineers CRD-C 572.

2. Manufacturer: Subject to compliance with requirements, provide products of one of the following or equal:
 - a. AFCO Products.
 - b. The Burke Co.
 - c. Edoco Technical Products.
 - d. Greenstreet Plastic Products.
 - e. Harbour Town Products.
 - f. W. R. Meadows.
 - g. Progress Unlimited.
 - h. Schleigel Corp.
 - i. Vinylex Corp.

B. Granular Base:

1. Use evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.

C. Vapor Retarder:

1. Provide vapor retarder cover over prepared base material where indicated below slabs on grade.
2. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:
 - a. Polyethylene sheet not less than 8 mils thick.
 - b. Non-Shrink Grout: CRD-C 621, factory pre-mixed grout.
3. Products: Subject to compliance with requirements, provide one of the following or equal:
 - a. Metallic:
 - 1) “Vibrofoil,” A. C. Horn, Inc.
 - 2) “Metallic Spec. Grout,” The Burke Co.
 - 3) “Embeco 636,” Master Builders.

- 4) “Ferrolith GDS,” Sonneborn-Rexnord.
- 5) “Hi-Mod Grout,” Euclid Chemical Co.
- 6) “Kemox G,” Sika Chemical Co.
- 7) “Ferrogrout,” L & M Const. Chemical Co.
- 8) “Supreme Plus,” Gifford-Hill/American Admixtures.

b. Non-Metallic:

- 1) “Set Grout,” Master Builders.
- 2) “Sonogrout,” Sonneborn-Rexnord.
- 3) “Euco-NS,” Euclid Chemical Co.
- 4) “Supreme,” Gifford-Hill/American Admixtures.
- 5) “Crystex,” L & M Const. Chemical Co.
- 6) “Sure-Grip Grout,” Dayton Superior Corp.
- 7) “Horngrout,” A. C. Horn, Inc.
- 8) “Five Star Grout,” U. S. Grout Corp.

D. Liquid Membrane-Forming Curing Compound:

1. Liquid type membrane-forming curing compound complying with ASTM C 309, Type I, Class A.
2. Moisture loss not more than 0.055 grams per square centimeter (gr./sq. cm.) when applied at 200 square feet per gallon (sq. ft./gal).
3. Products: Subject to compliance with requirements, provide one of the following or equal:
 - a. “Masterseal,” Master Builders.
 - b. “A-H 3 Way Sealer,” Anti-Hydro Waterproofing Co.
 - c. “Ecocure,” Euclid Chemical Co.
 - d. “Clear Seal,” A. C. Horn, Inc.
 - e. “Sealco 309,” Gifford-Hill/American Admixtures.

- f. “J-20 Acrylic Cure,” Dayton Superior.
- g. “Spartan-Cote,” The Burke Co.
- h. “Sealkure,” Toch Div. – Carboline.
- i. “Kure-N-Seal,” Sonneborn-Rexnord.
- j. “Polyclear,” Upco Chemical/USM Corp.
- k. “L & M Cure,” L & M Construction Chemicals.
- l. “Klearseal,” Setcon Industries.
- m. “LR-152,” Protex Industries.
- n. “Hardtop,” Gifford-Hill.

2.05 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If a trial batch method is used, use an independent testing facility acceptable to the ENGINEER for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- B. Submit written reports to Structural Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by the ENGINEER.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:
 - 1. 4,000 pounds per square inch (psi) 28-day compressive strength; W/C ratio, 0.44 maximum (non-air-entrained).
 - 2. 3,000 psi 28-day compressive strength; W/C ratio, 0.58 maximum (non-air-entrained).
 - 3. 2,500 psi 28-day compressive strength; W/C ratio, 0.67 maximum (non-air-entrained).
- D. Lightweight Concrete:
 - 1. Proportion mix as herein specified.

2. Design mix to produce strength and modulus of elasticity as noted on Drawings, with a split-cylinder strength factor (Fct) of not less than 5.5 for 3,000 psi concrete and a dry weight of not less than 95 pounds (lbs) or more than 110 lbs. after 28 days.
 3. Limit shrinkage to 0.03 percent at 28 days.
- E. Adjustment to Concrete Mixes:
1. Mix design adjustments may be requested by the CONTRACTOR when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to the OWNER and as accepted by the ENGINEER.
 2. Submit laboratory test data for revised mix design and strength results to the ENGINEER for acceptance before using in work.
- F. Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at Manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus-or-minus 1½ percent within the following limits:
- G. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
1. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
 2. Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.
 3. Concrete containing HRWR admixture (super-plasticizer): Not more than 8 inches after addition of HRWR to site-verified 2 to 3 inches slump concrete.
 4. Other concrete: Not less than 1 inch and not more than 4 inches.

