

BID & SPECIFICATIONS PACKAGE

FOR

PLYLER PARK RENOVATION

DDC P/N 16113L



Prepared for

**THE CITY OF MYRTLE BEACH
HORRY COUNTY, SOUTH CAROLINA**

JANUARY 2018

IFB #18-B0094



DDC Engineers Inc. / The LandArt Company
1298 Professional Drive
Myrtle Beach, SC 29577
843.692.3200 (phone)
843.692.3210 (fax)
www.ddcinc.com
www.landartcompany.com

To: All Prospective Bidders
Re: Plyler Park Renovation
Date: January 2018

We would like to take this opportunity to inform you that the Plyler Park Renovation Invitation for Bid (IFB #18-B0073) has been cancelled in its entirety. We would also like to inform you that a new Invitation for Bid (IFB #18-B0094) for the Plyler Park Renovation project has been created. The Plyler Park Renovation Drawings, Addenda 1 thru 8 and revised Specifications associated with IFB #18-B0073, as well as this Cover Sheet outlining applicable information, shall hereby be incorporated and be made part of this current Invitation for Bid (IFB #18-B0094).

IFB #18-B0094 shall include construction / installation of the Goddess of the Sea sculpture, a concrete stage, site furnishings and associated conduit, electrical and landscape components. The current Drawings are dated 12/29/2017 and the current Specifications are dated January 2018.

Below please find a summary of applicable Addenda information, organized per item number listed in each Addendum. Information per item numbers listed in each Addendum, but not included in the summary below, are not applicable to this current bid.

Addendum 1 – Items # 1, 2, 3, 4, 5, 8 & 9

Addendum 2 – n/a

Addendum 3R – Items # 1, 2, 3, 4, 6, 7, 8, 9, Notes “IRRI” and “C8 Detail 8”

Addendum 4 – n/a

Addendum 5R – All Contractor Questions and Clarification Items # 1, 5, 6, 8, 9 & 10

Addendum 6 – n/a

Addendum 7 – Items # 2, 4, 7, 8 & 9

Addendum 8 – Items # 5, 6, 7 & 8

To: All Prospective Bidders
From: DDC Engineers, Inc / The LandArt Company
Date: January 2018

We would like to take this opportunity to point out one especially important provision of the construction contract documents, the bidder's representation.

Your careful reading of the bidder's representation is imperative because by signing and submitting it with your bid figure, you will be representing to the owner that 1) your detailed examination of the drawings and specifications has turned up no ambiguities which need clarification, 2) only authorized data have been used to arrive at your bid figure, and 3) the experience and capabilities of your firm, your workmen and your subcontractors are particularly well-suited to the construction of this type of project.

Please note that each of your subcontractors must also submit a signed copy of the bidder's representation before the owner can award the contract.

If you find that you are unable to sign this representation because you believe the drawings or specifications are inadequate or erroneous in some way, please notify us at once so that corrective action can be taken. Similarly, if your bid figure is affected by information not contained in the construction contract documents, contact us immediately before submitting your bid.

PLYLER PARK RENOVATION

For

The City of Myrtle Beach

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C4	COMPONENT IDENTIFICATION & LAYOUT PLAN
C5	GRADING, DRAINAGE & CONDUIT PLAN
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END OF SECTION

DIVISION 0
CONTRACT INFORMATION AND DOCUMENTS

SECTION 0100
NOTICE TO BIDDERS

SECTION 0100

NOTICE TO BIDDERS

Plyler Park Renovation – DDC P/N 16113L

Owner: City of Myrtle Beach
Post Office Drawer 2468
Myrtle Beach, SC 29578

Engineer: DDC Engineers, Inc. / The LandArt Company
1298 Professional Drive
Myrtle Beach, SC 29577

Date: January 2018

Interested parties are invited to submit sealed bids to Tina Causey at the City of Myrtle Beach Purchasing Department, located at 3231 Mr. Joe White Avenue, Myrtle Beach, South Carolina before 2:00 pm local time on Thursday, January 25, 2018.

A pre-bid meeting for the former IFB #18-B0073 was held in Plyler Park (project site), located at 1000 N Ocean Boulevard, Myrtle Beach, South Carolina at 10:00 am local time on Tuesday, December 5, 2017. There will be no pre-bid meeting for this Invitation for Bid.

A statue inspection meeting for the former IFB #18-B0073 was held at the Myrtle Beach Convention Center, located at 2101 North Oak Street, Myrtle Beach, South Carolina at 10:00 am local time on Monday, January 8, 2018.

The Project consists of hardscape demolition, landscape removal and site improvements to the existing oceanfront Plyler Park, located at 1000 N Ocean Boulevard, Myrtle Beach, South Carolina. Overall improvements include the construction / installation of the Goddess of the Sea sculpture, a concrete stage, several pergolas, concrete paving, site furnishings and associated electrical, landscape and irrigation components. This current Invitation for Bid (IFB #18-B0094) includes the construction / installation of the Goddess of the Sea sculpture, a concrete stage, site furnishings and associated conduit, electrical and landscape components.

Bidders shall comply with the requirements set forth in Section 0200 – Instructions to Bidders.

Bid documents may be obtained from Tina Causey, City of Myrtle Beach Purchasing Department at no charge. Documents may only be obtained at the City of Myrtle Beach Purchasing Department.

Bidders shall include bid security in the sum of no less than five percent (5%) of the bid price.

Refer to other bidding requirements described in Section 0200 - Instructions to Bidders.

Bidders are required to submit their bid on the Bid Form provided in the bid package. Bidders may not supplement this form unless otherwise directed.

The Owner reserves the right to accept or reject any or all bids, waive informalities and irregularities, negotiate terms and conditions and select bid that best meets the needs of the Owner. Lowest bid may not prevail. Award of the bid will be based on the responsible total bid price, references, past performance of bidder and any proposed subcontractor with projects of comparable scope, complexity, time constraints and decisions made by the evaluation team.

Questions will not be allowed for this Invitation for Bid.

END OF SECTION

SECTION 0200
INSTRUCTIONS TO BIDDERS

SECTION 0200

INSTRUCTIONS TO BIDDERS

1. SUMMARY

1.01 DOCUMENT INCLUDES:

- 2.0. Invitation
 - 1. Bid Submission
 - 2. Work Identified in the Contract Documents
 - 3. Contract Time and Liquidated Damages

- 3.0. Bid Documents and Contract Documents
 - 1. Definitions
 - 2. Availability
 - 3. Examination
 - 4. Queries/Addenda
 - 5. Product/System Substitutions
 - 6. Contract Documents

- 4.0. Site Assessment
 - 1. Site Examination

- 5.0. Qualifications
 - 1. Evidence of Qualifications
 - 2. Subcontractors/Suppliers/Others

- 6.0. Bid Submission
 - 1. Submission Procedure
 - 2. Bid Ineligibility

- 7.0. Bid Enclosures/Requirements
 - 1. Security Deposit
 - 2. Performance Assurance
 - 3. Bid Form Requirements
 - 4. Bid Form Signature

- 8.0. Offer Acceptance/Rejection
 - 1. Duration of Offer
 - 2. Acceptance of Offer

1.02 RELATED DOCUMENTS

- A. Document 0100 - Notice to Bidders
- B. Document 0300 - Bid Forms
- C. Document 0550 - General Provisions
- D. Document 0650 - Engineer's Supplementary Conditions
- E. Document 0700 - Contract Forms

2. INVITATION

2.01 BID SUBMISSION

- A. Bids will be received by Tina Causey / the City of Myrtle Beach (herein called the "Owner"), at the City of Myrtle Beach Purchasing Department, located at 3231 Mr Joe White Avenue, Myrtle Beach, South Carolina until 2:00 pm local time on Thursday, January 25, 2018, at which time they will be publicly opened.
- B. Bids submitted after the time and date set for the receipt will be returned to the Bidder unopened.
- C. Amendments to the submitted offer will be permitted if received in writing prior to Bid closing and if signed by the same party or parties who signed and sealed the original bid.
- D. A pre-bid meeting for the former IFB #18-B0073 was held in Plyler Park (project site), located at 1000 N Ocean Boulevard, Myrtle Beach, South Carolina at 10:00 am local time on Tuesday, December 5, 2017. There will be no pre-bid meeting for this Invitation for Bid.
- E. A statue inspection meeting for the former IFB #18-B0073 was held at the Myrtle Beach Convention Center, located at 2101 North Oak Street, Myrtle Beach, South Carolina at 10:00 am local time on Monday, January 8, 2018.

2.02 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. The work includes all work described in the Contract Documents.
- B. Location: Plyler Park, located at 1000 N Ocean Boulevard, Myrtle Beach, South Carolina.
- C. The Owner reserves the right to accept Alternates in any order or combination and

the right to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.

- D. The Owner reserves the right to accept or reject any or all bids, waive informalities and irregularities, negotiate terms and conditions and select bid that best meets the needs of the Owner. Lowest bid may not prevail. Award of the bid will be based on the bid price, references, past performance of bidder and any proposed subcontractor with projects of comparable scope, complexity, time constraints and decisions made by the evaluation team.

2.03 CONTRACT TIME AND LIQUIDATED DAMAGES

- A. Contractor shall complete all work so that the project site is open to the public by May 18, 2018.
- B. Contractor may work on the weekends through the month of February 2018, upon first coordinating with and gaining permission from the Owner.
- C. Liquidated damages of five hundred dollars (\$500.00) per consecutive calendar day will be assessed for each day worked after the stated completion date.

3. BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 DEFINITIONS

- A. Bid Documents: Contract Documents, Bid Forms, any Supplements To Bid Forms, and Bid Securities identified herein.
- B. Contract Documents: Defined in the Agreement Form.
- C. Bid: Act of submitting a sealed offer.
- D. Bid Price: Total cost to perform the work submitted by the Bidder in the Bid Form.

3.02 AVAILABILITY

- A. Bid Documents may be obtained from Tina Causey, City of Myrtle Beach Purchasing Department, located at 3231 Mr. Joe White Avenue in Myrtle Beach, South Carolina, at no charge.
- B. Bid Documents are made available only for the purpose of submitting a bid for this project.

3.03 EXAMINATION

- A. Each Bidder must satisfy himself of the accuracy of his prices in the Bid Schedule by examination of the site, a review of the drawings, and by reading and being thoroughly familiar with the Contract Documents including Addenda. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.
- B. Bid Documents may be viewed at the City of Myrtle Beach Purchasing Department.
- C. Upon receipt of Bid Documents, verify that documents are complete. Notify Engineer should the documents be incomplete.
- D. Immediately notify the Engineer upon finding discrepancies or omissions in the Bid Documents.

3.04 QUERIES/ADDENDA

- A. Questions will not be allowed for this Invitation for Bid.
- B. Verbal instructions or comments are not binding on any party.

3.05 PRODUCT/SYSTEM SUBSTITUTIONS

- A. Where the Bid Documents stipulate a particular product/system, substitutions will be considered unless otherwise stated in the Contract Documents.
- B. Bidders shall include in their Bid, any changes required in the Work to accommodate such substitutions. A later claim by the Bidder for an addition to the Contract Time or Contract Price because of changes in Work necessitated by use of substitutions shall not be approved.
- C. See Section 1631 – Substitutions, for additional conditions and requirements.

3.06 CONTRACT DOCUMENTS

- A. The Contract Documents contain the provisions required for the completion of the work. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the contract.

4. SITE ASSESSMENT

4.01 SITE EXAMINATION

- A. The Bidder is responsible for inspecting the project site before submitting a Bid in order to become familiar with site and soil conditions.
- B. The project site is open for examination by Bidders.

5. QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

- A. Bidders must be licensed to perform work in the State of South Carolina and shall include their license number on the Bid Documents.
- B. Evaluation of Bidders will concentrate on their experience with projects of comparable scope and complexity. Bidders shall indicate prior projects that exhibit these qualities in their statement of experience. Additional attachments exhibiting such experience must be included with the bid.
- C. The successful Bidder must list completely, all subcontractor(s) that will perform work on the project. All subcontractor(s) must be approved by the Owner prior to award of the Bid.

5.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. Information on subcontractors shall be furnished by the Bidder to the Owner as required in the Contract Documents.
- B. All Subcontractors must be approved in writing by the Owner prior to the performance of any work. The Owner reserves the right to reject a proposed Subcontractor.

6. BID SUBMISSION

6.01 SUBMISSION PROCEDURE

- A. Each Bid must be submitted in a sealed envelope addressed to Tina Causey, City of Myrtle Beach Purchasing Department 3231 Mr. Joe White Avenue, Myrtle Beach, South Carolina. If delivered by hand, the Bid shall be delivered to Tina Causey at the City of Myrtle Beach Purchasing Department, located at 3231 Mr. Joe White

Avenue, Myrtle Beach, South Carolina.

- B. Each sealed envelope containing a Bid must be plainly marked on the outside as a Bid for the Plyler Park Renovation project for the City of Myrtle Beach, South Carolina. The envelope should bear on the outside the name of the Bidder, his address, his bidder's license number and the name of the project for which the Bid is submitted. Bidder shall supply three (3) copies of the Bid.
- C. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed.
- D. Bids mailed shall be enclosed in another envelope. Insert the closed and sealed Bid Form in the envelope to be mailed.
- E. A summary of submitted Bids will be made available to all Bidders within five (5) business days following the Bid opening by the Owner.

6.02 BID INELIGIBILITY

- A. Bids that are incomplete, unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, will at the discretion of the Owner, be declared non-responsive.

7. BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

- A. Bids shall be accompanied by a security deposit as follows:
 - 1. Bid Bond of a sum no less than five (5%) percent of the Bid Price. (Include Power of Attorney).
 - 2. Certified check in the amount of five (5%) percent of the Bid Price.
 - 3. Other types of security may be allowed if pre-approved in writing by the Owner.
- B. Bids shall be submitted on the required form and shall include: Bidder's Representation, Non-collusion Affidavit of Prime Bidder, Statement of License Certificate, Statement of Experience of the Bidder, Project Superintendence, List of Subcontractors, Bid Bond and Bid Proposal.
- C. The Bid Bond shall name the Owner as obliged and be signed and sealed by the

Contractor as principal as well as the Surety.

- D. Bid securities will be returned to all Bidders upon receipt by the Owner of the required Insurance, Performance, and Payment Bonds from the successful Bidder.
- E. Include the cost of bid security in the Bid Price.
- F. All bid securities will be returned to the respective Bidders.
- G. If no contract is awarded, all bid securities will be returned.

7.02 PERFORMANCE ASSURANCE

- A. Successful Bidder: Shall provide the stipulated insurance, along with the Performance and Payment Bonds as described in the Contract Documents.
- B. Include the cost of bonding in the Bid Price.
- C. Attorneys-in-Fact who sign bid bonds or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

7.03 BID FORM REQUIREMENTS

- A. Complete all requested information in the Bid Form and Appendices.
- B. All Bids shall be submitted on the required Bid Form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid Form must be fully completed and executed when submitted. Bidder shall supply three (3) copies of the Bid.
- C. Bidders must satisfy himself of the accuracy of his prices in the Bid Schedule by examination of the site and a review of the Contract Documents. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning material quantities, prices or nature of the Work.

7.04 BID FORM SIGNATURE

- A. The Bid Form shall be signed by the Bidder, as follows:
 - 1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature. Affix seal.

2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal to each signature.
3. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts under each signature. Affix the corporate seal. If the Bid is signed by officials other than the President and Secretary of the company or the President/Secretary/Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so must also be submitted with the Bid Form.
4. Joint Venture: Each party of the joint venture shall execute the Bid Form under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

8. OFFER ACCEPTANCE/REJECTION

8.01 DURATION OF OFFER

- A. Bids shall remain irrevocable for a period of sixty (60) business days after the Bid closing date.
- B. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the owner and the successful Bidder.

8.02 ACCEPTANCE OF BID

- A. The Owner reserves the right to accept Alternates in any order or combination and the right to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.
- B. The Owner reserves the right to accept or reject any or all bids, waive informalities and irregularities, negotiate terms and conditions and select bid that best meets the needs of the Owner. Lowest bid may not prevail. Award of the bid will be based on the bid price, references, past performance of bidder and any proposed subcontractor with projects of comparable scope, complexity, time constraints and decisions made by the evaluation team.
- C. After determining the lowest responsive bidder, but prior to the Notice of Award to any bidder, the City may elect to open negotiations with the selected responsive and

responsible bidder in an effort to improve the bid for a period of fifteen (15) business days. In these negotiations, the City may address scope of work, unit pricing or any other subject fairly contained within the bid documents. In the event that the apparent responsive and responsible low bidder should decline to negotiate or should negotiations commence but fail, the City shall reject all bids.

- D. The party to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond, Payment Bond, and Certificate of Insurance within ten (10) business days from the date when Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the necessary Agreement, Bond forms, and Certificate of Insurance. In case of failure of the Bidder to execute the Agreement, the Owner may at his option consider the Bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the Owner.
- E. The Owner within ten (10) business days of receipt of acceptable Performance Bond, Payment Bond, Certificate of Insurance and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

END OF SECTION

SECTION 0300

BID FORMS

SECTION 0300

BID FORMS

PLYLER PARK RENOVATION

for
The City of Myrtle Beach

BIDDER'S REPRESENTATION

By the act of submitting a bid for the proposed contract, the Bidder represents that:

1. The Bidder and all subcontractors the Bidder intends to use have carefully and thoroughly reviewed the Contract Documents and have found them complete and free from ambiguities and sufficient for the purpose intended; and
2. The Bidder and all workmen, employees and subcontractors the Bidder intends to use are skilled and experienced in the type of work represented by the Contract Documents; and
3. Neither the Bidder nor any of the Bidder's employees, agents, intended suppliers or subcontractors have relied upon any verbal representations, of the Owner, or the Owner's employees or agents including architects, engineers or consultants, in assembling the bid; and
4. The bid figure is based solely upon the Contract Documents and not upon any other oral or written representation.