2.06 CONCRETE MIXING

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
- B. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

PART 3 - EXECUTION

3.01 GENERAL

- A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.02 FORM

- A. Design, erect, support, brace, and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure.
- B. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position.
- C. Maintain formwork construction tolerances complying with ACI 347.
- D. Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.
- E. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, location, grades, level, and plumb work in finished structures.
- F. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required for this Work.
- G. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- H. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
- I. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
- J. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only.
- K. Provide Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- L. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete.
 - 1. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar.

2. Locate temporary openings on forms at inconspicuous locations.
- M. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- N. Provisions for Other Trades:
1. Provide openings in concrete formwork to accommodate work of other trades.
 2. Determine size and location of openings, recesses, and chases from trades providing such items.
 3. Accurately place and securely support items built into forms.
 4. Other trades shall provide location and size of openings. The forms for such openings shall be constructed and set in place under this section.
- O. Cleaning and Tightening:
1. Thoroughly clean forms and adjacent surfaces to receive concrete.
 2. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed.
 3. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

3.03 VAPOR RETARDER INSTALLATION

- A. Place vapor retarder sheeting with longest dimension parallel with direction of pour following the completion of leveling and tamping of granular base for slabs on grade.
- B. Lap joints 6 inches and seal with appropriate tape.

3.04 PLACING REINFORCEMENT

- A. Comply with CRSI's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and as herein specified.
- B. Avoid cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
- C. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

- D. Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations.
- E. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- F. Place reinforcement to obtain at least minimum coverages for concrete protection.
 - 1. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations.
 - 2. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- G. Install welded wire fabric in as long lengths as practicable.
 - 1. Lap adjoining pieces at least one full mesh and lace splices with wire.
 - 2. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.05 JOINTS

- A. Construction Joints:
 - 1. Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to the ENGINEER.
 - 2. Place construction joints perpendicular to main reinforcement.
 - 3. Continue reinforcement across construction joints, except as otherwise indicated.
- B. Waterstops:
 - 1. Provide waterstops in construction joints as indicated.
 - 2. Install waterstops to form continuous diaphragm in each joint.
 - 3. Make provisions to support and protect exposed waterstops during progress of work.
 - 4. Fabricate field joints in waterstops in accordance with Manufacturer's printed instructions.

C. Isolation Joints in Slabs-on-Ground:

1. Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

3.06 INSTALLATION OF EMBEDDED ITEMS

A. General:

1. Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete.
2. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.

3.07 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required returning forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound Manufacturer's directions.
- D. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed.
- E. Apply in compliance with Manufacturer's instructions.

3.08 CONCRETE PLACEMENT

A. Pre-Placement Inspection:

1. Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in.
2. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.
3. Moisten wood forms immediately before placing concrete where form coatings are not used.

4. Apply temporary protective covering to lower 2 feet of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

B. General:

1. Comply with ACI 304 “Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete,” and as herein specified.
2. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has sufficiently hardened to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
3. Placing Concrete in Forms:
 - a Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints.
 - b Where placement consists of several layers, place each layer while the preceding layer is still plastic to avoid cold joints.
 - c Consolidation of Concrete:
 - 1) Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping.
 - 2) Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
 - 3) Do not use vibrators to transport concrete inside forms.
 - 4) Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine.
 - 5) Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer.
 - 6) Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

4. Placing Concrete Slabs:
 - a Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
 - b Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - c Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface; free of humps or hollows.
 - d Do not disturb slab surfaces prior to commencement of finishing operations.
 - e Maintain reinforcing in proper position during concrete placement operations.
5. Cold Weather Placing:
 - a Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
 - b When air temperature has fallen to or is expected to fall below 40 degrees Fahrenheit (F)/4 degrees Celcius (C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C), and not more than 80 Degrees F (27 degrees C) at point of placement.
 - c Do not use frozen materials or materials containing ice or snow.
 - d Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - e Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
6. Hot Weather Placing:
 - a When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

- b Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F (32 degrees C).
- c Mixing water may be chilled or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water.
- d Use of liquid nitrogen to cool concrete is the CONTRACTOR's option.
- e Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the temperature of the steel does not exceed the ambient air temperature immediately before embedment in concrete.
- f Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
- g Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.09 FINISH OF FORMED SURFACES

A. Rough Form Finish:

1. For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated.
2. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.