By: _____

Title: _____

Subscribed and sworn to before me

this _____ day of _____, 20____.

My commission expires on: _____.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of South Carolina)
County of Horry)

being first duly sworn, deposes and says that:

(1) He is _____ of _____,
the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owners or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

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

_____. My commission expires

_____ on: _____ (Title)_____

STATEMENT OF LICENSE CERTIFICATE

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING:

This is to certify that _____ have fully complied with all the requirements of the South Carolina Licensing Board for Contractors. The Contractor's license number and date of registration shall appear on the envelope containing the bid, otherwise the bid will not be considered.

_____ was issued Certificate No. _____
on _____, 20 ____ by the State Board for licensing General Contractors.

Signed: _____

Title: _____

STATEMENT OF EXPERIENCE OF THE BIDDER

The bidder is requested to state below what work of similar scope and complexity he has completed, and to give references that will enable the Owner to judge his experience, skill and business standing and his ability to conduct the work as completely and as rapidly as required under the terms of the contract.

	<u>Project and Location</u>	<u>Reference</u>
1)	_____	_____
	_____	_____
2)	_____	_____
	_____	_____
3)	_____	_____
	_____	_____
4)	_____	_____
	_____	_____
5)	_____	_____
	_____	_____
6)	_____	_____
	_____	_____
7)	_____	_____
	_____	_____

Dated: _____ Bidder: _____

Signed: _____

Title: _____

PROJECT SUPERINTENDENCE

The Undersigned states that the following employee will assume the role of project superintendent representing the Contractor on this Project. The undersigned further states that this individual, whose qualifications are presented below (attach additional sheets, if necessary), will have authority to speak for the Contractor and will not be removed from this Project or temporarily substituted for on this Project without the written consent of the Owner and Project Engineer.

Project Superintendent's Name: _____

Years of Experience: _____

Brief but Complete Description of Experience Relevant to this Project: _____

References from Owners where work of similar scope, and complexity has been accomplished under Proposed Superintendent's direct supervision.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

(Phone) (Phone) (Phone) (Phone) (Phone)

"I consent to the disclosure of my qualifications and other applicable personal data for the purpose of evaluating proposals under this solicitation."

Employee's Signature

Date

"I certify to this employee's role in this Project and that the qualifications presented herein are accurate, complete and current."

Bidder: _____ Date: _____

Signed: _____

Title: _____

LIST OF SUBCONTRACTORS

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

<u>Subcontractor and Address</u>	<u>Class of Work to be Performed</u>
1) _____ _____	_____ _____
2) _____ _____	_____ _____
3) _____ _____	_____ _____
4) _____ _____	_____ _____
5) _____ _____	_____ _____
6) _____ _____	_____ _____
7) _____ _____	_____ _____

Dated: _____ Bidder: _____

Signed: _____

Title: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned,

_____ as PRINCIPAL, and

_____ as SURETY are hereby held and firmly bound

unto _____, as OWNER, in the penal sum of

_____, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that Whereas the Principal has submitted to the City of Myrtle Beach a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the

Plyler Park Renovation

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

THE SURETY, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By: _____

Date: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SECTION 0300

BID PROPOSAL

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____*.

To the City of Myrtle Beach, South Carolina, (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of Plyler Park Renovation in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within the time constraints as set forth in Section 0200, Paragraph 2.03 - Contract Time and Liquidated Damages; Section 0650, Paragraph 1.11 - Project Schedule and as further stated herein. BIDDER further agrees to pay, as liquidated damages, the sum of five hundred dollars (\$500.00) for each consecutive calendar day thereafter as set forth in Section 0200, Paragraph 2.03 - Contract Time and Liquidated Damages; Section 0650, Paragraph 1.11 - Project Schedule.

BIDDER acknowledges receipt of the following ADDENDUM:

<u>Addendum No.</u> _____,	<u>Dated:</u> _____
<u>Addendum No.</u> _____,	<u>Dated:</u> _____
<u>Addendum No.</u> _____,	<u>Dated:</u> _____
<u>Addendum No.</u> _____,	<u>Dated:</u> _____
<u>Addendum No.</u> _____,	<u>Dated:</u> _____
<u>Addendum No.</u> _____,	<u>Dated:</u> _____

*Insert "a corporation", "a partnership", or "an individual" as applicable.

BIDDER agrees to perform the work described in the CONTRACT DOCUMENTS for the following total lump sum base bid amount of \$_____.

Total Lump Sum Base Bid (in words) _____

SCHEDULE

Bidder agrees to perform all work described in the Contract Documents within the time constraints as set forth in Section 0200, Paragraph 2.03 - Contract Time; Section 0650, Paragraph 1.11 - Project Schedule and as further stated herein.

PRICE SCHEDULE

Bidder shall break down the Base Bid and Alternates into the following Price Schedule items.

Any unit quantities indicated in the construction documents are design estimates and are not warranted to be accurate. It is the responsibility of the Contractor to verify all quantity take-offs and to bid the work appropriately. Bids shall include license fees, sales tax and all other applicable taxes and fees. Where work is not identified by a given line item, Bidder shall include such work in the line item most closely associated with the specific work.

Item	Description	Unit	Unit Price
PLYLER PARK RENOVATION			
	Base Bid – Goddess of the Sea		
1.	Mobilization	LS	\$
2.	Insurances and Bonds	LS	\$
3.	Permits and Fees	LS	\$
4.	Traffic Control	LS	\$
5.	Field Engineering and Construction Staking	LS	\$
6.	Quality Control and Testing	LS	\$
7.	Record Drawings and Project Closeout	LS	\$
8.	Sediment and Erosion Control	LS	\$
9.	Demolition, Removal and Site Preparation	LS	\$
10.	Statue Base Construction (including granite cap)	LS	\$
11.	Statue Installation	LS	\$
12.	Concrete Curb	LS	\$
13.	Associated Conduit Installation	LS	\$
14.	Associated Electrical Installation	LS	\$
15.	Associated Landscape Installation	LS	\$

TOTAL LUMP SUM BASE BID: _____

Item	Description	Unit	Unit Price
PLYLER PARK RENOVATION			
	Alternate 1 - Stage		
1.	Demolition, Removal and Site Preparation	LS	\$
2.	Complete Stage Construction*	LS	\$
3.	Associated Conduit Installation	LS	\$
4.	Associated Electrical Installation	LS	\$
5.	Associated Sod Installation	LS	\$
6.	Miscellaneous General Conditions	LS	\$

*Including pergola column foundations and excluding pergola installation.

TOTAL ALTERNATE 1: _____

Item	Description	Unit	Unit Price
PLYLER PARK RENOVATION			
	Alternate 5 – Site Furnishings		
1.	Complete Concrete Seating Installation	LS	\$
2.	Complete Bollard Installation*	LS	\$
3.	Miscellaneous General Conditions	LS	\$

*Including associated demolition, removal, foundation and concrete flatwork.

TOTAL ALTERNATE 5: _____

Note: Upon submittal of his Bid, Bidder acknowledges careful examination of existing site conditions, contract documents, material quantities and construction factors specific to this project. Bidder acknowledges that Bid reflects fair and responsible prices necessary to accurately and fully facilitate project completion. Owner reserves the right to accept Alternates in any order or combination and the right to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.

Respectfully submitted:

Signature

Address

Title

Date

License Number (if applicable)

SEAL (if BID is by a corporation)

Attest: _____



CITY OF MYRTLE BEACH

LOCAL VENDOR PREFERENCE

TO QUALIFY FOR LOCAL PREFERENCE FORM MUST BE SUBMITTED WITH BID

APPLICATION OF ELIGIBILITY TO QUALIFY FOR LOCAL VENDOR PREFERENCE WITHIN THE DEFINED BOUNDARIES: MYRTLE BEACH CITY LIMITS, HORRY COUNTY, NESA AREA (NESA area is comprised of Horry, Georgetown, Williamsburg, Florence, Marion, Darlington, Dillon, Chesterfield, and Marlboro Counties).

City of Myrtle Beach Business License: (To qualify for Local Vendor Preference vendor must have had a City of Myrtle Beach Business License a minimum of ninety (90) days prior to the request for bid/ proposal being made public)

City of MB Business License Number: _____ Date issued: _____

Complete all areas below. Incomplete forms may be rejected.

1. LEGAL NAME OF BUSINESS: _____

Mailing Address: _____

Physical Address: _____

(To qualify vendor must have maintained a physical address and office as a principal place of business within the defined boundaries of the category sought for at least one (1) year, and during that time have had a majority of full-time employees, chief officers and managers regularly conducting work and business from this office.)

2. Year business was established in the City of Myrtle Beach / Horry County / NESA area:

Year: _____ County: _____
(Name of County)

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. The undersigned also acknowledges that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for local preference shall be prohibited from bidding on City of Myrtle Beach products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name & Title: _____ Phone: _____

LOCAL VENDOR PREFERENCE continued

<u>Bid Amount</u>	<u>Within City Limits</u>	<u>Within Horry County</u>	<u>Within NESAs Area</u>
Up to \$5000.00	5% of Bid	4% of Bid	3% of Bid
\$5001.00 to \$10,000.00	\$250.00 plus 4% of amount between \$5001.00 and \$10,000.00	\$200.00 plus 3% of amount between \$5001.00 and \$10,000.00	\$150.00 plus 2% of amount between \$5001.00 and \$10,000.00
\$10,001.00 and up	\$450.00 plus 3% of amount above \$10,000.00 with the maximum being \$2000.00, including the \$450.00	\$400.00 plus 2% of amount above \$10,000.00 with the maximum being \$1800.00, including the \$400.00	\$300.00 plus 1% of amount above \$10,000.00 with the maximum being \$1600.00, including the \$300.00

If company/individual performs services on City property a Certificate of Insurance **must be** provided prior to commencement of work meeting requirements of the City.

The vendor must submit a copy of their Local Vendor Preference Certificate with their bid.

An eligible business shall maintain such status throughout the term of any contract with the City. Failure to maintain such status or to keep current on all fees and taxes owed the City shall be grounds to terminate the contract.

SECTION 0550

GENERAL PROVISIONS

SECTION 0550

CITY OF MYRTLE BEACH

DEPARTMENT OF PUBLIC WORKS

GENERAL PROVISIONS

I. REQUIREMENTS

A. Definitions

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

1. "Directed", "permitted", "reviewed", "accepted", "approved", or words of similar import mean the direction, requirements, permission, approval, or acceptance of Engineer, or Owner, unless stated otherwise.
2. "As shown", "as indicated", "as detailed", or words of similar import refer to the Drawings unless stated otherwise.
3. "Addenda", -- Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Contract Documents.
4. "Agreement", -- The written agreement between the Owner and Contractor outlining the work to be performed, the Contract Time, and the Contract Price.
5. "Application for Payment", -- The Periodical Estimate for Partial Payment Form which is to be used by Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents. A copy of the form is included with these Contract Documents.
6. "Bid", -- The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed.
7. "Bonds", -- Bid, performances, and payment bonds and other acceptable instruments of security.
8. "Change Order", -- A written order to Contractor signed by Owner authorizing an addition, deletion, or revision in the work or an adjustment in the Contract Price or the Contract Time, issued on or after the effective date of the Agreement.
9. "Contract Price", -- The money payable by Owner to Contractor under the

Contract Documents as stated in the Agreement (subject to the approximate quantities provisions in the Instructions to Bidders in the case of Unit Price Work).

10. "Contract Time", -- The number of days or the date stated in the Agreement for the completion of the Work.
11. "Contractor", -- The person, firm, or corporation with whom Owner has entered into the Agreement.
12. "Day", -- A calendar day of twenty-four hours measured from midnight to the next midnight.
13. "Defective", -- An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Engineer's recommendation of final payment.
14. "Drawings", -- The Drawings which show the character and scope of the work to be performed and which have been prepared or approved by engineer and are referred to in the Contract Documents.
15. "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.
16. "Engineer", -- The Professional Engineering Firm representing the Owner.
17. "Field Order", -- A written order issued by Engineer which orders minor changes in the Work but which does not involve a change in the Contract Price or the Contract Time.
18. "Final Acceptance", -- The date when the construction of the project is complete in accordance with the Contract Documents so that the entire project can be utilized for the purposes for which it is intended and all monies due Contractor have been paid him in the final Application for Payment.
19. "General Requirements", -- Officially recognized materials and workmanship specifications of the Owner.
20. "Inspector", -- The engineering or technical inspector duly authorized or appointed by Engineer or by Owner, limited to the particular duties entrusted to him.

21. "Major Equipment", -- The major equipment items listed by name in the Contract Documents which are to be furnished and installed under the Contract.
22. "Modification", -- (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may only be issued after the effective date of the Agreement.
23. "Notice of Award", -- The written notice by Owner to the successful Bidder stating that upon compliance with the conditions precedent enumerated therein, and within the time specified, Owner will sign and deliver the Agreement.
24. "Notice to Proceed", -- A written notice given by Owner to Contractor, (with a copy to Engineer), fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform Contractor's obligation under the Contract Documents and the date on which all work scheduled under the Contract shall be completed.
25. "Owner", -- The City of Myrtle Beach, South Carolina.
26. "Project", -- The total construction of which the work to be provided under the Contract Documents may be the whole or a part, as indicated in the Contract Documents.
27. "Provide", -- As used in the Specifications means furnish and install.
28. "Shop Drawings", -- All drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information prepared by a supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.
29. "Specifications", -- Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.
30. "Sub-Contractor", -- An individual, firm, or corporation having a direct contract with Contractor or with any other Sub-Contractor for the performance of a part of the work.
31. "Substantial Completion", -- The Work (or a specified part thereof) which has progressed to the point where, in the written opinion of Engineer, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purpose for which it was intended. The terms "substantially complete" and "substantially completed", as applied to any Work,

refer to Substantial Completion thereof.

32. "Supplier", -- A manufacturer, fabricator, supplier, distributor, materialman, or vendor.
33. "Work", -- The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

B. ABBREVIATIONS

Wherever abbreviations are used in this Contract Document, each such abbreviation shall have the following listed meaning:

UNIT OF MEASURE

CY	Cubic Yard
Ft.	Feet
Lbs.	Pounds
M	One Thousand
MFBM	One Thousand Feet Board Measure
C	Centigrade
F	Fahrenheit
HP	Horsepower
KVA	Kilovolt Ampere
BTU	British Thermal Unit
LF	Linear Feet

TYPES AND UNITS

DI	Ductile Iron
PVC	Polyvinyl Chloride
HDPE	High Density Polyethylene
MJ	Mechanical Joint
B & S	Beel and Spigot
T & G	Tongue and Groove
SS	Single Strength
DS	Double Strength
VC	Vitrified Clay
RC	Reinforced Concrete
MH	Manhole
CB	Catchbasin
ES	Extra Strength

ORGANIZATIONS AND PUBLICATIONS

AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ASA	American Standards Association, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWWA	American Waterworks Association
AWS	American Welding Society
MISS	Manufacturers Standardization Society of the Valve and Fitting Industry
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
PCA	Portland Cement Association
UL	Underwriters Laboratory
UBC	Uniform Building Code

C. CONTRACTOR'S BONDS

- (1) Faithful Performance Bond: As a part of the execution of this Contract, the Contractor shall furnish to the Owner, a bond payable to the City of Myrtle Beach in the form of Faithful Performance Bond set forth herein, secured by a surety company acceptable to the Owner, conditioned upon the faithful performance of all covenants and stipulations under this contract. Attorney in fact of Power of Attorney signature on bonds is permissible. The amount of the bond shall be not less than one hundred percent (100%) of the total contract amount as set forth in the Agreement.
- (2) Labor and Material Bond: As a part of the execution of this Contract, the Contractor shall furnish to the Owner, a bond of surety company acceptable to the Owner in a sum of one hundred percent (100%) of the total contract amount, as set forth in the Agreement for the payment in full of all persons, companies or corporations who perform labor upon or furnish material to be used in the work under this Contract.
- (3) Bid Bond: 5% of total Contract.
- (4) Notification of Surety Companies: The Contractor shall advise the surety companies and other signers of the bonds listed above to familiarize themselves with all of the conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification to this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the

Contract or of any other act or acts by the Owner or its authorized employees and agents, under the terms of this Contract and failure to so notify the aforesaid surety companies of changes shall in no way relieve the surety companies of their obligations under this Contract.

D. CONTRACTOR'S INSURANCE

(1) Public Liability and Property Damage.

The Contractor shall purchase and thereafter maintain for the term of this Agreement and any subsequent extensions hereto, public liability insurance to protect Contractor from claims for bodily injury and/or property damage which may result from Contractor's performance of this Agreement. The policy shall provide a combined single limit of liability of \$1,000,000 per occurrence for bodily injury and property damage with an aggregate limit of not less than \$1,000,000.

(2) Automobile Liability.

The Contractor shall purchase and thereafter maintain for the term of this Agreement and any subsequent extensions hereto, comprehensive automobile liability insurance to protect the Contractor from claims for bodily injury and property damage which may arise from Contractor's use of motor vehicles in the performance of this Agreement. The policy must provide coverage for "ANY AUTO (CODE 1)" and Contractual Liability (endorsement CA 0025). The policy shall provide for a combined single limit of \$1,000,000 per occurrence for bodily injury and property damage. The City of Myrtle Beach shall be named as an additional insurer.

(3) Workers' Compensation Insurance.

Prior to beginning the work, the Contractor shall take out full compensation insurance for all persons which may be employed directly or indirectly in the performance of this Agreement. The policy must provide Employers Liability coverage in the amount of \$500,000 each accident; \$500,000 bodily injury by disease each employee and \$500,000 bodily injury by disease policy limit and shall be maintained in full force and effect during the term of this Agreement and any subsequent extensions hereto.

(4) Excess Liability Policy.

At the option of the Contractor, the limits of the primary general liability, automobile liability and employer's liability policies may be less than stipulated herein, with an excess policy providing the additional limits required. This form of coverage must be approved by the Owner and will only be acceptable when both the primary and excess policies include the coverages and endorsements

required herein.

(5) Builders Risk Insurance.

If applicable, the Owner shall provide and maintain Builders Risk coverage in an amount equal to 100% of the Project's completed value. Coverage shall include but not be limited to, fire, lightning, windstorms, hail, smoke, explosion, riot, riot attending a strike, civil commotion, aircraft, vehicles, vandalism, malicious mischief, glass breakage, falling objects, water damage, collapse, flood and earthquake. The policy shall include coverage, but not be way of limitation, for all damage or loss to the work and to appurtenances, materials and equipment to be used on the Project while same are stored on the work site or approved storage area. Coverage does not extend to any tools, equipment or materials which are not intended to become part of the Project. All losses will be adjusted with and be made payable to the Owner. The Owner shall provide the Contractor with a Certificate of Insurance reflecting the foregoing, and that coverage will remain in effect until the Project has been accepted by the Owner. The policy shall be endorsed with a "Waiver of Occupancy" to allow the Owner to use the property during the Project.

(6) Policy Endorsements.

The following clauses shall be endorsed to the policy(s) indicated below:

(a) General Liability and Automobile Liability

1. "It is understood and agreed that in consideration of the terms and conditions of this policy to which this endorsement is attached, the City of Myrtle Beach, its officials, agents and employees are recognized as additional named insureds under the policy and as such will be provided thirty (30) business days written notice of non-renewal, exhaustion of aggregate limit, modifications of coverage or cancellation for any reasons and the company hereby agrees to provide such notice. Failure of the company to provide the required notice shall cause the coverage to continue in force for the benefit of the Owner, its officials, agents, and employees until proper notification as required herein is provided, the provisions of the policy or any certificate of insurance to the contrary notwithstanding."

Contractor's insurance shall be primary to any insurance or self-insurance maintained by the Owner, its officials, agents or employees, which is considered excess and non-contributing for the purpose of this Agreement".

3. "The company shall not have recourse against the Owner for

payment of any premiums, deductibles or for payment of any premiums, deductibles or for assessments under this policy."

4. "Failure of any named insured to comply with the reporting requirements of the policy shall not affect the coverage provided to the Owner as an additional insured."
5. If the Contractor, to meet the obligations of the Contract, obtains any endorsement to its General Liability Policy not specifically required by this Contract, the Contractor shall be required to have the Owner, as an additional insured, covered by the same endorsements or otherwise, including, but not limited to, completed operations coverage.

(b) Workers' Compensation

1. "Underwriters have no right of recovery of subrogation against the Owner for losses which result from work performed under this Agreement."
2. The cancellation provision is hereby amended to provide that the Owner will be provided thirty (30) business days written notice in the event of coverage cancellation.

(7) Subcontractors.

Contractor shall not be required to name Subcontractors as additional insureds in any insurance policy required herein. Contractor will, however, secure certificates of insurance as evidence that each Subcontractor carries insurance to provide coverage under this Agreement in the same form as is required of the Contractor.

(8) Notifications of Insurance Companies.

It is the responsibility of the Contractor to notify all insurance companies to familiarize themselves with all terms and conditions of this Agreement. The insurance companies shall waive their right of notification by the Owner of any change or modification of this contract, or of decreased work or increased work, or of the cancellation of this Agreement or of any other acts by the Owner or its authorized employees or agents under the terms of this Agreement. The waiver by the insurance companies shall in no way relieve them of their obligations under this Agreement.

(9) Certificates of Insurance.

Contractor shall file with the Owner a certificate of insurance for approval by the

Owner prior to the inception of any work. Renewal certificates shall be sent to the Owner thirty (30) business days prior to the expiration date of any policy required herein. The Owner reserves the right to require submission of certified copies of all insurance policies at its sole discretion.

(10) Coverage Cancellation or Unsatisfactory Coverage.

If at any time any of the foregoing policies shall be or become unsatisfactory to the Owner, as to form or coverage, or if a company issuing any such policy shall be or become unsatisfactory to the Owner, the Contractor shall, upon notice to that effect from the Owner, promptly obtain a new policy and submit the same for approval to the Owner. Upon failure of the Contractor to furnish, deliver and maintain the insurance coverages required herein, this Agreement, at the sole discretion of the Owner, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to take out and/or maintain any required insurance shall not relieve the Contractor from any liability under this Agreement, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the Contractor concerning indemnification.

(11) Hold Harmless.

Contractor agrees to protect, defend, indemnify and hold the Owner, its officers, employees and agents free and harmless from and against any and all claims, losses, fines, penalties, damages, settlements, costs, changes, attorney's fees and costs, professional fees or other expenses and liabilities of every kind and character arising in whole or in part, out of or relating to any and all claims, liens, demands, obligations, actions, proceedings, or causes of action of every kind in connection with or arising out of this Agreement and/or the performance hereof, without regard to fault or negligence of the Contractor or the Owner, that arise in whole or in part from any claim or actual action(s) of, or failure(s) to act by the Contractor, its officers, employees, subcontractors or agents. Contractor further agrees to investigate, handle, respond to, provide to, provide defense for and defend the same, regardless of fault of the Contractor or Owner or whether claims made are directly attributable to actions or inactions of the Contractor, at its sole expense and agrees to bear all other cost and expenses related thereto. The contractor shall protect, indemnify, defend and hold the Owner harmless regardless of any claimed or actual, negligence, breach of warranty of any kind, including warranties related to plans and specifications, against or by the Owner, its officers, employees and agents, professionals or engineers. The Contractor also agrees to notify all insurers of claims made and demand defense of the Contractor and the Owner.

The Contractor also agrees to pay all attorney's fees, court fees, expert fees, and all other cost of litigation which are incurred by the Owner, which relate in whole or in part to any suit, arbitration, mediation, alternative dispute resolution, dispute, enforcement, default, declaratory judgment action, or other action in law or in

equity, including appeals between Owner and Contractor, regardless of fault, which arise out or, in whole or in part, this agreement and or the performance hereof.

E. LOCATION OF EXISTING UTILITIES AND PIPING

The location of existing piping and underground utilities, as shown on the Drawings have been taken from existing record drawings, and information provided by other utilities. However, the Owner does not assume responsibility for the possibility that during construction utilities other than those shown may be different from the locations designated on the Drawings.

The Contractor shall proceed with caution in any excavation so that the exact location of underground utilities may be determined. Before excavation or boring is commenced, it shall be the duty of the Contractor to contact all utility companies to aid in locating their underground installations. The Contractor shall, at his own expense, furnish all labor and tools to verify and substantiate the indicated locations.

Any utility lines, services, poles or other structures which are damaged shall be repaired or replaced by the Contractor at his expense and the Contractor shall indemnify the Owner from any claims resulting from such damage.

Due to the nature of the work, adjustments may be required in new construction to meet existing conditions. Such adjustments shall be made by the Contractor without additional cost to the Owner unless the scope of such adjustment(s) is approved by the Owner in the form of a Change Order.

F. LABOR PROVISIONS

The Contractor shall employ only competent and skilled workers and forepersons in the conduct of the Project. The Owner shall have the authority to order the Contractor to remove from the Project any of Contractor's employees who refuse to obey instructions relating to the carrying out of the provisions and intent of the provisions of the Contract, or who are incompetent, unfaithful, abusive, threatening or disorderly in their conduct, and any such person shall not again be employed on the Project.

G. NOTICE OF STARTING WORK

The Contractor shall notify the Engineer and Owner in writing forty-eight (48) hours before starting work at the Project Site. In case of a temporary suspension of work, he shall give reasonable notice before resuming work.

H. EFFECT OF EXTENSION OF TIME

The granting of any extension of time on account of delays which in the judgment of the Owner are avoidable delays shall in no way operate as a waiver on the part of the Owner

of its rights under this Contract.

I. EXTRA WORK

If extra work is assigned in accordance with the provisions of this contract, such work shall be considered a part hereof and subject to all its terms and requirements. Any such extra work shall be in the form of a Change Order to the Contract.

J. ASSIGNMENT OF CONTRACT

The Contract may not be assigned in whole or in part except upon the written consent of the Owner.

K. AMOUNT OF WORK PERFORMED BY PRIME CONTRACTOR

The Prime Contractor shall perform, under his direct supervision and with individuals in his immediate employ, a minimum of 70% of the contracted work value, unless otherwise approved in writing by the Owner.

L. DISCREPANCIES

Anything called for by one of the Contract Documents and not called for by others shall be of like effect as if required or called for by all. Any discrepancies between any parts of the Contract Documents shall be called to the attention of the Engineer by the Contractor, in writing, for a decision before proceeding with the work affected thereby.

M. LIABILITY OF OWNER'S REPRESENTATIVES AND OFFICIALS

No official or employee of the Owner, nor the Engineer, nor any authorized assistant or agent of either, shall be responsible for construction means, methods, techniques, sequences or procedures, time of performance or for safety precautions and programs in connection with the work. The Engineer shall not be responsible for the failure of the Contractor to carry out the work in accordance with the Contract Documents. The Engineer shall not be responsible for acts or omissions of the Contractor, any Subcontractor(s), or any of their agents or employees, or any other persons performing the work.

N. EFFECT OF INSPECTION AND PAYMENT

Neither the inspection by the Engineer nor by any of his agents, nor by an inspector, nor any order, measurements, approved modification, certificate or payment of money, nor acceptance of any part or whole of work, nor any extension of time, nor any possession by the Owner or its agents, shall operate as a waiver of any provision of this Contract or of any power reserved therein to the Owner or any right to damages thereunder; nor shall the waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. All remedies shall be construed as cumulative.

II. LEGAL RELATIONS AND RESPONSIBILITY

A. LAWS TO BE OBSERVED

The Contractor shall keep himself fully informed of all applicable Federal, State, County, and City laws, ordinances and regulations which in any manner affect those engaged or employed in the work or the materials used in the work or the conduct of the work or the rights, duties, powers, or obligations of the Owner or of the Contractor or which otherwise affect the Contract, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. He shall at all times observe and comply with, and shall cause all his agents, subcontractors and employees to observe and comply with, all such laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the Owner, the Engineer and all of their officers, agents and employees, against any claim, loss or liability arising or resulting from or based upon the violation of any such laws, ordinance, regulation, order or decree, whether by himself or by his agents, subcontractor or employees. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to such laws, ordinance, regulation, orders or decree, the Contractor shall forthwith report the same to the Engineer and the Owner.

B. PROVISIONS OF LAW

It is specifically provided that this Contract is subject to all applicable laws and that the rules of law shall prevail over any provision contained in any of the Contract Documents which may be in conflict thereto or inconsistent therewith.

III. RESPONSIBILITIES AND RIGHTS OF CONTRACTORS

A. ATTENTION TO WORK

The Contractor shall direct the work using his best skill and judgment and shall give his personal attention to and shall supervise the work to the end that it shall be performed faithfully, and when he is not personally present on the work, he shall at all times be represented by a competent superintendent or foreman who shall be present at the work and who shall receive and obey all instructions or orders given under this Contract, and who shall have full authority to execute the same, and to supply materials, tools and labor without delay and who shall be the legal representative of the Contractor. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, time of performance and for safety precautions and programs and for coordinating all portions of the construction. The Contractor shall be liable for the faithful observance of any instructions delivered to him or to his authorized representative.

B. ACCESS TO WORK

The Contractor shall at all times provide facilities for access and inspection of the work by representatives of the Owner and of such official governmental agencies having jurisdictional rights to inspect the work.

C. WORK SITE

- (1) Use of Work Site. The Contractor shall confine his equipment, apparatus, the storage of materials, and operations of his workers to limits indicated by the law, ordinance, permit, Contract Documents or directions of the Owner.

The Contractors shall not load or permit any part of a structure to be loaded with weight that will endanger its safety. The Contractor shall observe and enforce the Owner's instructions regarding signs, advertisements, fires and smoke, unless such instructions are non-permissible in accordance within the jurisdiction of another authority.

- (2) Use of Private Land. The Contractor shall not use any vacant lot or private land as a plant site, depository for materials, or as a spill site, or for any other purpose without the written authorization of the person(s) owning the property and the written approval of the Owner for the use of such property. A copy of the written Agreement between the property owner and the Contractor shall be provided to the Owner.

D. SIGNS

The Contractor may place and maintain one sign board on the Project site. No other commercial or advertising signs will be allowed on the work site or on public property in the vicinity of the work. The layout and content of the sign shall be approved by the Owner.

E. LIABILITY OF CONTRACTOR

The Contractor shall do all of the work and furnish all labor, materials, tools and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required in the manner and within the time specified in the Contract Documents. The mention of any duty or liability imposed upon the Contractor shall not be construed as a limitation or restriction or any general duty or other liability imposed upon the Contractor by this Contract, said reference to any specific duty or liability being made merely for the purpose of explanation. The Contractor shall provide all items, materials, articles, operations or methods listed, noted, mentioned or scheduled on the drawings or in any of the Contract Documents, including all labor, materials, plant, equipment, transportation and incidentals required and necessary for the completion of the work, and unless specifically shown otherwise herein, all plant, equipment and other works shall be completed in place and approved for operation. The Contractor shall be responsible to the Owner for the acts and omissions of all his employees, and all other persons performing any of the work under a contract with

the Contractor.

F. ASSUMPTION OF RISKS

The Contractor shall rebuild, replace, repair, restore, and make good all injuries, damages, re-erection, and repairs occasioned or rendered necessary by causes of any nature whatsoever, to all or any portions of the work, except as otherwise stipulated, until completion and acceptance by the Owner.

G. RESPONSIBILITY FOR DAMAGE

The Contractor shall indemnify and save harmless the Owner, its officers, employees, and agents and the Engineer from any and all loss, liability or damage and from all suits, actions, damages, or claims, of every name and description arising from the acts and omission of the Contractor, its employees, agents, representatives, or subcontractors.

H. PROTECTION OF PERSONS AND PROPERTY

The Contractor will be solely and completely responsible for conditions of the work site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The Contractor shall furnish such watchmen, guards, fences, warning signs, lights and walkways, and shall take all other precautions as shall be necessary to prevent damage to persons or property. All structures and improvements in the vicinity of the work shall be protected by the Contractor, and if such property is damaged, injured or destroyed by the Contractor, his employees, Subcontractors, or agents, it shall be restored to a condition as good as when he entered upon the work.

The safety provisions of applicable laws, including but not limited to building and construction codes, shall be observed. Machinery, equipment, and all hazards shall be eliminated or guarded in accordance with OSHA standards.

Any construction inspection conducted by the Owner and/or Engineer of the contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures.

I. PROTECTION OF CONTRACTOR'S WORK AND PROPERTY

The Contractor shall protect his work, supplies, and materials from damage due to the nature of the work, the action of the elements, trespassers or any cause whatsoever, until the completion and acceptance of the work.

Neither the Owner nor any of its officers, employees or agents nor the Engineer assumes any responsibility for collecting indemnity from any person or persons causing damage to the work of the Contractor.

J. PROTECTION OF EXISTING STRUCTURES

Unless otherwise indicated in the Contract Documents or unless otherwise taken care of by the Owner thereof, all utilities and all structures of any nature, whether below or above ground, that may be affected by the work shall be protected and maintained by the Contractor and shall not be disturbed or damaged by him during the progress of the work; provided that should the Contractor disturb, disconnect, or damage any utility or any structure, all expenses of whatever nature arising from such disturbance or the replacement or repair thereof shall be borne by the Contractor.

K. MAINTENANCE OF TRAFFIC

Throughout the performance of the work or in connection with this Contract, the Contractor shall construct and adequately maintain suitable and safe crossing over the trenches and such detours as are necessary to care for public and private traffic. The material excavated from trenches shall be compactly deposited along the side of the trench or elsewhere in such manner as shall give as little inconvenience as possible to the traveling public, to adjoining property owners, to other contractors or to the Owner. Where necessary or required, road detours must be approved by the Owner or other appropriate authorities at least twenty-four (24) hours in advance of the proposed rerouting. MUTCD standards must be adhered to at all times.

L. PRESERVATION OF STAKES AND MARKS

The Contractor shall carefully preserve all bench marks, reference points, stakes, property pins, survey monuments and like items. In case he causes damage or disturbance, he will be charged with the resulting expense of replacement and shall be responsible for any mistakes that may be caused by their loss or disturbance.

M. APPROVAL OF CONTRACTOR'S PLAN

The approval by the Engineer or the Owner of any drawing or any method of work proposed by the Contractor shall not relieve the Contractor of any of his responsibility for any errors therein and shall not be regarded as any assumption of risk of liability by the Owner or any officer or employee thereof, and the Contractor shall have no claim under the Contract due to the failure or inefficiency of any plan or method approved. Such approval shall be considered to mean merely that the Engineer or Owner has no objection to the Contractor's using, upon his own full responsibility, the plans or methods proposed.

N. SUGGESTIONS TO CONTRACTOR

Any plan or method of work suggested by the Engineer or Owner to the Contractor, but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor. The Engineer and the Owner shall assume no responsibility therefore.