B. Smooth Form Finish:

1. For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material directly applied to the concrete, or a covering material directly applied to the concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system.
2. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams.
3. Repair and patch defective areas with fins or other projections completely removed and smoothed.

C. Grout Cleaned Finish:

1. Provide grout cleaned finish to scheduled concrete surfaces which have received smooth form finish treatment.
2. Combine one part Portland cement to 1½ parts fine sand by volume, and mix with water to consistency of thick paint.
3. Use proprietary additives at the CONTRACTOR's option.
4. Blend standard Portland cement and white Portland cement (amounts determined by trial patches) so that final color of dry grout will match adjacent surfaces.
5. Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes.
6. Remove excess grout by scraping and rubbing with clean burlap.
7. Keep damp by fog spray for at least 36 hours after rubbing.

D. Related Unformed Surfaces:

1. Strike-off smooth tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces and finish with a texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

A. ASTM E 1155, "Standard Test Method for Determining Floor Flatness and Levelness Using the "F Number System (inch-pound-units)," shall be used for these finishes as follows:

1. Scratch Finish:

- a. Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, Portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.
- b. After placing slabs, plane surface to tolerances for floor flatness (FF) of 15 and floor levelness (FL) of 13.

- c. Slope surfaces uniformly to drain where required.
 - d. After leveling, roughen surface before final set, with stiff brushes, brooms, or rakes.
2. Float Finish:
- a. Apply float finish to monolithic slab surface to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.
 - b. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating.
 - c. Begin floating when surface water has disappeared or when concrete has sufficiently stiffened to permit operation of power-driven floats, or both.
 - d. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units.
 - e. Check and level surface plane to tolerances of FF 18 - FL 15.
 - f. Cut down high spots and fill low spots.
 - g. Uniformly slope surfaces to drains.
 - h. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
3. Trowel Finish:
- a. Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
 - b. After floating, begin first trowel finish operation using a power-driven trowel.
 - c. Begin final troweling when surface produces a ringing sound as trowel is moved over surface.
 - d. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of FF 20 - FL 17.

- e. Grind smooth surface defects which would telegraph through applied floor covering system.
- 4. Trowel and Fine Broom Finish:
 - a. Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.
- 5. Non-Slip Broom Finish:
 - a. Apply non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - b. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route.
 - c. Coordinate required final finish with the ENGINEER before application.

3.11 CONCRETE CURING AND PROTECTION

A. General:

- 1. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- 2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.
- 3. Continuously keep concrete moist for not less than 7 days, weather permitting.
- 4. Begin final curing procedures immediately following initial curing and before concrete has dried.
- 5. Continue final curing for at least 7 days in accordance with ACI 301 procedures.
- 6. Avoid rapid drying at end of final curing period.

B. Curing Methods:

- 1. Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

2. Provide moisture curing by the following methods:
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Continuous water-fog spray.
 - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and continuously keeping wet.
 - d. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.
3. Provide moisture-cover curing as follows:
 - a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive.
 - b. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
4. Provide curing slabs and sealing compounds to exposed interior slabs and to exterior slabs, walks, and curbs, as follows:
 - a. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours).
 - b. Uniformly apply in continuous operation by power-spray or roller in accordance with Manufacturer's directions.
 - c. Recoat areas subjected to heavy rainfall within 3 hours after initial application.
 - d. Maintain continuity of coating and repair damage during curing period.
5. Do not use membrane curing compounds on surfaces that are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring (such as ceramic or quarry tile and glue-down carpet), painting, and other coatings and finish materials, unless otherwise acceptable to the ENGINEER.
6. Curing Formed Surfaces:

- a. Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed.

- b. If forms are removed, continue curing by methods specified above, as applicable.

7. Curing Unformed Surfaces:

- a. Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.
- b. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

8. Sealer and Dustproofers:

- a. Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

3.12 SHORES AND SUPPORTS

- A. Remove shoring from ground to roof for structures four stories or less, unless otherwise permitted.
- B. Remove shores and re-shore in a planned sequence to avoid damage to partially cured concrete.
- C. Locate and provide adequate re-shoring to safely support work without excessive stress or deflection.
- D. Keep shores in place a minimum of 15 days after placing upper tier, and longer if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

3.13 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at no less than 50 degrees F (10 degrees C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.14 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces.
- B. Apply new form coating compound as specified for new formwork.
- C. Thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints when forms are extended for successive concrete placement.
- D. Align and secure joint to avoid offsets. Do not use “patched” forms for exposed concrete surfaces, except as acceptable to the ENGINEER.

3.15 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In:
 - 1. Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place.
 - 2. Mix, place, and cure concrete as herein specified, to blend with in-place construction.
 - 3. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs:
 - 1. Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
 - 1. Provide machine and equipment bases and foundations, as shown on Drawings.
 - 2. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of Manufacturer furnishing machines and equipment.
 - 3. Grout base plates and foundations as indicated, using specified non-shrink grout.
 - 4. Use non-metallic grout for exposed conditions, unless otherwise indicated.

D. Reinforced Masonry:

1. Provide concrete grout for reinforced masonry lintels and bond beams where indicated on Drawings and as scheduled, including filling of concrete modular unit cavities where called for on plans.
2. Maintain accurate location of reinforcing steel during concrete placement.

3.16 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas:

1. Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to the ENGINEER.
2. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1 inch.
3. Make edges of cuts perpendicular to the concrete surface.
4. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent.
5. Place patching mortar after bonding compound has dried.

B. Repair of Formed Surfaces:

1. Remove and replace concrete having defective surfaces if defects cannot be repaired to the satisfaction of the ENGINEER. Surface defects, as such, include:
 - a. Color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets.
 - b. Fins and other projections on surface.
 - c. Stains and other discolorations that cannot be removed by cleaning.
2. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.
3. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

- C. Repair of Unformed Surfaces:
1. Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish.
 2. Correct low and high areas as herein specified.
 3. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
- D. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing cracks in excess of 0.01 inch wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.
1. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
 2. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete.
 3. Finish repaired areas to blend into adjacent concrete.
 4. Proprietary patching compounds may be used when acceptable to the ENGINEER.
- E. Repair Defective Areas:
1. Cut out and replace with fresh concrete except random cracks and single holes not exceeding 1 inch in diameter.
 2. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least ¾-inch clearance all around.
 3. Dampen concrete surfaces in contact with patching concrete and apply bonding compound.
 4. Mix patching concrete of same materials to provide concrete of same type or class as original concrete.
 5. Place, compact, and finish to blend with adjacent finished concrete.
 6. Cure in same manner as adjacent concrete.

- F. Perform structural repairs with prior approval of Structural Engineer for method and procedure, using specified epoxy adhesive and mortar.
- G. Use repair methods not specified above, subject to acceptance of the ENGINEER.

3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The OWNER may employ a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by the ENGINEER.
 - 1. Sampling Fresh Concrete:
 - a. ASTM C 172, except modified for slump to comply with ASTM C 94.
 - 2. Slump:
 - a. ASTM C 143, one test at point of discharge for each day's pour of each type of concrete and additional tests when concrete consistency seems to have changed.
 - 3. Concrete Temperature:
 - a. Test hourly when air temperature is 40 degrees F (4 degrees C) and below, and when 80 degrees F (27 degrees C) and above, and each time a set of compression test specimens are made.
 - 4. Compression Test Specimen:
 - a. ASTM C 31, one set of four standard cylinders for each compressive strength test, unless otherwise directed.
 - b. Cylinders for laboratory cured test specimens shall be molded and stored except when field-cure test specimens are required.
 - 5. Compressive Strength Tests:
 - a. ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for each 50 cubic yards over and above the first 25 cubic yards of each concrete class placed in any 1 day:
 - 1) One specimen tested at 7 days.
 - 2) Two specimens tested at 28 days.
 - 3) One specimen retained in reserve for later testing if required.

- b. When frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
- C. Test results will be reported in writing to Structural Engineer and the CONTRACTOR within 24 hours after tests.
- D. Reports of compressive strength tests shall contain:
 - 1. The project identification name and number.
 - 2. Date of concrete placement.
 - 3. Name of concrete testing service.
 - 4. Concrete type and class.
 - 5. Location of concrete batch in structure.
 - 6. Design compressive strength at 28 days.
 - 7. Concrete mix proportions and materials.
 - 8. Compressive breaking strength.
 - 9. Type of break for both 7- and 28-day tests.
- E. Nondestructive Testing:
 - 1. Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests:
 - 1. The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the ENGINEER.
 - 2. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.
 - 3. The CONTRACTOR shall pay for such tests when unacceptable concrete is verified.