O. LICENSES, PERMITS AND REGULATIONS

The Contractor shall secure all Federal, State, County and City licenses required by law. He shall obtain and pay for all necessary permits. He shall give all notices and comply with all laws, ordinances and regulations bearing on the conduct of the work as drawn and specified.

P. TAXES

Contractor shall, without additional expenses to the Owner, pay all applicable Federal, State and Local sales and other taxes, except taxes and assessments on the real property comprising the site of the Project.

Q. CONSTRUCTION UTILITIES

The Contractor shall provide and maintain all necessary utilities, including but not limited to water, electricity, telephones, roads, fences, sanitary facilities, suitable storage places, except as may be otherwise specifically stipulated in the Contract Documents. Sanitary facilities shall be suitable for those employed on this Contract and of a type that will not create a public nuisance. He shall provide and maintain an adequate potable water supply for use of employees at the site of the work. Sanitary facilities and potable water supply shall be subject to approval of Local and State regulatory agencies.

R. COORDINATION

The Contractor shall coordinate his schedule with all other contractors or employees of the Owner who may be working in the vicinity of the work site. He shall conduct his operation as to interfere to the least possible extent with the work of such contractors or employees.

S. SUBCONTRACTORS

The Contractor shall notify the Owner in writing of the names of all Subcontractors he proposed to employ on the Contract and shall not employ any Subcontractors until the Owner's approval in writing covering such Subcontractors has been obtained. Such approval shall not be unreasonably withheld.

The Contractor agrees to be fully and directly responsible to the Owner for all acts and omissions of his Subcontractors and of any other person employed directly or indirectly by the Contractor or Subcontractors, and this Contract obligation shall be in addition to the liability imposed by law upon the Contractor.

Nothing contained in the Contract Documents shall create any contractual relationship between Subcontractor and the Owner. It shall be further understood that the Owner will have no direct relations with any Subcontractor. Any such necessary relations between

the Owner and the Subcontractor shall be handled through the Contractor.

The Contractor agrees to bind every Subcontractor by all terms of the Contract Documents as far as applicable to the Subcontractor's work.

T. UNSATISFACTORY SUBCONTRACTORS

Should any Subcontractor fail to perform in accordance with the provisions of this Contract, the Contractor shall be notified in writing to take proper corrective action, or the Owner may require that the Contractor terminate the Subcontractor.

U. REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES

The Contractor shall remove from the work site all rejected or condemned materials or structures of any kind brought to the work site or incorporated in the work. Upon his failure to do so, or to make satisfactory progress in so doing within forty-eight (48) hours after the service of a written notice from the Engineer or Owner, the rejected or condemned material or work may be removed by the Owner and the cost of such removal shall be subtracted from monies that may be due or may become due to the Contractor on account of or by virtue of this Contract. No such rejected or condemned material shall again be offered for use by the Contractor under this Contract.

V. ERRORS AND OMISSIONS

If the Contractor, in the course of the work, finds any errors or omissions in the Contract Documents or in the layout as given by survey points and instructions, or if he finds any discrepancy between the Contract Documents and physical conditions of the work site he shall immediately notify the Engineer, in writing for correction. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

W. PROOF OF COMPLIANCE WITH CONTRACT

In order that the Engineer and the Owner may determine whether the Contractor has complied with the requirements of the Contract Documents, compliance with which is not readily ascertainable through inspection and tests of the work and materials, the Contractor shall, at any time requested, submit to the Engineer and the Owner properly authenticated documents or other satisfactory proof as to his compliance with such requirements.

X. CLEANING UP

The Contractor shall not allow the work site to become littered with trash and waste materials, but shall maintain the same in a neat and orderly condition throughout the term of the Contract. The Contractor shall dispose of any such materials in accordance with all applicable laws. On or before completion of the work, the Contractor shall thoroughly clean all pits, pipes, chambers, or conduits which are a part of the work or premises

which he has entered upon, shall bear down and remove all temporary structures built by him and shall remove rubbish of all kinds from any of the grounds he has occupied and leave them in a neat and clean condition.

Y. FINAL GUARANTY

All workmanship and materials shall be guaranteed by the Contractor for a period of one year from the date of final acceptance by the Owner, unless otherwise stipulated in the Contract Documents.

If, within said guaranty period, repair or changes are required in connection with the work, which, in the opinion of the owner, is rendered necessary as the result of use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall promptly upon receipt of written notice from the Owner, and without expense to the Owner: (a) place in satisfactory condition all of such work, correct all defects therein; and (b) make good all damage to the building, site, equipment or contents thereof, which in the opinion of the Owner, is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract; and (c) make good any work or material, or the equipment and contents of building structure or site disturbed in fulfilling any such guarantee.

If the Contractor fails to comply within ten (10) days after receipt of written notice with the terms of this guaranty, the Owner may have the defects corrected, and the Contractor shall be liable for all expenses incurred; provided, however, that in case of an emergency where in the opinion of the Owner, delay would cause serious loss or damage, repairs may be made without notice being given to the Contractor and the Contractor shall pay the cost thereof.

Z. PATENTS

1. Except as otherwise provided in these Contract Documents, Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless Owner, Engineer, and their duly authorized representatives or employees, from all suits at law, or actions of every nature for, or on account of the use of, any patented materials, equipment, devices, or processes.
2. Should Contractor, his agents, servants, or employees, be enjoined from furnishing or using any invention, article, material, or appliance supplied or required to be supplied or used under this Contract, Contractor shall promptly offer other articles, materials, or appliances in lieu thereof, of equal efficiency, quality, finish, suitability, and market value, for review by Engineer. If Engineer should disapprove the offered substitutes and should elect, in lieu of a substitution, to have supplied, and to retain and use, any such invention, article, material, or appliance as may by this Contract be required to be supplied,

Contractor shall pay such royalties and secure such valid licenses as may be requisite and necessary for Owner and officers, agents, and employees, or any of them, to use such invention, article, material, or appliance without being disturbed or in any way interfered with by any proceeding in law or equity on account thereof. Should Contractor neglect or refuse to make any approved substitution promptly, or to pay such royalties and secure such licenses as may be necessary, then in that event Engineer shall have the right to make such substitution, or Owner may pay such royalties and secure such licenses and charge the cost thereof against any money due Contractor from Owner, or recover the amount thereof from him and his sureties notwithstanding that final payment under this Contract may have been made.

AA. LEGAL RESPONSIBILITY OF CONTRACTOR IN PERFORMING WORK

The Contractor shall be required to comply with all Local, State, and Federal laws or regulatory requirements applicable to the performance of this Contract, to include any laws promulgated or enacted during the Contract Time. Lack of knowledge of such laws or regulations shall not relieve the Contractor of this duty. Any losses resulting to the Owner because of the failure of the Contractor to comply with this duty shall be borne by the Contractor.

BB. WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials supplied and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

IV. RESPONSIBILITIES AND RIGHTS OF OWNER

A. SURVEYS AND STAKING

The Owner, through the Engineer, will survey and place control stakes for general layout and control grades for the construction work. The protection and care of such stakes shall

thereafter be the responsibility of the Contractor, and any stakes lost or destroyed will be replaced at the Contractor's expense.

B. RIGHTS-OF-WAY

The Owner will provide all necessary rights-of-way and easements.

C. AUTHORITY OF THE ENGINEER

All work performed under this Contract shall be in accordance with the Contract Documents and in a good workmanlike manner. To prevent disputes and determine acceptability and fitness of the several kinds of work and materials which are to be paid for under this Contract the Engineer shall: (a) decide all questions relative to the true construction meaning, and intent of the Contract Documents; (b) decide all questions which may arise relative to the classifications and measurements of quantities and materials and the fulfillment of this Contract; (c) and have the authority to reject or condemn all work or material which does not conform to the terms of this Contract. The Engineer's estimate and decision in all matters shall be a condition precedent to an appeal to the Owner for other compensation under this Contract, and a condition precedent to any liability on the part of the Owner to the Contractor on account of this Contract.

D. INSPECTION

The Engineer, Owner, and their representatives shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.

If the Contract Documents, the Engineer's instructions, lays, or ordinances require any work to be specifically tested or approved, the Contractor shall give the Engineer and the Owner timely notice of the date and time fixed for the inspection or test.

If any work for which inspection is required in accordance with the Contract is covered without the approval and consent of the Engineer, the work shall be uncovered for inspection and restored at the Contractor's expense. Any work for which inspection is not specifically required by the Contract may be uncovered for inspection by the Engineer. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of re-examination and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

Properly authorized inspectors shall be considered to be the representatives of the Owner, limited to the duties and power entrusted to them. Inspectors shall be authorized to inspect materials and workmanship of those portions of the work to which they are assigned, either individually or collectively, and under instructions of the Engineer and Owner are to report any and all deviations from the Contract Documents which may come to their notice. Any inspector shall have the right to order the work stopped if, in his judgment, such action is necessary to (a) allow proper inspection, (b) avoid

irreparable damage to the work, or (c) avoid subsequent condemnation of work which could not be readily replaced or restored to an acceptable condition. Such stoppage shall be for a period reasonably necessary for a determination by the Engineer that the work will in fact proceed in due fulfillment of all Contract requirements.

E. RETENTION OF DEFECTIVE WORK

If any portion of the work performed or material furnished under this Contract shall prove defective, and if the imperfection in the same shall not be of sufficient magnitude or importance to make the work dangerous or wholly undesirable, or if the removal of such work is impracticable or will create conditions which are dangerous or undesirable, the Engineer, with the approval of the Owner, shall have the right and authority to retain such work instead of requiring the defective work to be removed and reconstructed. The Engineer shall recommend to the Owner such deductions therefore in the payments due or to become due the Contractor as may be just and reasonable, and the Owner may make such deductions as are reasonable.

F. CHANGES IN WORK

The Owner shall have the right to order additions to, omissions from, or corrections, alterations and modifications in the line, grade, form dimensions, plan or kind or amount of work or materials herein contemplated, or any part thereof, either before or after the beginning of construction. Changes involving an increase or decrease in the cost of the work, the time permitted for the work, or inconsistencies within the Contract Documents, shall be approved in accordance with terms set forth in "Alterations, Omissions and Extra Work" of these General Provisions, and such order will be binding upon the Contractor. Such alterations shall in no way affect, vitiate, or make void this Contract or any part thereof, except that which is necessarily affected by such alterations.

In any case of neglect or refusal by the Contractor to perform any extra work which may be authorized by the Owner or to make satisfactory progress in the execution of the same, the Owner may employ any person or persons to perform such work and the Contractor shall not in any way interfere with the person or persons so employed.

G. ADDITIONAL DRAWINGS

The Owner may furnish, through the Engineer, additional drawings during the progress of the work as are necessary to make clear or to define in greater detail the intent of the Contract Documents. The Contractor shall make his work conform to all such drawings.

H. EMERGENCY PROTECTION

In the event of any emergency which threatens loss, damage or injury to persons or property, and which requires immediate action to remedy, the Owner, with or without notice to the Contractor, may provide suitable protection to the said property and persons by causing such work to be performed and such material to be furnished as shall provide

such protection as the Owner may consider necessary and adequate. The cost and expense of such work and material so furnished shall be borne by the Contractor, and if the same shall not be paid on presentation of the bills therefore, such costs shall be deducted from any amounts due or to become due the Contractor.

The performance of such emergency work under the direction of the Owner shall in no way relieve the Contractor from any damages or liability which may arise during or after such precautions have been taken by the Owner.

I. SUSPENSION OF WORK

The Owner may at any time suspend the work, or any part thereof by giving written notice to the Contractor. The work shall resume by the Contractor on a date fixed in a written notice from the Owner to the Contractor. If such stoppage is due to no fault of the Contractor, and not otherwise authorized by other provisions of the Contract Documents, the Owner shall reimburse the Contractor for reasonable expenses and adjust the time allowed for Contract completion; provided that there shall be no reimbursement if the period of suspension occurs after expiration of the time allowed for completion of the work, exclusive of any extension of time.

J. RIGHT OF OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of the Contract Documents are violated by the Contractor or by any of his Subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate this Contract. Such notice shall contain the reasons for intention to terminate this Contract. Unless within ten (10) business days after the serving of such notice upon the Contractor, such violation shall cease or satisfactory arrangements for correction be made in writing, the Contract shall cease and terminate. In event of such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to perform the Contract. If the Surety does not commence performance thereof within thirty (30) business days from the date of the mailing to such Surety of said notice of termination, the Owner may take over the work and prosecute the same to completion by contract or force account at the expense of the Contractor, and his Surety shall be liable to the Owner for any excess cost to the Owner.

Where the Contractor has failed to complete minor items of work within the time set for completion of the Contract, but limited to cases where the value of such minor work does not exceed five percent (5%) of the total construction cost of the work, the Owner shall have the right, without terminating this Contract, of completing said items of work and then deducting from the sums due the Contractor under this Contract, the total cost incurred in completing such minor items of work. In such cases, the Owner may complete such minor items of work by force account or by employing some other Contractor. If the Owner adopts this procedure, it shall deliver to the Contractor a written statement, describing the items not completed, or imperfectly completed, and shall in such statement, demand that the Contractor complete the work in conformity with the

Contract and within a time to be fixed by the Owner. If the Contractor neglects to comply within the time stated, the Owner may proceed, as herein above set forth. The time within which the Contractor shall be required to complete the items set forth in such statement will depend on the amount of time required for the performance of said work, but shall not in any event be less than ten (10) business days, nor more than thirty (30) business days.

K. PLACING PORTIONS OF WORK IN SERVICE

If desired by the Owner, portions of the work may be placed in service as completed, and the Contractor shall give proper access to the work for this purpose. Use and operation shall not constitute an acceptance of the total Project.

V. WORKMANSHIP, MATERIALS AND EQUIPMENT

A. WORKMANSHIP

All workmanship shall be of the highest quality, performed by persons skilled in the applicable trades, and shall be subject to the inspection, approval, or rejection by the Owner in accordance with the requirements and intent of the Contract Documents. The Owner or Engineer shall have the right to order the Contractor to correct or replace unacceptable workmanship. Any other portions of the work disturbed or damaged by such correction or replacement shall be made good at the Contractor's expense.

B. INTERPRETATION OF SPECIFICATIONS AND DRAWINGS

The Technical Specifications and the Drawings are intended to be explanatory of each other. Any work indicated on the Drawings and not in the Technical Specifications, or vice versa, shall be brought to the attention of the Engineer for verification of the actual intent. Contradictions of this nature not brought to the attention of the Engineer for correction or verification, and acted upon by the Contractor shall be considered "At the Contractor's Risk", and if necessary, corrected by the Contractor at his expense. All work shown on the Drawings, the dimensions of which are not labeled, shall be determined by the Engineer. Should it appear that the work to be done, or any of the matters relative thereto, is not sufficiently detailed or explained in these Contract Documents, including the Drawings, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform thereto as part of this Contract. In the event of any doubt or question arising respecting the true meaning of the Contract Documents, reference shall be made to the Owner and the decisions thereon shall be final.

C. GENERAL QUALITY OF MATERIALS

Materials and equipment shall be new and of a quality equal to that specified or approved. Whenever under this Contract it is provided that the Contractor shall furnish materials or manufactured articles, or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be approved by the Owner upon

recommendation of the Engineer. In general, the work performed shall be in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.

D. MATERIALS AND EQUIPMENT SPECIFIED BY NAME

Except as hereinafter otherwise provided, whenever any material or equipment is indicated or specified by patent or proprietary name, or by the name of the manufacturer, such specification shall be considered as used for the purpose of describing the material or equipment desired and shall be considered as followed by the words, "or approved equal", and the Contractor may offer any material or equipment which shall be approved by the Owner and Engineer and be equal in every respect to that specified; provided, that written approval is obtained from the Owner prior to incorporation into the work.

E. APPROVAL OF MATERIALS AND EQUIPMENT

All materials and equipment offered to be furnished for the work are subject to inspection and approval or rejection by the Engineer or Owner. Approval shall be obtained prior to purchase and delivery of materials and equipment to the work site.

F. DRAWINGS OF EQUIPMENT AND FABRICATED MATERIALS

As soon as possible after execution of the Contract, the Contractor shall submit to the Engineer a complete listing of the manufacturers of each item of equipment or assembly fabricated off the site which he proposes to furnish on the Project, together with sufficient information, including shop assembly and detail drawings, manufacturers' specifications and performance data to demonstrate clearly that the materials and equipment to be furnished comply with the provisions and intent of the Contract Documents. If the information shows any deviation from the Contract Documents, the Contractor shall, by a statement in writing accompanying the submittal, advise the Engineer of the deviation and reason. The Contractor shall also submit to the Engineer shop drawings showing details of structural steel and concrete reinforcing steel, banding details, piping details, and of other items necessary for the proper installation of material into the completed work.

All drawings and details described herein, when submitted, shall bear the stamp of the Contractor and initials of his authorized representative indicating that the Contractor has reviewed and approved such drawings as meeting his interpretation of the requirements of the Contract.

The Submittal shall be made in triplicate plus the number of copies that the Contractor desires to be returned to him. Upon review, the Engineer will return all but three copies, which will be stamped or marked either approved, approved subject to minor designated changes, or disapproved. In the latter case an explanation will be given as to why the material or equipment is unsatisfactory.

The Contractor shall make any indicated corrections on the drawings returned and shall resubmit corrected drawings until final approval. Approval by the Engineer of shop drawings and other data submitted by the Contractor shall not relieve the Contractor from responsibility for errors or omissions therein, or for furnishing the materials and equipment of proper dimension, size, quantity, quality, and all performance characteristics to meet the requirements and intent of the Contract Documents.