END OF SECTION

APPENDIX A

GEOTECHNICAL ENGINEERING REPORT

Prepared by



Issued and Published Jointly by





MAGNUM ENGINEERING INC
GEOTECHNICAL ENGINEERING CONSULTANTS

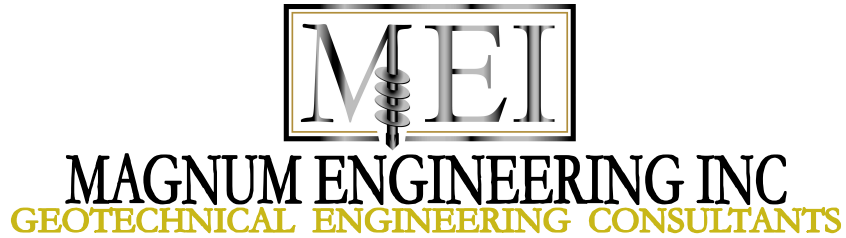
GEOTECHNICAL ENGINEERING REPORT

20th STREET REALIGNMENT
PANAMA CITY, FLORIDA

PREPARED FOR:

DEWBERRY | PREBLE-RISH, INC.
203 ABERDEEN PARKWAY
PANAMA CITY, FLORIDA 32405

1026 PIERSON DRIVE
LYNN HAVEN, FLORIDA 32444
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July 9, 2017

Mr. John Whittington, E.I.
Dewberry | Preble-Rish, Inc.
203 Aberdeen Parkway
Panama City, Florida 32405

SUBJECT: 20th Street Realignment – Geotechnical Services
Panama City, Florida
Project Number: M117-100-212

Dear Mr. Whittington:

This letter forwards the results of our Geotechnical exploration for the proposed development. Our exploration consisted of Three (3) 2 ½ -feet to 4-feet deep hand auger borings in the proposed pavement and stormwater areas. The subsurface exploration was conducted to provide information needed in the design of an effective pavement system and stormwater design for the referenced development. The following report presents the results of our study as well as our evaluation and recommendations pertaining to the geotechnical aspects of the project. Upon completion of our field testing, the samples were brought back to the office for visual inspection, classification, and analysis by our engineering staff.

Project Information

The subject site is located approximately 100 feet west of the existing intersection of State Road 368 (23rd Street) and West 20th Street in Panama City, Florida. At the time of our exploration, the site was undeveloped and clear with the exception of surficial grasses.

If any of the above information is incorrect, please inform Magnum Engineering, Inc. so that we can review and update our recommendations, as needed.

Subsurface Conditions

Figure #1 shows the Boring Location Plan and Figure #2 shows the Logs of Borings for HA-1 through HA-3. The test locations were established in the field using the provided site plan with Lat/Long Coordinates of each test location. A hand-held GPS unit was used to identify each test location, thus each test location should be considered only as accurate as the hand held GPS unit (+/- 11 feet).

Auger Borings

The hand auger borings (HA-1 through HA-3) generally encountered clean fine sands, slightly silty fine sands, and slightly clayey fine sands from the ground surface to the bottom of the 2 ½ -feet to 4-feet deep auger borings with the exception of peaty fine sand encountered in boring HA-3 from 1 feet below existing grade to the termination depth of 2 ½ feet below existing grade where a wood root mat was encountered and could not be penetrated. Please refer to the attached logs of borings for a more detailed description of the soils encountered.

Groundwater Conditions

The groundwater was encountered between 2.0 feet and 2.7 feet below existing grade at the time of drilling (June 28, 2017), which was during a period of above normal seasonal rainfall. By definition, the normal seasonal high groundwater table elevation is the highest level of the saturated zone in the soil during a year with normal rainfall. The procedure used in estimating the seasonal high groundwater table is based on adjusting the existing groundwater table encountered upward or downward and taking into consideration factors such as antecedent rainfall, redoximorphic features (identifying soil mottling) and vegetative indicators. Groundwater levels will fluctuate with rainfall and could vary several feet during typical seasonal fluctuations. Larger fluctuations are possible under severe weather conditions. The following Table #1 provides the groundwater levels and estimated seasonal high groundwater levels at each boring location.

Table #1

Location	Depth to Groundwater	Estimated Seasonal High Groundwater
HA-1	2.7	2.5
HA-2	2.3	2.0
HA-3	2.0	2.0

We recommend that the Contractor verify the actual groundwater levels at the time of construction to determine potential impacts groundwater will have on construction procedures.

CONCLUSIONS AND RECOMMENDATIONS

General

The following geotechnical related design recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes in these project criteria, including project location on the site, a review should be made by Magnum Engineering to determine if modifications to the recommendations are warranted.

Once final design plans and specifications are available, a general review by Magnum Engineering is recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented

20th Street Realignment - Geotechnical Services
Panama City, Florida
Page 3 of 4

Pavements

Initially, the pavement areas should be cleared, grubbed, and stripped of topsoil and other deleterious material. Special care should be taken to insure that all stumps and root systems are removed from beneath the proposed pavement areas.

Prior to placing fill soils, where applicable, the top of the ground surface should be compacted to a minimum soil density of 95% of the Modified Proctor Test (ASTM D1557). Structural fill soils should be placed in maximum 12-inch lifts and compacted to a minimum soil density of 95% of the Modified Proctor Test (ASTM D1557). The top 12 inches of subgrade should be compacted to a minimum soil density of 98% of the Modified Proctor Test (ASTM D1557). The top 12 inches of subgrade should have a minimum LBR value of 40. We recommend that structural fill soils, where planned, have a minimum LBR of 40.

Based on the subsurface conditions encountered in the test borings, we recommend using a graded aggregate base (i.e. limerock or crushed concrete). The base course should be compacted to a minimum soil density of 98% of the Modified Proctor Test (ASTM D1557).

Without benefit of traffic loads, volumes, and serviceability parameters, a pavement section cannot be designed. However, typical parking lots in the local area generally consist of a minimum of 1½ inches of FDOT Superpave Mix SP-12.5 or SP-9.5 asphaltic concrete and a minimum of 6 inches of base. Moderate duty traffic areas (e.g. main entrance areas) typically have a minimum pavement section consisting of 2 inches of FDOT Superpave Mix SP-12.5 asphaltic concrete and 8 inches of base. The above sections represent minimum thicknesses representative of typical, local construction practices, and as such periodic maintenance should be anticipated. All pavement materials and construction procedures should conform to FDOT and/or appropriate city or county requirements

While specific traffic loads and volumes for the project have not been provided, we are providing recommended light-duty and medium-duty pavement sections, which have been successfully utilized for this type of commercial development in the Northwest Florida area.

Light Duty (General roadway and parking areas)

- 1 ½ inches Asphalt Concrete (FDOT Superpave Mix SP-12.5 or SP-9.5)
- 6 inches Crushed Limerock or Graded Aggregate Base
- 12 inches stabilized subgrade (minimum LBR 40)

Medium Duty (Entrance Lanes)

- 2 inches Asphaltic Concrete (FDOT Superpave Mix SP-12.5)
- 8 inches Crushed Limerock or Graded Aggregate Base
- 12 inches Stabilized Subgrade (minimum LBR 40)

The above recommended pavement sections represent minimum design thicknesses and, as such, periodic maintenance should be anticipated. Also, these recommended pavement sections should be confirmed or modified by your Civil Engineer, based on actual traffic and the owner's requirements. The pavement section materials and construction should comply with the Florida DOT and local municipality requirements.

Warranty and Limitations of Study

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied. Magnum Engineering, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Soil conditions at other locations may differ from those encountered in the test borings, and the passage of time may cause the soils conditions to change from those described in this report.

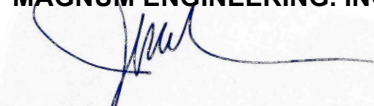
This report is intended for use by the designers of this project. While we have no objections to it being provided for review by parties to this project, it is not a specification document and is not to be used as a part of the specifications. If desired, we can assist in the development of specifications for this project based upon our exploration.

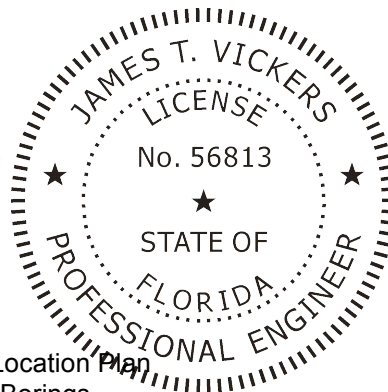
The nature and extent of variation and change in the subsurface conditions at the site may not become evident until the course of construction. Construction monitoring by the geotechnical engineer or his representative is therefore considered necessary to verify the subsurface conditions and to check that the soils connected construction phases are properly carried out. If significant variations or changes are in evidence, it may be necessary to reevaluate the recommendations in this report.

Furthermore, if the project characteristics are altered significantly from those discussed in this report, if the project information contained in this report is incorrect or if additional information becomes available, a review must be made by this office to determine if any modifications in the recommendations will be necessary.

We hope this letter provides sufficient information for the present. If you have any questions or comments, please feel free to call.