The Contractor shall have no claim for damages or extension of time on account of any delay in the work resulting from the reasonable and timely rejection of material, revision and resubmittal of drawings and other data for approval.

G. SUBSTITUTIONS

If the Contractor proposes to substitute any equipment, facilities or processes in place of those specified in the Contract Documents, the Contractor shall prepare and submit to the Engineer detailed drawings showing any modifications, including, but not limited to structures, reinforcing steel, piping, electrical and mechanical work, to adapt the Drawings to the alternate equipment or facilities. The Engineer, with the Owner, will review such Drawings and may approve, reject, or indicate thereon changes necessary to comply with the project requirements. See Section 1631 – Substitutions, for additional conditions and requirements.

H. SAMPLES

Whenever requested by the Engineer or Owner, or when called for by the Contract Documents, sample or test specimens of the materials to be used or offered for use in the work shall be obtained or prepared by and at the expense of the Contractor. The samples shall be representative in all respects of the material offered or intended to be used, shall be supplied in such quantities and sizes as may be required for proper examination and tests, and shall be delivered to the Engineer freight prepaid along with identification as to their sources and types or grades. All samples shall be submitted and approved before shipment of the material to the work site.

No materials or equipment of which samples are required to be submitted for approval shall be incorporated into the work until such approval has been given by the Engineer.

I. TESTS

Unless otherwise stipulated in the Contract Documents, all testing required shall be provided by and at the sole expense of the Contractor. All laboratory tests required shall be made by a testing laboratory approved by the Owner.

All tests shall be performed in accordance with specific procedures identified in the Contract Documents, or if not therein specified, they shall be performed in accordance with applicable recognized standard practice. Reports of tests provided by the Contractor shall be promptly submitted to the Engineer and the Owner, or if provided by the

Engineer, copies shall be promptly submitted to the Contractor.

The Contractor shall give the Engineer and the Owner sufficient notice of the time and place of any test to be made at the point of manufacture, assembly, or fabrication in order that the Engineer or the Owner may witness the test.

J. MATERIAL TESTS

All materials incorporated in the work shall be subject to inspection and test as follows: All tests, except as noted, shall be made by a laboratory, employed and paid for by the Contractor. The laboratory shall be approved by the Owner prior to being retained by the Contractor. Samples at the place of manufacture shall be taken by a representative of the laboratory. Samples of construction materials from the site of the work, such as sand, gravel, concrete cylinders, and pipes for which laboratory tests are required, shall be taken, assembled or prepared on the site of the work by representatives of the laboratory or Owner. Signed copies of test reports on laboratory forms or letterheads shall be delivered to the Engineer as soon as available.

K. STORAGE OF MATERIALS & EQUIPMENT

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work and to allow access for proper inspection.

L. OPERATING AND MAINTENANCE DOCUMENTATION

Before final acceptance of the work, the Contractor shall deliver to the Engineer a complete set of suitable operating and maintenance instructions and parts list documentation for each piece of equipment or equipment assembly. These instructions and lists shall be assembled in an orderly arrangement and shall be accompanied by a tabulation of the information provided for each item of equipment.

M. COMPLIANCE WITH STATE SAFETY CODE

All necessary machinery guards, railings, and other protective devices and equipment shall be provided as specified by the OSHA, or other regulatory agencies or departments.

VI. PROSECUTION OF WORK

A. EQUIPMENT AND METHODS

The work under the Contract shall be prosecuted with all materials, tools, machinery, apparatus and labor, and by such methods as are necessary to complete the work. If at any time, any part of the Contractor's plant or equipment or any of his methods of execution of the work appear to the Owner or the Engineer to be unsafe, inefficient or inadequate to insure the required quality or rate of progress of the work, he may order the Contractor to increase or improve his facilities or methods and the Contractor shall

comply promptly with such orders; but neither compliance with such orders nor failure of the Engineer or Owner to issue such orders shall relieve the Contractor from his obligation to secure the degree of safety, the quality of the work and the rate of progress required. The Contractor alone shall be responsible for the safety, adequacy and efficiency of his plant, equipment and methods.

If the Contractor fails to promptly comply with the order of the Owner or Engineer issued in accordance with this Paragraph, the Owner shall have the right to terminate the Contract.

B. TIME OF COMPLETION

The Contractor shall promptly begin the work under the Contract, and all portions of the project made the subject of this Contract shall begin and be so prosecuted that they shall be completed and ready for full use within the time specified elsewhere in the Contract Documents.

C. AVOIDABLE DELAYS

Avoidable delays in the prosecution or completion of the work shall include all delays which might have been avoided by the exercise of care, prudence, foresight or diligence on the part of the Contractor.

Delays in the prosecution of parts of the work, which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of other parts of the work nor the whole work within the time herein specified, will be deemed avoidable delays within the meaning of this Contract.

D. UNAVOIDABLE DELAYS

Unavoidable delays in the prosecution or completion of the work under this Contract shall include all delays which may result through causes beyond the control of the Contractor and which he could not have prevented by the exercise of care, prudence, foresight or diligence. Orders issued by the Owner changing the amount of work to be done, the quantity of materials to be furnished, or the manner in which the work is to be prosecuted, failure of the Owner to provide rights-of-way and unforeseen delays in the completion of other contractors under contract with the Owner will be considered unavoidable delays, so far as they necessarily interfere with the Contractor's completion of the whole of the work. Delays due to adverse weather conditions, unless of an extreme nature such as hurricanes, floods, or tornados will not be regarded as unavoidable delays as the Contractor should understand that such conditions are to be expected and plan his work accordingly.

E. NOTICE OF DELAYS

Whenever the Contractor anticipates or experiences any delay in the prosecution of the

work he shall immediately notify the Owner and Engineer, in writing, of such delay and its cause in order that the Owner may take immediate steps to prevent, if possible, the occurrence or continuance of the delay, or, if this cannot be done, may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the work is to be delayed thereby.

After the completion of any part or the whole of the work, the Owner, in approving the amount due the Contractor, will assume that any and all delays which have occurred in its prosecution and completion have been avoidable delays, except such delays as shall have been called to the attention of the Owner at the time of their occurrence and later found by the Owner to have been unavoidable. The Contractor will make no claims that any delay not called to the attention of the Owner at the time of its occurrence has been an unavoidable delay.

F. EXTENSION OF TIME

- (1) UNAVOIDABLE DELAYS: For delays which are unavoidable, as determined by the Owner, the Contractor will be allowed, upon Contractor application, an extension of time beyond the time specified for completion elsewhere in the Contract Documents, proportionate to the length of such unavoidable delay. No liquidation damages or engineering and inspection costs as are charged in the case of extensions of time for avoidable delays, will be assessed for unavoidable delays.
- (2) AVOIDABLE DELAYS: If the work called for under this Contract is not finished and completed in all parts and in accordance with all requirements, within the time specified for completion in the Contract Documents (including extensions of time granted because of unavoidable delay), or if at any time it shall appear to the Owner that the Contractor will be unable to finish and complete the work, the Owner may grant the Contractor such extensions of time as the Owner deems in its best interest.

If such extension of time for Avoidable Delay is not granted, the provisions of the Contract Document, at the discretion of Owner, may be followed. However, at the option of the Owner and where the delay may be of such a duration not to inflict serious injury to the operations of the Owner in regard to the project, the Owner may assess liquidated damages for each calendar day delay exceeding the contract completion date. The sum of liquidated damages on a per day basis will be stipulated in the Contract Documents.

G. UNFAVORABLE WEATHER AND OTHER CONDITIONS

During unfavorable weather and other unfavorable conditions, the Contractor shall pursue only such portions of the work as shall not be damaged thereby. No portions of the work whose satisfactory quality or efficiency will be affected by an unfavorable condition shall be constructed while these conditions exist unless by special means or

precautions approved by the Owner and Engineer.

VII. PAYMENTS AND CONTRACT COMPLETION

A. PROGRESS ESTIMATES AND PAYMENTS

Immediately upon execution and delivery of the Contract and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule.

No payments under the Contract will be made except upon the presentation by the Contractor of a Periodical Estimate for Payment approved by the Engineer. Payment forms, supplied by the Owner, shall show that the work covered by the payments has been completed and the payments therefore are due in accordance with the Contract. Such payment forms shall be submitted to the Engineer, by the Contractor, by the 25th day of a calendar month to permit review. Upon presentation of certified copies of purchase bills and freight bills, the Owner will include in such monthly estimate, payments for materials that will eventually be incorporated in the work, providing that such material is suitably stored on the work site or other Owner approved site, at the time of submission of the estimate. Such materials, when so paid for by the Owner, will become the property of the Owner and, in case of default on the part of the Contractor, the Owner may use or cause to be used by others these materials in construction of the work. However, the Contractor shall be responsible for safeguarding such materials against loss or damage of any nature whatsoever, and in case of any loss or damage, the Contractor shall replace such lost or damaged materials at no cost to the Owner.

Except as otherwise provided, the first estimate shall be of the value of the work performed and materials delivered and suitably and safely stored at the work site or other Owner approved site. Every subsequent estimate, except the final estimate, shall be for the value of the work performed and materials delivered and suitably stored since the preceding estimate was made; and provided, also, that materials delivered for the Project for which payment is included in the estimate, shall not be removed from the work site or approved storage site without the written consent of the Owner.

The estimates shall be signed by the Engineer and approved by the Owner, and after such approval, the Owner, subject to the foregoing provisions, will pay or cause to be paid to the Contractor, in the manner provided by law, an amount equal to ninety percent (90%) of the estimated value of the work performed and the full value of the materials furnished, delivered, unused and suitably and safely stored as provided above.

B. ALTERATIONS, OMISSIONS AND EXTRA WORK

The Owner reserves the right to increase or decrease by fifteen percent (15%) the

quantity of any item or portion of the work, or to omit portions of the work as may be deemed necessary or advisable by the Owner and, also, to make such alterations or deviations, additions to, or omissions as may be deemed necessary during the progress of the work. Upon written order of the Owner, the Contractor shall proceed with the work as increased, decreased or altered.

The Engineer is authorized to order, on behalf of the Owner, minor changes in the work which do not involve extra cost or an extension of time to the Contract and which does not change the character of the work. The Engineer is not authorized to order any other changes, alterations, omissions, additions, or extra work unless the same is approved by a written Change Order properly authorized in writing by the Owner. No claim of Contractor for extra compensation because of any change, alteration, omission, addition or extra work shall be paid or be payable unless a written order to the same change is signed by the Owner.

All adjustments, if any, in the Contract Price to be paid to Contractor because of any such change, alteration, deletion, addition, or extra work shall be made only to the extent and in the manner provided in the Contract Documents. Such alteration shall in no way affect, vitiate, or make void this Contract or any part thereof, except that such is necessarily affected by such alterations and is clearly the evident intention of the parties to this Contract. Any such work performed by the Contractor prior to execution of the Change Order by the Owner shall be at the risk of the Contractor. In case of neglect or refusal by the Contractor to perform any extra work which may be authorized by the Owner, the Owner may employ any person or persons to perform such work and the Contractor shall not in any way interfere with the person or persons so employed.

When any changes decrease the amount of work to be done, such changes shall not constitute a basis or reason for any claim by Contractor for extra compensation or damages on account of any anticipated profits which he thereby loses on the omitted work, and Contractor shall not be entitled to any compensation or damages therefore.

C. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS

The Owner may withhold from payments to the Contractor, in addition to the retained percentage, such an amount or amounts as may be necessary to cover:

- (1) Payments that may be earned or due for just claims for labor or materials furnished in and about the work.
- (2) Defective work not remedied.
- (3) Failure of the Contractor to make proper payments to a subcontractor.
- (4) Reasonable doubt that this Contract can be completed for the balance then unpaid.
- (5) Damage to another Contractor, where there is evidence thereof.
- (6) The Contractor's failure to resolve bodily injury or property damage claims of any person or entity.

The Owner will have the right to act as agent for the Contractor in disbursing such funds

as have been withheld, pursuant to this Paragraph, to the party or parties who are entitled to payment there from. The Owner shall render to the Contractor a proper accounting of all such funds disbursed in behalf of the Contractor.

The Owner also reserves the right to refuse payment of the final estimate due to the Contractor until it is satisfied that all subcontractors, material suppliers, and employees of the Contractor have been paid in full.

D. UNIT PRICE CONSTRUCTION ITEMS

No work shall be performed by the Contractor on any unit price items beyond the quantity as set forth in the Contract, unless specifically approved by the Owner and directed by the Engineer in writing to do so. It is anticipated that the quantities as set forth for such unit price items are reasonable and that said quantities will not be exceeded by more than 10%. The Contractor shall carefully study the Contract Documents to determine the extent and scope of the work included under lump sum items in the Contract. It may be that work under some of such unit price items is in addition to similar work to be performed under lump sum items and paid for thereunder.

E. COMPENSATION FOR EXTRA WORK AND WORK OMITTED

Whenever corrections, additions, or modifications in the work under this Contract change the amount of work to be performed or the amount of compensation due the Contractor, the Owner will have prepared a written Change Order, setting forth the extra work to be performed or work omitted. Such a Change Order will also set forth the method of computing the added or reduced compensation to be due the Contractor. The method of computing the added or reduced compensation will be determined under one or more of the following methods as selected by the Owner:

- (1) By Unit Price contained in the Contractor's original Proposal and incorporated in the Contract with a change in quantity.
- (2) By a supplemental schedule of prices contained in the Contractor's original Proposal and incorporated in the Contract.
- (3) By an acceptable lump sum of the following five (5) items as full and proper compensation:
 - (a) The necessary reasonable cost to the Contractor of the material required for the work as furnished and delivered by the Contractor at the site of the work.
 - (b) The necessary cost to the Contractor of the labor required to incorporate all of said material into the work and to finish the work in accordance with directions.
 - (c) The necessary reasonable cost to the Contractor for the use of equipment

used for the work.

- (d) The cost of Workers' Compensation, insurance premiums, State Unemployment and Federal Social Security payments on the labor included in Item (b).
- (e) Fifteen percent (15%) of the sum of items (a), (b), (c), and (d), which shall be considered as covering all other expenses and profit.

Under method (3) described above, in order that a proper determination may be made by the Engineer of the cost of labor and materials incorporated into extra work, the Contractor shall furnish weekly an itemized statement of material and labor supplied, together with the cost vouchers for quantities and prices of such labor, materials or work. In the event the Contractor fails to comply with the above provisions, no claim for compensation shall be made against the Owner.

F. ACCEPTANCE OF WORK

The work will be accepted in writing by the Owner when completed in accordance with the terms of the Contract Documents as verified by the Engineer. Such acceptance, however, will be predicated upon the approval of State and/or Federal regulatory agencies having concurrent jurisdiction on the work or worksite.

G. FINAL ESTIMATE AND PAYMENT

The Contractor shall, as soon as practicable after the final acceptance of the work under this Contract, submit a final estimate for payment.

Such final estimate shall be checked, approved and signed by the Engineer and the Owner. After such approval, the Owner shall pay or cause to be paid to the Contractor the entire sum found to be due after deducting therefrom all previous payments and mounts as the terms of the Contract prescribe.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete release of all claims or liens arising out of this Contract and an affidavit that, so far as he has knowledge or information, the release includes all the labor and materials for which a lien or claim could be filed. The Contractor may, if a Subcontractor refuses to furnish a release in full, furnish a bond satisfactory for the full amount of the Subcontractor's lien to the Owner indemnifying the Owner against any claim or lien. If any claim or lien remains unsatisfied after all payments are made, the Contractor shall reimburse the Owner all money that it may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

END OF SECTION

SECTION 0650
ENGINEER'S SUPPLEMENTARY CONDITIONS

SECTION 0650

ENGINEER'S SUPPLEMENTARY CONDITIONS

1.01 PROJECT DESCRIPTION: Plyler Park Renovation

1.02 DEFINITIONS:

- A. Owner: City of Myrtle Beach
Post Office Drawer 2468
Myrtle Beach, SC 29578
- B. Engineer: DDC Engineers, Inc. / The LandArt Company
1298 Professional Drive
Myrtle Beach, SC 29577

1.03 SCOPE OF WORK: The Project consists of hardscape demolition, landscape removal and site improvements to the existing oceanfront Plyler Park, located at 1000 N Ocean Boulevard, Myrtle Beach, South Carolina. Overall improvements include the construction / installation of the Goddess of the Sea sculpture, a concrete stage, several pergolas, concrete paving, site furnishings and associated electrical, landscape and irrigation components. This current Invitation for Bid (IFB #18-B0094) includes the construction / installation of the Goddess of the Sea sculpture, a concrete stage, site furnishings and associated conduit, electrical and landscape components.

1.04 PLANS & SPECIFICATIONS: The Contractor will receive five (5) sets of plans and specifications to complete the work.

1.05 CONSTRUCTION STAKE OUT:

- A. Alignment and Control: The Engineer will provide a base line for construction alignment and a benchmark for the elevation datum.
- B. Stake Out: The Contractor shall furnish and perform all construction stake out from the Control Points furnished, and shall be totally responsible to construct the work in accordance with the plans and specifications. The Engineer's checking of grade and offset stake out shall in no way relieve the Contractor of this responsibility.

1.06 WORK SCHEDULE: The Contractor shall, upon notice of award or as otherwise requested, furnish the Engineer and Owner with both a construction staging plan and job schedule showing the various components of work and the anticipated beginning and completion date for each particular component of the project. The Contractor shall coordinate with the Engineer and Owner to ensure there is no known conflict in schedule dates.