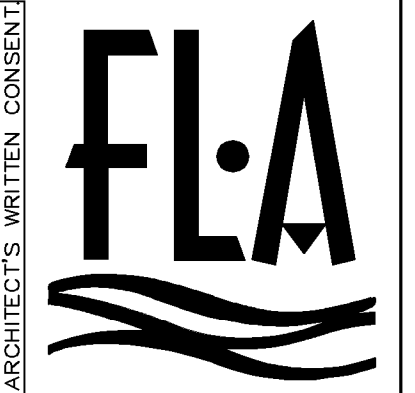
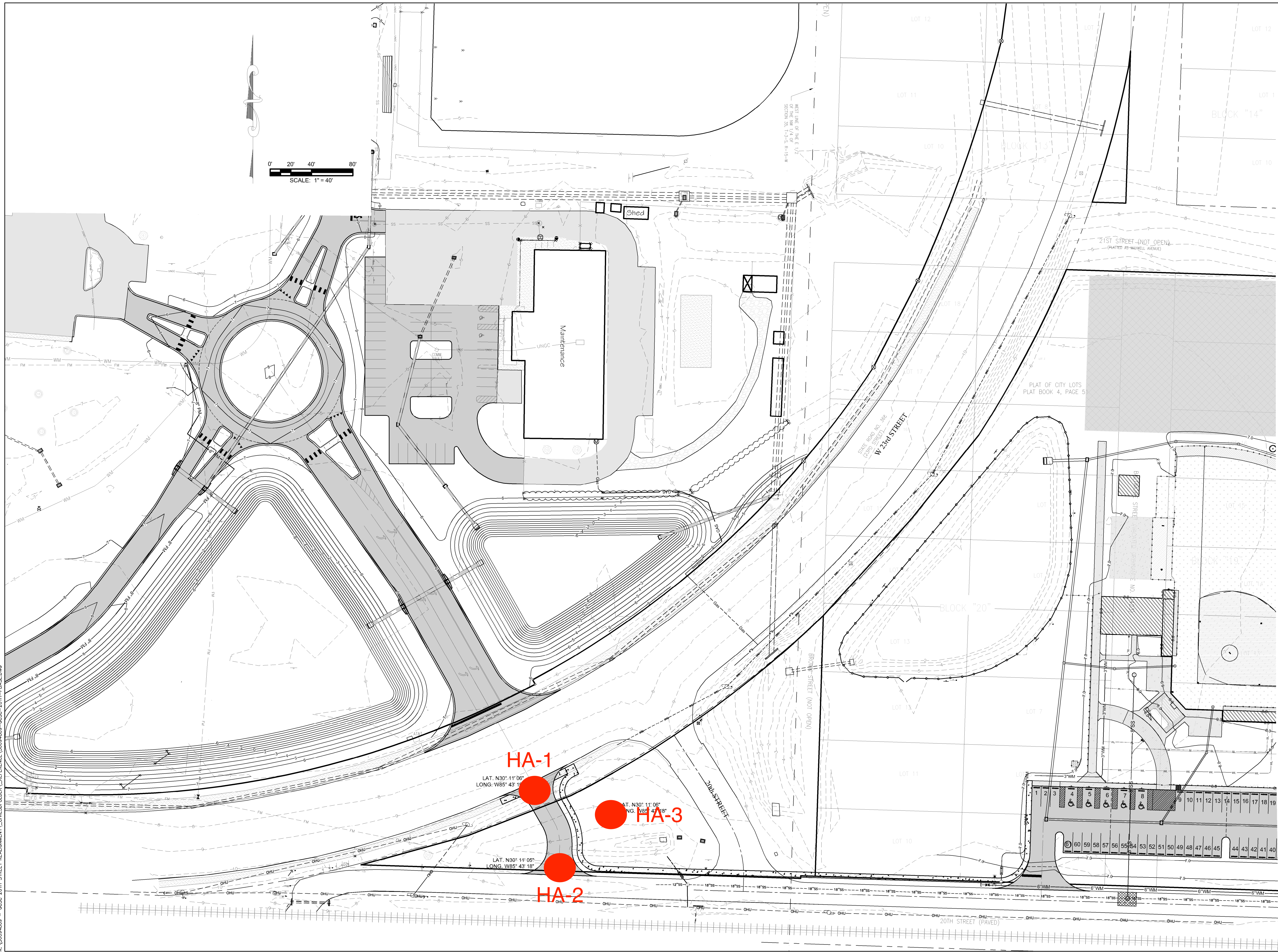
Sincerely,
MAGNUM ENGINEERING. INC.