1.07 REQUIRED RECORDS ON SALES AND USE TAX: In order that the Owner may substantiate a refund claim for sales and use taxes, the Contractors shall furnish certified statements in triplicate, setting forth the cost of construction materials, supplies and fittings, and equipment which becomes a part of, or are annexed to any building or structure being erected, altered, or repaired under contract, with the Owner and the amount of sales and/or use taxes paid thereon.

1.08 EXISTING CONDITIONS: The Contractor, in submitting a proposal and in signing this contract, acknowledges that he has thoroughly investigated the existing conditions and has examined the plans and specifications, understanding clearly their requirements and the requirements necessary to construct all to completion the improvements contracted for; that he is fully prepared to sustain all losses and damages incurred by the actions of elements; is prepared to provide all necessary tools, appliances, machinery, skilled and unskilled workmen, and all necessary materials to successfully complete the work. The Contractor should be hereby made aware that he is responsible for working the subgrade by disking, cutting, rolling, mixing or whatever means necessary to obtain desired compaction. If the Contractor has made the necessary efforts to bring said subgrade to compaction and, in the opinion of the Engineer, the subgrade is unsuitable, the Contractor shall be authorized to muck and backfill these areas.

The Contractor should be hereby made aware that he is responsible for taking extreme care to protect existing concrete paving / pavers, structures and plant material to remain throughout duration of project. Contractor is responsible for locating all existing utilities and notifying Engineer of any conflicts with proposed project components prior to construction. Not all utilities are shown on drawings. Contractor may access site via the southern alley; however, ingress/egress points of adjacent businesses and public areas must remain accessible throughout construction. Any existing site furnishings – benches, trash receptacles, cigarette receptacles, tree grates, etc – in the way of work shall be removed and turned over to the Owner.

1.09 SITE DRAINAGE: The Contractor is hereby made aware that it shall be the responsibility of the Contractor to at all times provide positive drainage on the site during construction. Temporary drainage ditches, swales or piping required for this purpose must be approved by the Engineer and by the Owner before construction and must be constructed so as not to interfere with traffic, pedestrian and/or vehicular. The cost of de-watering shall be included in the various unit prices stated in the proposal. No additional payment will be made for this work.

1.10 SOILS REPORTS: It shall be the Contractor's responsibility to confirm soil conditions and water table on the site by taking his own samples. This work shall be coordinated with the Owner prior to bidding the project.

1.11 PROJECT SCHEDULE: The Contractor is hereby made aware that time is of the essence in that the timely completion of the work is essential. The Contractor is also made aware that work may be done on the weekends through the month of February 2018; however, Contractor shall coordinate with and gain permission from the Owner prior to commencing any such work. All work outlined in the Contract Documents must be completed and accepted so that the project site is open to the public by May 18, 2018.

1.12 PRE-BID MEETING: The Contractor is hereby made aware that there will be no pre-bid meeting for this Invitation for Bid.

1.13 GODDESS OF THE SEA STATUE: The Contractor is hereby made aware that any and all questions and requests for information regarding the physical Goddess of the Sea statue shall be directed to the Owner. The statue has been fabricated and can be made available for inspection, upon permission from and coordination with the Owner.

1.14 ENVIRONMENTAL REGULATIONS: Contractor is responsible for ensuring that his forces comply with environmental regulations on site. Should construction forces violate laws, ordinances or regulations causing delays or adverse consequences on the site, the Contractor shall be held responsible for said actions.

1.15 STATE HIGHWAY ENCROACHMENT: The Owner will obtain encroachment permit agreements for all work located in the public rights-of-way, if required. All operations, trenching, pavement butting and repair will be coordinated with the appropriate public agency where such work affects public property. All requirements of these permits shall be performed by the Contractor as though the permits were issued in the name of the Contractor. A copy of the permit will be provided to the Contractor upon request.

1.16 UNIT PRICES: Unit prices in the bid package are to be used only in paying for items added or removed from the contract to assist in preparing change orders. This contract will be awarded as a Lump Sum Contract.

1.17 LIST OF DRAWINGS: The list of drawings included in this contract is located in the Table of Contents Section of this Specifications Package.

1.18 CONSTRUCTION STAGING AREA: The Construction Staging Area(s) for this Project will be located at the discretion of the Contractor with prior written consent by the Owner.

1.19 RESOLUTION OF CLAIMS AND DISPUTES: The Engineer will review claims and take one or more of the following preliminary actions within ten (10) business days of receipt of a claim:

- (1) Request additional supporting data from the claimant;
- (2) Submit a schedule to the parties indicating when the Engineer expects to take action;
- (3) Reject the claim in whole or in part, stating the reason for rejection;
- (4) Recommend approval of claim by the other party or
- (5) Suggest a compromise.

The Engineer may also, but is not obligated to, notify the surety, if any, of the nature and amount of the claim.

If a claim has been resolved, the Engineer will prepare or obtain appropriate documentation.

If a claim has not been resolved, the party making the claim shall, within ten (10) business days after the Engineer's preliminary response, take one (1) or more of the following actions:

- (1) Submit additional supporting data requested by the Engineer,
- (2) Modify the initial claim or
- (3) Notify the Engineer that the initial claim stands.

If a claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Engineer, the Engineer will notify the parties in writing that the Engineer's decision will be made within seven (7) calendar days, which decision shall be final and binding on the parties but subject to resolution through the South Carolina judicial system. Upon expiration of such time period, the Engineer will render to the parties the Engineer's written decision relative to the claim, including any change in Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Engineer may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

When functioning as interpreter and judge under the preceding paragraphs, the 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.

1.20 ESCALATION: No provision for price escalation is included in the project. Contractor shall be solely responsible for any cost of materials increases or other cost increases that may occur after bids have been submitted. The Owners will be under no obligation to consider contractor justifications of any increase in cost of materials, etc.

1.21 PRIVATE PROPERTY: The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, or materials, any land outside the rights-of-way or property of the Owner. A copy of the written consent shall be given to the Engineer prior to use of any private property.

END OF SECTION

SECTION 0700
CONTRACT FORMS

AGREEMENT

FOR

PLYLER PARK RENOVATION

This AGREEMENT, made this _____ day of _____, 20____, by and between City of Myrtle Beach, hereinafter called "OWNER", and doing business as (a sole proprietorship,) or (a partnership,) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of: Plyler Park Renovation, herein after called "PROJECT".
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within ten (10) calendar days after the date of the NOTICE TO PROCEED and will complete the same no later than the completion dates listed in the following schedule, unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____, as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
 - A. Notice to Bidders
 - B. Instructions to Bidders
 - C. Proposal
 - D. Bid Bond
 - E. Agreement

- F. General Provisions
 - G. Engineer's Supplementary Conditions
 - H. Contract Forms - Payment/Performance Bonds
 - Insurance Certificates
 - Notice of Award
 - Notice to Proceed
 - Change Orders
 - I. GENERAL REQUIREMENTS prepared or issued by:
DDC Engineers, Inc. / The LandArt Company
 - J. TECHNICAL SPECIFICATIONS prepared or issued by:
DDC Engineers, Inc. / The LandArt Company
 - K. ADDENDA:
 - No. _____, dated _____
 - No. _____, dated _____
 - No. _____, dated _____
 - L. CONTRACT DRAWINGS prepared by DDC Engineers, Inc. / The LandArt Company, numbered and dated as shown on the cover sheet.
6. The OWNER will pay to the CONTRACTOR in the manner and at such times and in such amounts as required by the CONTRACT DOCUMENTS.
 7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.
 8. CONTRACTOR agrees to commence WORK under the contract on or before a date specified in the NOTICE TO PROCEED and to fully complete the PROJECT so that the project site is open to the public by May 18, 2018 and in accordance with the schedule provided in Section 0200, Paragraph 2.03 and Section 0650, Paragraph 1.11 of this Specifications Package.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in four (4) counter parts, each of which shall be deemed an original on the date first above written.

CITY OF MYRTLE BEACH:

BY: _____

Name: _____

Title: _____

(SEAL)

ATTEST:

TITLE: _____

BY: _____

Name: _____

Title: _____

(SEAL)

ATTEST:

TITLE: _____

NOTICE OF AWARD

To: _____

PROJECT Description:

Plyler Park Renovation

The OWNER has considered the BID submitted by you for the above described WORK in response to its Notice to Bidders dated January 2018 and Instructions to Bidders.

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

You are required by the Instruction to Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND, and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) business days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

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

Dated this _____ day of _____, 20 ____.

The City of Myrtle Beach
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by _____
this the _____ day of _____, 20 ____.

By _____ Title _____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars,
(\$_____) in lawful money of the United States, for the payment of which sum
well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally,
firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the OWNER, dated the _____ day of _____,
20_____, a copy of which is hereto attached and made a part hereof for the construction of:

Plyler Park Renovation

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,
SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the
prosecution of the WORK provided for in such contract, and any authorized extension or
modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and
coke, repairs on machinery, equipment and tools, consumed or used in connection with the
construction of such WORK whether by SUBCONTRACTOR or otherwise, then this obligation
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees
that no change, extension of time, alteration or addition to the terms of the contract or to the
WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in
any wise affect its obligation on this BOND, and it does hereby waive notice of any such change,
extension of time, alteration or addition to the terms of the contract or to the WORK or to the
SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR
shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20 ____.

ATTEST:

(Principal) Secretary

Principal

[SEAL]

By _____ (S)

(Address)

Witness as to Principal

(Address)

Surety

ATTEST:

By

Attorney-in-Fact

Witness as to Surety

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____
_____ Dollars, (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made,
we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the OWNER, dated the _____ day of _____, 20____,
a copy of which is hereto attached and made a part hereof for the construction of:

Plyler Park Renovation

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the
undertakings, covenants, terms, conditions, and agreements of said contract during the original
term thereof, and any extensions thereof which may be granted by the OWNER, with or without
notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and
demands incurred under such contract, and shall fully indemnify and save harmless the OWNER
from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse
and repay the OWNER all outlay and expense which the OWNER may incur in making good
any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20 ____.

ATTEST:

Principal

(Principal) Secretary

By _____ (s)

[SEAL]

(Witness as to Principal)

(Address)

(Address)

Surety

ATTEST:

(Surety) Secretary

[SEAL]

Witness as to Surety

By _____
Attorney-in-Fact

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

NOTICE TO PROCEED

To: _____

Date: _____

Project: Plyler Park Renovation

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20 _____, on or before _____, 20____, and you are to complete the work so that the project site is open to the public by May 18, 2018 and in accordance with the schedule provided in Section 0200, Paragraph 2.03 and Section 0650, Paragraph 1.11 of this Specifications Package.

The City of Myrtle Beach
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

this the _____ day of
_____, 20_____.

By _____

Title _____

CHANGE ORDER

Order No. _____
Date: _____
Agreement Date: _____

NAME OF PROJECT: _____

OWNER: _____

CONTRACTOR: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

Justification:

Change to CONTRACT PRICE:

Original CONTRACT PRICE: \$ _____.

Current CONTRACT PRICE adjusted by previous CHANGE ORDER: \$ _____.

The CONTRACT PRICE due to this CHANGE ORDER
will be (increased) (decreased) by: \$ _____.

The new CONTRACT PRICE including this CHANGE ORDER will be: \$ _____.

Change to CONTRACT TIME:

The CONTRACT TIME will be (increased) (decreased) by _____ calendar days.

The date for completion of all work will be _____ (Date).

Approvals Required:

To be effective this Order must be approved by the funding agency if it changes the scope or objective of the PROJECT, or as may otherwise be required by the GENERAL PROVISIONS or ENGINEER'S SUPPLEMENTARY CONDITIONS.

Recommended: _____
Construction Manager

Approved: _____
Engineer

Agreed To: _____
Contractor

Authorized: _____
Owner

Agency(ies) Approval(s): _____

(Where applicable): _____

CERTIFICATE OF THE CONTRACTOR OR HIS DULY AUTHORIZED REPRESENTATIVE

To the best of my knowledge and belief, I certify that all items, units, quantities, and prices of work and material shown on the face of Sheet(s) _____ of this Periodical Estimate are correct, that all work has been performed and materials supplied in full accordance with the terms and conditions of the corresponding construction contract documents between the undersigned as Contractor and _____ as Owner, dated: _____, and all authorized changes thereto; that the following is a true and correct statement of the contract account up to and including the last day of the period covered by this estimate and that no part of the "Total Amount Due" has been received;

- (a) Total amount earned (col. 6).....\$ _____
- (b) Retained Percentage (10%).....\$ _____
- (c) Total earned less retained percentage.....\$ _____
- (d) Total previously certified [Line (c) from previous estimate No. _____]. \$ _____
- (e) Amount due this estimate.....\$ _____
- (f) Excess cost of field engineering and inspection.....(Subtract) \$ _____
- (g) Total Amount Due.....\$ _____

I further certify that all claims outstanding as of this date against the undersigned as Contractor for labor, materials, and expendable equipment employed in the performance of said contract up to this date have been paid in full in accordance with the requirements of said contract.

CONTRACTOR: _____ Date: _____

By: _____ Title: _____

CERTIFICATE OF THE OWNER'S CONSULTING ENGINEERS

I certify that I have verified this Periodical Estimate, and that to the best of my knowledge and belief it is a true and correct statement of work performed and materials supplied under the Contract, and that the Contractor's certified statement of his account and the amount due him is correct and just, and that all work and material included in this Periodical Estimate have been performed in full accordance with the terms and conditions of the corresponding construction contract documents and authorized changes thereto.

Name: _____

By: _____ Resident Engineer

Date: _____

OWNER'S RECOMMENDATION FOR PAYMENT

Approved and Payment Recommended:

_____ OWNER

By: _____

Title: _____

DIVISION 1
GENERAL REQUIREMENTS

SECTION 1000

COORDINATION AND MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordination.
- B. Field Engineering.
- C. Alteration of Project Procedures.
- D. Preconstruction Conference.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections and Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate regular meetings with Engineer and Owner's Representative to discuss job progress, amendments, change orders, and conflicts.
- C. Contractor is responsible for coordination of materials, delivery for general and subcontractors, and shall ensure that there is no interference between trades on the project which would jeopardize expedient completion of the project.
- D. Coordinate completion and site work clean up between all subcontractors to ensure that the job site is properly maintained.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- F. Attend periodic meetings with adjacent property owners, business operators and concerned citizens to answer questions, hear concerns and to apprise as such to the status of the work and schedule for upcoming construction activities. Such meetings can be expected to occur on average and as frequently as once every two (2) weeks during the construction period. The Engineer and Owner will be responsible for scheduling and chairing such meetings, as well as for arranging meeting locations.

1.03 FIELD ENGINEERING

- A. Owner will locate survey control and reference points.
- B. Contractor shall provide field engineering services, establish elevations, lines and levels, utilizing recognized engineering survey practices.

1.04 ALTERATION OF PROJECT PROCEDURES

- A. Materials: Submittals to the Engineer must be approved in writing before any materials may be substituted or altered.

1.05 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference after Notice of Award is executed.
- B. Attendance Required: Owner, Engineer's Project Manager and Inspector, Contractor and Project Superintendent.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of shop drawings and other submittal data regarding materials, methods of construction.
 - 5. Designation of personnel representing the parties in Contract and the Engineer.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
 - 7. Scheduling.

END OF SECTION

SECTION 1050

APPLICATIONS FOR PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of Applications for Payment.

1.02 RELATED SECTIONS

- A. Section 0550 - General Provisions.
- B. Section 0650 – Engineer’s Supplementary Conditions.
- C. Section 0700 - Contract Forms.
- D. Section 1060 – Change Order Procedures.
- E. Section 1700 - Contract Closeout.

1.03 FORMAT

- A. Application for Payment Form: Use form provided in Section 0700 – Contract Forms.

1.04 PREPARATION OF APPLICATIONS

- A. Present required information in type-written form.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Price Schedule. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
- D. List each authorized Change Order listing Change Order number and dollar amount as for an original item of Work. Include a copy of approved change order form.
- E. Prepare Application for Final Payment as specified in Section 1700.

1.05 SUBMITTAL PROCEDURES

- A. Submit three (3) signed hard copies of each Application for Payment to the Engineer and one (1) digital copy of Application for Payment to Owner and Engineer.

1.06 SUBSTANTIATING DATA

- A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

END OF SECTION

SECTION 1060

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Documentation of change in contract Sum/Price and Contract Time.
- C. Change order procedures.
- D. Construction Change Authorization.
- E. Unit price change orders.
- F. Execution of change orders.
- G. Correlation of Contractor submittals.

1.02 RELATED SECTIONS

- A. Section 0550 - General Provisions
- B. Section 0650 – Engineer’s Supplementary Conditions
- C. Section 0700 - Contract Forms
- D. Section 1050 - Applications for Payment Procedures
- E. Section 1700 - Contract Closeout

1.03 SUBMITTALS

- A. Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Change Order Forms: Use form provided in bid documents.

1.04 DOCUMENTATION OF CHANGE IN CONTRACT SUM/PRICE AND CONTRACT TIME

- A. Maintain detailed records of work done on time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work. Submit all claims for time and materials changes within

thirty (30) calendar days of the additional work, for review by the Owner and Engineer.

- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. On request, provide additional data to support computations:
 - 1. Quantities of products, labor, and equipment.
 - 2. Taxes, insurance, and bonds.
 - 3. Overhead and profit.
 - 4. Justification for any change in Contract time.
 - 5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs, and for work done on a time and material basis, with additional information:
 - 1. Origin and date of claim.
 - 2. Dates and times work was performed, and by whom.
 - 3. Time records and wage rates paid.
 - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.05 CHANGES IN PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time.
- B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within ten (10) business days.

1.06 CONSTRUCTION CHANGE AUTHORIZATION

- A. Engineer may issue a directive, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum/Price or Contract Time.
- C. Promptly execute the change in Work.

1.07 UNIT PRICE CHANGE ORDER

- A. For predetermine unit prices and quantities, the Change Order will be executed based on the fixed unit prices in the proposal.
- B. For unit costs or quantities of units of work which are not predetermined, execute Work under a construction Change Authorization.

1.08 EXECUTION OF CHANGE ORDERS

- A. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the General Provisions of the Contract.

1.09 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Price Schedule and Application for Payment Forms to record each authorized Change Order as a separate line item and adjust the Contract Sum/Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

END OF SECTION

SECTION 1300

SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures, control of installation.
- B. Proposed Products list.
- C. Proposed data.
- D. Manufacturers' instructions.
- E. Manufacturers' certificates.
- F. Shop Drawings.
- G. Samples.

1.02 RELATED SECTIONS

- A. Section 1700 - Contract Closeout

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal to the Engineer for approval.
- B. Identify Project, Contractor, Subcontractor, or Supplier; pertinent drawing sheet and detail number(s), and specification section number, as appropriate.
- C. Submit all submittals complete. No partial submittals will be accepted. Provide certification with submittals signed by and sealed by a Registered Professional Engineer certifying that all equipment proposed is in complete accordance with and is fully coordinated with the Contract Documents, without exception. Shop drawings will not be reviewed without this certification attached, and if submitted without this certification will be returned disapproved.
- D. Identify system limitations which may be detrimental to successful performance of the completed work.
- E. Provide space for Engineer review stamps.

- F. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- G. Distribute copies of review submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.04 PRODUCT DATA AND SHOP DRAWINGS

- A. Submit the number of copies which the Contractor requires, plus two (2) copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 1700 - Contract Closeout.

1.05 SAMPLES

- A. Submit samples for the Engineer's visual review of general generic kind, color, pattern, and texture, a final check of the coordination of these characteristics with other related elements of the Work, and for quality control comparison of these characteristics between the final sample submittal and the actual Work as it is delivered and installed. Refer to individual Sections of these specifications for specific sample requirements which may be intended for examination or testing of additional characteristics. Compliance with other required characteristics is the exclusive responsibility of the Contractor.
- B. Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.
- C. Preparation: Where possible provide full-scale, fully fabricated samples, cured and finished in the manner specified, that are physically identical with the proposed material or product to be incorporated in the work. Where variations in color, pattern, or texture are inherent in the material or product represented by the sample, submit multiple units of the sample (not less than three (3) units), which show the approximate limits of variations. Where samples are specified for the Engineer's selection of color, texture or pattern, submit a full set of available choices for the material or product. Mount, display, or package samples in the

manner specified to facilitate the review of indicated qualities. Prepare samples to match the Engineer's sample where so indicated.

- D. Submit three (3) sets of samples: one (1) set will be returned.
- E. Distribution of Samples: Maintain the final submittal sets of samples, as returned by the Engineer at the project site, available for quality control comparisons throughout the course of performing the Work.

1.06 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.07 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturer's certificate to Engineer for review, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent of previous test results on material or Product, or as specified in other sections, but must be acceptable to Engineer.

1.08 MOCK-UPS

- A. Special forms of samples, which are too large or otherwise inconvenient for handling in the manner specified for transmittal of sample submittals.
- B. Mock-ups and similar samples specified in individual Sections are special types of samples. Comply with sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

END OF SECTION

SECTION 1310

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Included: To assure adequate planning and execution of the Work so that the Work is completed within the time frame established in the Contract, and to assist the Engineer in evaluating progress of the Work, prepare and maintain the schedule and reports described in this Section.
- B. Related Work:
 - 1. Documents affecting work of this Section include, but are not limited to, General Provisions and Engineer's Supplementary Conditions.
 - 2. Construction Period: Owner - Contractor Agreement.

1.02 QUALITY ASSURANCE

- A. Employ a scheduler who is thoroughly trained and experienced in compiling construction schedule data, and in preparing and issuing periodic reports as required below.
- B. Perform data preparation, analysis, charting, and updating in accordance with standards accepted by the Engineer.
- C. Reliance Upon the Schedule:
 - 1. The construction schedule will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract.
 - 2. Should any activity not be completed within fifteen (15) calendar days after the stated schedule date, the Owner shall have the right to require the Contractor to expedite completion of the activity by whatever means the Owner deems appropriate and necessary, without additional compensation to the Contractor.
 - 3. Should any activity be thirty (30) business days or more behind schedule, the Owner shall have the right to perform the activity or have the activity performed by whatever method the Owner deems appropriate.

4. Costs incurred by the Owner and by the Engineer in connection with expediting construction activity under this Article shall be reimbursed by the Contractor.
5. It is expressly understood and agreed that failure by the Owner to exercise the option, either to order the Contractor to expedite an activity, or to expedite the activity by other means, shall not be considered to set a precedent for any other activities, and shall not relieve the Contractor from performing the Work within the time frame established in the Contract.

1.03 SUBMITTALS

- A. Construction Schedule: Within ten (10) business days after the Contractor has received the Owner's Notice to Proceed, submit one (1) reproducible copy and four (4) prints of the construction schedule for this Project. Also, please submit one (1) copy of the schedule, in color, on a 24" x 36" sheet of paper. This schedule shall be materially the same as the preliminary Construction Schedule submitted with the Bid Proposal.
- B. Periodic Reports: On the first business day of each month following the submittal described in Paragraph 1.03-A above, submit four (4) prints of the construction schedule updated as described in 1.05 of this Section.

1.04 CONSTRUCTION SCHEDULE

- A. In the form of an industry-accepted standard CPM Construction Schedule, graphically show by bar-chart the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished. Schedule shall be planned by the Contractor and his project field superintendent in coordination with all subcontractors whose work is required to complete the Work.
- B. Include, but do not necessarily limit indicated activities to:
 1. Project mobilization;
 2. Submittal and approval of Shop Drawings and Samples;
 3. Preparation of mock-ups;
 4. Procurement of equipment and critical materials;
 5. Fabrication of special material and equipment, and its installation and testing;
 6. Phasing time frames;
 7. Final clean up;
 8. Final inspecting and testing; and

9. All activities by the Owner and Engineer that effect progress, with required date for completion, for all and each part of the Work.
- C. As soon as practicable after receipt of Notice to Proceed, update the construction analysis in preliminary form, meet with the Engineer and Owner to review contents of the proposed construction schedule, and then make all revisions agreed upon.
- D. Submit in Accordance with Paragraph 1.03-A above.

1.05 PERIODIC REPORTS

- A. As required under Paragraph 1.03-B above, update the approved construction schedule.
 1. Indicate “actual” progress in percent completion for each activity;
 2. Provide written narrative summary of revisions causing delay in the program, and an explanation of corrective actions taken or proposed to return the Project to original schedule.

END OF SECTION

SECTION 1400
QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Inspection and testing laboratory services.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions and workmanship to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship or specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.03 REFERENCES

- A. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- B. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any referenced document.

1.04 INSPECTION AND TESTING LABORATORY SERVICES

- A. The Contractor will appoint and pay for the services of an independent firm to perform inspection and testing as required by the Contract Documents or the Engineer. Said firm shall certify as to the acceptability of the work and shall provide a written report signed and sealed by a Registered Professional Engineer.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Engineer. The Owner may retain additional experts to confirm test results.
- C. Reports will be submitted by the independent firm to the Engineer and Owner indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Testing company shall cooperate with Engineer. He shall furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Owner and Engineer twenty-four (24) hours prior to expected time for operations requiring services.
- E. Retesting required where initial tests reveal non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer and paid for by the Contractor.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 1410

TESTING AND LABORATORY SERVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

1. Contractor shall employ and pay for the services of an Independent Testing Laboratory to perform services and testing specified in the Contract Documents.
2. Employment of laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
3. Provide testing for subgrade, base, and asphalt paving.

1.02 RELATED SECTIONS

- A. Section 2200 - Backfilling
- B. Section 2420 - Concrete Curb, Gutter and Sidewalk
- C. Section 3300 - Cast-in-Place Concrete.

1.03 QUALIFICATIONS OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.
- B. Authorized to operate in the State in which the Project is located.

1.04 AUTHORITY AND DUTIES OF LABORATORY

- A. Provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction.
- C. Promptly notify Owner and Contractor of observed irregularities or deficiencies of work or products.
- D. Laboratory is not authorized to:
 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
 2. Approve or accept any portion of the Work.
 3. Perform any duties of the Contractor.

- E. Promptly submit written report of each test and inspection: one (1) copy to Owner, one (1) copy to Engineer, and one (1) copy to Contractor. Each report shall include:
1. Date issued.
 2. Project title and number.
 3. Testing laboratory name, address, and telephone number.
 4. Name and signatures of laboratory inspector.
 5. Date and time of sampling or inspection.
 6. Record of temperature and weather conditions.
 7. Date of test.
 8. Identification of product and Specification Section.
 9. Location of sample or test in Project.
 10. Type of inspection or test.
 11. Results of tests and compliance with Contract Documents.
 12. Interpretation of test results that indicate unsatisfactory conditions.

1.05 CONTRACTOR'S RESPONSIBILITIES

1. Cooperate with laboratory personnel and provide access to Work.
2. Deliver to laboratory adequate quantities of representative samples of materials proposed for use and which require testing.
3. Notify laboratory sufficiently in advance of operations (minimum of two (2) days) to allow for laboratory assignment of personnel and scheduling of tests.
4. Furnish incidental labor and facilities:
 - a. To provide access to Work to be tested.
 - b. To obtain and handle samples at Project site or at source of product to be tested.
 - c. To facilitate inspections and tests.
5. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 INSPECTION AND CONTROL OF CONCRETE

1. Review concrete mix designs submitted by Contractor for conformance to specifications.
2. Promptly report to Owner details of reasons for rejection of any quantities of concrete. Report locations of concrete pours, quantities, date of pours and other pertinent facts concerning concrete represented by rejected specimens.

3.02 TESTING CONCRETE

1. Test Cylinders: During progress of Work, mold, cure and test specimens of each concrete curb mix design placed in any one day; make 3 compression test cylinders during pour. Mold and cure test cylinders in accordance with ASTM C 31. Test cylinders in accordance with ASTM C 39; one at 7 days and one at 28 days. Hold remaining cylinder for additional testing. Make additional sets of 3 cylinders when obvious changes in mix are apparent.
2. Slump Tests:
 - a. Make slump tests for each load of concrete placed, and for each set of cylinders in accordance with ASTM C 143.
 - b. Slump shall conform to limits specified.
3. Strength:
 - a. Seven day compressive strength of concrete shall be a minimum of 65 percent of required 28 day compressive strength.
 - b. Strength level of concrete will be considered satisfactory if 90 percent of strength test results and averages of all sets of 3 consecutive strength test results equal or exceed specified strength and no individual test result is below specified strength by more than 500 psi.
 - c. When strength of test cylinders falls below design strength and Owner has required drilling concrete core specimens, test core specimens in accordance with ASTM C 42.

3.03 SUB-GRADE DENSITY TEST

1. Perform in-place density test of completed sub-grade beneath paving in accordance with ASTM D 698 as specified in Section 2200 - Backfilling.

END OF SECTION

SECTION 1500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Controls: Barriers, enclosures, fencing, water control and protection of the Work.
- B. Construction Facilities: Parking, progress cleaning, and project signage.

1.02 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and walkways required by governing authorities for public right-of-ways.
- C. Provide suitable barriers and such warning lights as will effectively prevent the occurrence of any injury to person or property.
- D. Lights shall be maintained between the hours of sunset and sunrise.
- E. Provide protection for plant life designated to remain. Replace damaged plant life.
- F. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.03 FENCING

- A. Contractor shall provide six foot (6') ht chain-link fence around perimeter of construction area. Fence layout shall be submitted to and approved by City of Myrtle Beach prior to installation.

1.04 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.05 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

1.06 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 1510

TEMPORARY UTILITIES

PART 1 – GENERAL

1.01 DESCRIPTION

1. Design, furnish and install temporary utilities at locations required for and in support of the timely performance of the Work. Maintain, expand and/or modify temporary utilities as needed throughout the progress of the Work. Do not remove temporary utilities until services are no longer needed, or are replaced by the authorized use of completed permanent facilities. All costs associated with temporary utilities shall be the responsibility of the Contractor.

1.02 RELATED SECTIONS

- A. Section 1500 – Construction Facilities and Temporary Controls

1.03 REQUIREMENTS OF REGULATORY AGENCIES

1. Comply with Federal, State and local codes and regulations, and with private and municipal utility companies/agencies requirements. Pay all agency fees and costs associated with connection, installation, maintenance, use and removal of temporary utilities.

1.04 CONDITIONS OF USE

1. Operate temporary utilities in a safe and efficient manner. Do not overload temporary utilities. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist on site. Remove temporary utilities as soon as their use is no longer required.

1.05 MATERIALS

1. Materials may be new or used, shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall be in compliance with the requirements of applicable codes and standards.

1.06 TEMPORARY POWER AND LIGHTING

- A. Arrange with utility company to provide service required for power and lighting, and pay all costs for services and for power used.

- B. Install weatherproof, ground circuit and branch wiring, with area distribution boxes located so that power and lighting are available by the use of construction-type power cords, as needed in the construction area.
- C. Provide adequate artificial lighting for all areas of the Work, when natural light is not adequate to perform the Work.
- D. Provide lighting as appropriate to the condition, for property security purposes, and for safety purposes wherever the public has or is likely to have night access.

1.07 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities and enclosures for the convenience of construction personnel, and in compliance with laws and regulations.
- B. Periodically service, maintain and clean facilities and enclosures, to keep them in a clean and sanitary condition.
- C. Existing plumbing facilities on site shall not be used by construction personnel.
- D. Existing plumbing facilities in the surrounding areas shall not be used by construction personnel without prior written approval, including descriptions of conditions, limits and duration, of the facility owner.

1.08 REMOVAL

- A. Completely remove temporary materials, equipment, etc., when their use is no longer required.
- B. Clean and repair impacts and damage caused by temporary installations or use of temporary facilities.
- C. Restore existing facilities used for temporary services to specified or original condition.
- D. Restore permanent facilities used for temporary services to specified condition.

END OF SECTION

SECTION 1550
TRAFFIC REGULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flagmen.
- B. Flares and lights.
- C. Traffic signs and signals.
- D. Removal.

1.02 RELATED SECTIONS

- A. Section 1500 - Construction Facilities and Temporary Controls.

1.03 REFERENCES

- A. FHA Manual on Uniform Traffic Control Devices for Streets and Highways, 2000 Edition, and all subsequent addenda.
- B. 2000 SCDOT Work Zone Safety Handbook, March 1995 Edition, and all subsequent addenda.

PART 2 PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs.
- B. Automatic Traffic Control Signals: As approved by local jurisdictions.
- C. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- D. Flagmen Equipment: As approved by local jurisdictions.

2.02 FLAGMEN

- A. Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

2.03 FLARES AND LIGHTS

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

2.04 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Install and operate automatic traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
- C. Relocate as work progresses, to maintain effective traffic control.
- D. Maintain signs and signals at all times.

PART 3 EXECUTION

3.01 REMOVAL

- A. Remove equipment and devices when no longer required.
- B. Repair damage caused by installation.
- C. Remove post settings to a depth of two (2) feet.

END OF SECTION

SECTION 1630

PRODUCTS & MATERIALS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Materials, products and equipment incorporated into the Work shall conform to applicable specifications and standards and shall comply with size, make, type and quality specified, unless specifically approved in writing by the Engineer.
- B. For Manufactured and Fabricated Products:
 - 1. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
 - 2. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
 - 3. Provide interchangeable components of the same manufacturer, for similar components.
 - 4. Design, fabricate and assemble in accordance with Industry Standards.
 - 5. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - 6. Similar types of equipment shall be products of the same manufacturer.
 - 7. Products shall be suitable for service conditions.
 - 8. Equipment capacities, sizes and dimensions indicated or specified shall be adhered to unless variations are specifically approved in writing.
- C. Do not use material or equipment for any purpose other than that for which it is intended.

1.02 REFERENCED STANDARDS

- A. When Contract Documents require compliance with Industry Standards, these Standards shall have the same force and effect as if bound into or copied directly into the Contract Documents.
- B. Where compliance with an Industry Standard is specified, comply with latest edition of the Standard available at the time of bidding, except as otherwise indicated.
- C. Where compliance with two (2) or more Standards is specified and these Standards establish conflicting requirements, most restrictive shall apply. Where conflicts occur, notify Engineer for concurrence prior to proceeding with work.
- D. Where Industry Standards are required for proper performance of the Work, make copies of that referenced Standard available for review at the job site.

1.03 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of products shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation. Maintain one (1) set of complete instructions at the job site.
- B. Perform Work in strict accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
- C. Handle, install, connect, clean, condition, and adjust products in strict accordance with manufacturer's instructions and in conformance with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, or in any way affect warranty, consult with Engineer for clarification. Do not proceed with Work without clear instructions.

1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with Work and conditions at the site.
- C. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible. Label packaging with names, model numbers, types, grades, compliance with standards, information required by law or regulation, and similar information needed for distinct

identification.

- D. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, that products are properly protected and undamaged, and that quantities are correct.
- E. Provide adequate equipment and personnel to properly handle products. Handle products carefully to avoid soiling, damage, breakage, disfigurement and marring of finishes. Damaged materials will not be accepted.