JAMES T. VICKERS, P.E.
Sr. Geotechnical Engineer
Florida Registration # 56813



Attachments: Figure #1 – Boring Location Plan
Figure #2 – Logs of Borings

June 19, 2017 (17:20:12 EST)
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Principal in Charge
Joseph J. Sorci
Project Number:
4166-XX
Date Issued:
X-X-2017
Drawn By:
M.W.
Checked By:
J.S.
Revisions:
BID No.
ITB#X-2016/2017



GULF COAST STATE COLLEGE
CAMPUS IMPROVEMENTS
PHASE X - 20TH STREET

EROSION
CONTROL PLAN

100% CONSTRUCTION DOCUMENTS

Sheet Number

C9

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Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, FL 32444

BORING NUMBER HA-1

CLIENT <u>Dewberry Preble-Rish</u>	PROJECT NAME <u>20th Street Relocation</u>
PROJECT NUMBER <u>M117-100-212</u>	PROJECT LOCATION <u>Bay County, Florida</u>
DATE STARTED <u>6/28/17</u> COMPLETED <u>6/28/17</u>	GROUND ELEVATION _____ HOLE SIZE _____
DRILLING CONTRACTOR _____	GROUND WATER LEVELS:
DRILLING METHOD <u>Hand Auger Boring</u>	∇ DEPTH TO GROUNDWATER AT TIME OF DRILLING <u>2.7 ft</u>
LOGGED BY <u>J. Vickers</u> CHECKED BY <u>J. Vickers</u>	ESTIMATED SEASONAL HIGH GWT <u>---</u>
NOTES _____	AFTER DRILLING <u>---</u>

DEPTH (ft) -	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf) -	MOISTURE CONTENT (%)	ATTERBERG - LIMITS -			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT -	PLASTICITY INDEX -	
0		Dark Gray Slightly Silty Fine SAND (SP-SM)										
		Gray/Tan Slightly Silty Fine SAND (SP-SM)										
1		Light Tan Fine SAND (SP)										
2		Gray/Tan/Orange Slightly Clayey Fine SAND (SP-SC)										
3	∇	Gray/Dark Brown Slightly Silty Fine SAND (SP-SM)										
4		Boring Termination Depth at 4.0 feet.										

GEOTECH BH COLUMNS 20TH STREET RELOCATION.GPJ GINT STD US LAB.GDT 7/11/17



Magnum Engineering, Inc.
1026 Pierson Drive
Lynn Haven, FL 32444

BORING NUMBER HA-2

CLIENT <u>Dewberry Preble-Rish</u>	PROJECT NAME <u>20th Street Relocation</u>
PROJECT NUMBER <u>M117-100-212</u>	PROJECT LOCATION <u>Bay County, Florida</u>
DATE STARTED <u>6/28/17</u> COMPLETED <u>6/28/17</u>	GROUND ELEVATION _____ HOLE SIZE _____
DRILLING CONTRACTOR _____	GROUND WATER LEVELS:
DRILLING METHOD <u>Hand Auger Boring</u>	∇ DEPTH TO GROUNDWATER AT TIME OF DRILLING <u>2.3 ft</u>
LOGGED BY <u>J. Vickers</u> CHECKED BY <u>J. Vickers</u>	ESTIMATED SEASONAL HIGH GWT <u>---</u>
NOTES _____	AFTER DRILLING <u>---</u>

DEPTH (ft) -	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG - LIMITS -			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		Gray/Tan Slightly Silty Fine SAND (SP-SM)										
1												
2		Gray Slightly Silty Fine SAND (SP-SM)										
3												
4		Boring Termination Depth at 4.0 feet.										

GEOTECH BH COLUMNS 20TH STREET RELOCATION.GPJ GINT STD US LAB.GDT 7/11/17



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Lynn Haven, FL 32444

BORING NUMBER HA-3

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CLIENT <u>Dewberry Preble-Rish</u>	PROJECT NAME <u>20th Street Relocation</u>
PROJECT NUMBER <u>M117-100-212</u>	PROJECT LOCATION <u>Bay County, Florida</u>
DATE STARTED <u>6/28/17</u> COMPLETED <u>6/28/17</u>	GROUND ELEVATION _____ HOLE SIZE _____
DRILLING CONTRACTOR _____	GROUND WATER LEVELS:
DRILLING METHOD <u>Hand Auger Boring</u>	∇ DEPTH TO GROUNDWATER AT TIME OF DRILLING <u>2.0 ft</u>
LOGGED BY <u>J. Vickers</u> CHECKED BY <u>J. Vickers</u>	ESTIMATED SEASONAL HIGH GWT <u>---</u>
NOTES _____	AFTER DRILLING <u>---</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		Dark Gray Slightly Silty Fine SAND (SP-SM)										
1		Brown Peaty Fine SAND Hit WOOD mat obstruction at 2.5 feet, could not penetrate (PT)										
2		Boring Termination Depth at 2.5 feet.										

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