1.05 STORAGE AND PROTECTION

- A. Store materials as required by the Contract Documents and is agreeable to the Owner. Store and protect products in accordance with manufacturer's instructions. Store sensitive Products in weather-tight, climate controlled enclosures.
- B. Exterior Storage:
 - 1. Store products above the ground on sloped supports, blocking or skids to prevent water ponding, soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection with seals and labels intact and legible. Make periodic inspections of stored products to assure that they are maintained under specified conditions, and free from damage or deterioration.
- D. Provide substantial coverings as necessary to protect installed products from deterioration or damage. Provide ventilation to avoid condensation. Remove protection when no longer needed.
- E. Secure all stored materials, and protect from theft, vandalism, and sabotage.
- F. Provide off-site storage and protection when site does not permit on-site storage or protection.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

- H. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.

1.06 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. The Contract is based on the products, materials, and equipment indicated in the Contract Documents.
- B. Product Options:
 - 1. Products specified by reference standards or by description only: Any product meeting those standards or description.
 - 2. Products specified by naming one or more manufacturers: Products of manufacturers named and meeting specifications, no options allowed.
 - 3. Products specified by naming one or more manufacturers with a provision for “approved equal”: Submit a request for substitution for any manufacturer not named.
- C. No increase in contract amount will be allowed for a product substitution rejected as not an approved equal. If in doubt, submit product for approval prior to submitting bid.
- D. The Contractor’s requests for changes in the products, materials, equipment and methods of construction required by the Contract Documents are considered requests for “substitutions”, and are subject to the requirements of Section 1631 – Substitutions.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 1631

SUBSTITUTIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Document affecting work in this Section include, but are not limited to, General Provisions and Engineer's Supplementary Conditions.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for handling requests for substitutions prior to receipt of bids, and for requests for substitutions made after award of the Contract.

1.03 DEFINITIONS

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Changes to products, materials, equipment, and/or methods of construction required by the Contract Documents, proposed by the Contractor either before or after award of the Contract, are considered to be requests for substitutions. The following are not considered to be requests for substitutions:
 - 1. Revisions to the Contract Documents directed by the Owner or Engineer.
 - 2. Specified options of products and construction methods included in the Contract Documents.
 - 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 CONDITIONS FOR SUBSTITUTION

- A. Conditions: The Engineer will receive and consider (solely at the Engineer's discretion) the Contractor's request for substitution when one or more of the following conditions are satisfied:
 - 1. Extensive revisions to the Contract Documents are not required due to the substitution.

2. Proposed changes are in substantial compliance with the Contract Documents.
 3. The request is timely, fully documented, and properly submitted.
 4. The specified product or method of construction becomes unavailable or cannot be provided within the contract time. The Engineer will not consider the request if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly, or to coordinate activities properly.
 5. The request is directly related to an "or equivalent" clause or similar language in the Contract Documents.
 6. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include, but are not limited to, compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
 7. When not a result of the Contractor's failure to pursue the work promptly, or to coordinate activities properly, the specified product or method of construction cannot receive necessary or timely approval by a governing authority, and the requested substitution can be approved in a timely manner.
 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
 9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
 10. The specified product or method of construction cannot provide the warranty required by the Contract Documents, and where the Contractor certifies that the proposed substitution provides the required warranty.
 11. The specified product or method is noted with an "approved equal" clause.
- B. The burden of proof of the merit of the proposed substitution rests solely upon the Contractor.

- C. A request for substitution constitutes a representation that the Contractor:
1. Has investigated the proposed product (whether proposed by him or through him by a subcontractor or material supplier) and determined that it is in every respect equal to, or superior to the quality and performance level of specified product;
 2. Shall provide at least the same warranties or bonds for the substitution as for the product specified;
 3. Shall coordinate the installation of the substitution into the Work, and shall make and include in any pricing, such other changes as may be required to make the Work complete in all respects;
 4. And, shall waive all claims for any increase in the Project cost or time extension which may subsequently become apparent due to the inclusion of the substitution.
- D. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. The Engineer will only conduct substitution reviews under the premises that the Contractor's Shop Drawing, Product Data, Sample, etc. submissions are in full compliance with meaning and intent of the Contract Documents, and that the implementation of the substitution will have no negative scheduling, sequencing and/or cost effect on any other Project Work. Should it be determined, after the Engineer's approval of a substitution, that the submission was in fact not in compliance with the Contract Documents, or that the submission does/will have any negative effect on other Project Work, the Engineer's approval shall immediately become null and void, and the Contractor shall be solely responsible for providing the original Work in strict accordance with the Contract Documents, at no additional cost to the Owner. Delays to the Project, resulting from such determinations, shall be solely the responsibility of the Contractor, who shall bear any and all scheduling, sequencing and/or financial consequences of such delays.
- F. The Engineer will be the only judge of the acceptability of the proposed substitution; the decisions of the Engineer are final.

1.05 TIMING OF SUBMITTAL OF SUBSTITUTION REQUESTS

- A. Substitution Requests prior to receipt of bids: The Engineer will consider requests for substitution if received at least seven (7) business days prior to date and time of bid opening. Requests received less than the seven (7) business days

prior to date and time of bid opening will not be considered.

- B. Substitution Requests after Award of Contract: The Engineer will consider requests for substitution received within thirty (30) calendar days after Award of Contract (but not between bid date and award date, unless specifically requested by the Engineer). Contractor shall provide the Engineer with a minimum of fourteen (14) calendar days from receipt of request, to conduct an initial review of the request; where multiple requests are submitted in any given week, Engineer will require as much time as necessary in excess of fourteen (14) calendar days to conduct all initial reviews. Contractor is solely responsible for timely submission requests, so as to avoid any delay in the normal sequence of implementation of all other aspects of the Work.

1.06 SUBMITTAL REQUIREMENTS

- A. Submit three (3) copies of each request for substitution for consideration. Limit each request to one proposed substitution. Submit requests in the form and according to procedures required for Change Order Proposals.
- B. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
- C. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - 1. Coordination information, including a list of all changes or modifications needed to other parts of the Work, and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution.
 - 2. A detailed comparison of all significant qualities of the proposed substitution with those of the Work specified. Significant qualities shall include performance, weight, size, durability, visual effect, etc.
 - 3. Product data, including drawings, specification sheets and descriptions of products, and fabrication and installation procedures.
 - 4. Samples, where applicable or requested.
 - 5. A statement indicating the substitution's effect on the Contractor's Construction Schedule, compared to the schedule without approval of the substitution. Confirm that the proposed substitution will not increase overall contract time.
 - 6. Cost information, including a proposal of the net change, if any, in the

contract sum.

7. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.
8. Where substitution differs in any respect from that specified, provide documentation of how, where and to what degree substitution differs.
9. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
10. Confirmation of approval, by all appropriate governing authorities, for the proposed substitution.

1.07 ENGINEER'S ACTION

A. General:

1. If necessary in order to judge the appropriateness of a proposed substitution, the Engineer may request additional information or documentation be supplied by the Contractor. The Engineer may reject any submission request, due to the Contractor's negligence or omission in submitting all data required for the Engineer to determine an equivalency evaluation for a substitution. Contractor is solely responsible for timely re-submissions, so as to avoid any delay in the normal sequence of implementation of all aspects of the Work.
2. The Engineer is under no obligation to the Contractor to take any action on a Substitution Request. Should the Engineer take no action on a substitution request, Contractor shall provide the product, system, or assembly exactly as specified. If the Engineer takes no action on a submission request, lack of action shall be taken as a rejection of the request.

B. Actions prior to Bid Date:

1. Actions on requests prior to Bid Date: should the Engineer elect to modify the Contract Documents to include the requested substitution, the Engineer will do so with the issuance of an Addendum (no direct approval notification will be provided to the submitting Contractor). Should the Engineer elect to reject a submission request, he may attempt to notify the submitting Contractor of the decision to reject. However, notification to the Contractor is not required; if the substitution is not addressed in an Addendum, the Contractor shall understand that such an omission constitutes rejection of the submission request.

C. Actions after Award of Contract:

1. Actions on requests after Award of Contract: should the Engineer elect to modify the Contract Documents to include the requested substitution, the Engineer will (if no change in cost is involved) do so by direct approval notification to the Contractor. If there is a change in Contract Amount associated with the request, the Engineer will issue a Change Order, if request is to be included in the Project. Should the Engineer elect to reject a submission request, he will, except in extraordinary circumstances, attempt to notify the submitting Contractor of the decision to reject. However, if the Engineer does not act upon a specific submission request within thirty (30) calendar days of receipt, Contractor shall understand that the request has been rejected.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 1700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Final Cleaning.
- C. Adjusting.
- D. Project Record Documents.
- E. Spare Parts and Maintenance Materials.

1.02 RELATED SECTIONS

- A. Section 1050 – Applications for Payment Procedures.
- B. Section 1060 – Change Order Procedures.
- C. Section 1300 – Submittals.

1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Submit Final Application for Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.
- C. Submit Final Closeout paperwork to Owner, including the following:
 - 1. AIA Form G706 – Contractor's Affidavit of Payment of Debts and Claims
 - 2. AIA Form G706A – Contractor's Affidavit of Release of Liens
 - 3. AIA Form G707 – Consent of Surety to Final Payment

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.

- B. Clean site; sweep paved areas, rake clean landscaped areas.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish elevation.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible feature of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- E. Submit documents to Engineer with claim for final Application for Payment.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location as directed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 1720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work:
 - 1. Maintenance of Record Documents
 - 2. Information Required for Record Documents
 - 3. Submittal of Record Documents

1.02 MAINTENANCE OF RECORD DOCUMENTS

- A. At the Pre-Construction Conference the Contractor will be provided as part of the construction package one set of Contract Documents to maintain a record of construction progress for the duration of the project. These documents will be labeled "PROJECT RECORD" and will be kept on site throughout the construction process.
- B. The Contractor will maintain at the job site, one record copy of:
 - 1. Reviewed Shop Drawings.
 - 2. Reviewed Samples.
 - 3. Change Orders.
 - 4. Other Modifications to Contract.
 - 5. Field Test Records.
 - 6. Inspection Certificates.
 - 7. Manufacturer's Certificates.
- C. Store record documents and samples in the Contractor's field office apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.
- D. Label and file record documents and samples in accordance with Specification Section number listing in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- E. Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

- F. Record documents will be reviewed monthly by the Engineer as part of the monthly project progress review associated with review and recommendation of partial payment requests. Payment requests will be denied if the Contractor does not maintain adequate record document.

1.03 RECORDING

- A. Record and update daily "as-built" information from field notes, on Drawings and in Specifications provided at the Pre-Construction Conference in accordance with the requirements provided herein.
- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- C. Record information concurrently (daily) with construction progress. Do not conceal work until required information is recorded.

1.04 INFORMATION TO BE DOCUMENTED

- A. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
 - 1. General Information
 - a. Contractor's Name, Address, Telephone Number, Contact Person
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances (electric, cable, telephone, gas,) referenced to permanent surface improvements. Include vertical and horizontal separation distances, depth of cover and pipe materials.
 - c. Field changes of dimension and detail.
 - d. Changes made by Change Order or Field Order.
 - e. Details not on original Drawings.
 - f. References to related shop drawings and Modifications.
 - 2. Hardscape
 - a. Detailed dimensions of concrete flatwork.
 - b. Detailed dimensions and elevations of concrete stage including, but not limited to, corner tie-down locations, stage surface, ramp and ramp wall locations.
 - c. Detailed dimensions and elevations of retaining wall.
 - d. Detailed description, dimensions and elevations of Goddess of the Sea statue base including, but not limited to, any field-changes made to base construction, granite cap attachment, and statue installation.

- e. Detailed dimension and elevations of pergolas including, but not limited to, column post locations.
3. Site Utilities
- a. Irrigation including, but not limited to, actual locations of conduit, valves and zone areas, spray heads, hosebibs, time clock and controller.
 - b. Electrical including, but not limited to, actual locations of conduit and electrical component routing.
4. Sewer Utilities
- a. Manhole rim and invert elevations at mean sea level (MSL). Indicate distance of line segment from center of manhole to center of manhole, pipe size, material, and grade.
 - b. Tie-down locations of manholes to permanent structures (fire hydrants, buildings, property corners,). A minimum of two (2) tie-down dimensions are required.
 - c. Manhole stationing from the downstream manhole going upstream, with all manholes reverting to "0+00" for the next line tangent.
 - d. Detail dimensions of services. Indicate distance from building, adjacent property corners, and main line. Delineate service location based on sewer station.
 - e. Bearings and distances for all sewer lines installed. All manholes shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.
5. Water Utilities
- a. Tie-down locations of all water appurtenances (valves, fittings, fire hydrants,) to permanent structures (manholes, buildings, property corners,). Fire hydrants may be used as a tie-down structure for other water appurtenances. A minimum of two (2) tie-down dimensions are required. Where appurtenances (valves, fittings,) are clustered together, indicate distances between said appurtenances. Provide depth of cover for each appurtenance (valves, fittings,).
 - b. Detail dimensions of fire hydrant assemblies. Indicate distance from hydrant to gate valve, distance from gate valve to hydrant tee. Include depth of burial for hydrant.
 - c. Detail dimensions of water services/meters. Indicate distance from building and adjacent property corners. If sewer is installed as part of project, delineate service/meter location based on sewer stationing. If service/meter extends beyond the last manhole, extend the bearing of the final line segment to continue stationing.

- d. Waterline materials used and locations of changes in materials.
- e. Bearings and distances of total water system installed. All water appurtenances (valves, hydrants, fittings, meters,) shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.

6. Stormwater Utilities

- a. Catch basin and junction box rim and invert elevations at mean sea level (MSL). Indicate distance of line segment from center of basin/box to center of basin/box, pipe size, material, and grade.
- b. Tie-down locations of basins/boxes to permanent structures (fire hydrants, manholes, buildings, property corners,). A minimum of two (2) tie-down dimensions are required.
- c. Basin/box stationing from the downstream basin/box going upstream, with all basin/boxes reverting to "0+00" for the next line tangent.
- d. Bearings and distances for all storm sewer lines installed. All basins/boxes shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.

B. Specifications and Addenda: Legibly mark up each Section to record:

- 1. Manufacturer, trade name, catalog number and supplier of each product.
- 2. Changes made by Change Order or Field Order.
- 3. Other matters not originally specified.

1.05 SUBMITTALS

A. At Contract closeout, transmit Record Documents and Samples with cover letter in duplicate, listing:

- 1. Date.
- 2. Project title and number.
- 3. Contractor's name, address, and telephone number.
- 4. Number and title of each Record Document.
- 5. Certification that each document as submitted is complete and accurate.
- 6. Signature of Contractor or authorized representative.

B. At Contract closeout, submit Record Documents of irrigation layout / installation and of electrical layout / installation to Owner.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

TECHNICAL SPECIFICATIONS

DIVISION 2
SITE WORK

SECTION 2000
SITE CLEARING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal of surface debris.
- B. Clear site of plant life and grass.
- C. Remove trees and shrubs.
- D. Remove root system of trees and shrubs.
- E. Topsoil excavation.

1.2 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for disposal of debris.
- B. Coordinate clearing work with Owner.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify that existing plant material and features designated to remain are identified.

3.2 PROTECTION

- A. Locate, identify and protect utilities that are to remain and be maintained free from damage.
- B. Protect benchmarks and existing structures from damage or displacement.
- C. Protect existing plant material and features outside of designated construction limits.

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3.3 CLEARING

- A. Clear areas required for access to site and execution of work.
- B. Remove all vegetation and organic material from earthwork (excavation, fill, etc.) area. Remove trees, shrubs, stumps, main root ball, root system to a depth of twenty-four inches (24") and surface rock.

3.4 REMOVAL

- A. Remove debris, rock, extracted plant life, and other non-salvageable materials from site.

3.5 TOPSOIL EXCAVATION

- A. Excavate topsoil from site, as shown on Drawings.
- B. Stockpile in area designated on site to depth not exceeding eight feet (8').

END OF SECTION

SECTION 2100

EXCAVATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grading and excavation for roadway and drives.
- B. Grading and excavation for pipelines and channels.
- C. All excavation, formation of embankments and finishing and dressing of graded earth areas, shoulders and ditches.

1.2 RELATED SECTIONS

- A. Section 02200 - Backfilling.
- B. Section 02300 - Trenching.
- C. Section 02400 – Hot Laid Asphaltic Concrete Paving and Base
- D. Section 02420 - Concrete Curb and Gutter and Sidewalk.

1.3 FIELD MEASUREMENT

- A. Verify that shot survey bench mark and intended elevations for the work are as indicated.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

- A. The term "excavation" used hereinafter is defined as "unclassified excavation". Excavation of every description regardless of material encountered within the grading limits of the project, shall be performed to the lines and grades indicated. Satisfactory excavated material shall be transported to and placed in the fill areas within the limits of the work. When directed by the Engineer, unsatisfactory material

encountered within the limits of the work shall be excavated below the grade shown and replaced with satisfactory material as directed in order to obtain the required surface condition and density to sustain the subsequent work. Such material ordered as a replacement shall be paid for at the unit prices given in the stated allowance shown in the proposal. Surplus excavated material not required for fill shall remain the property of the Owner and shall be stockpiled in an area on the property designated by the Owner. Excavated material which is not suitable for use as fill, shall be disposed of by the Contractor off of the Owner's property as part of the contract price. During construction, excavation and filling shall be performed in a manner and sequence that will provide drainage at all times. Except where otherwise shown on the plans or as directed, the unsatisfactory soils shall be removed to a depth required and filled with selected sands and sand clays from borrow excavations that will provide a firm, unyielding subgrade at the specified density. See Section 02200 - Backfilling, for additional details.

- B. All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth-graded. The finished surface shall be reasonably smooth, compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either bladegrader or scraper operations. The finished surface shall be not more than 0.10 foot above or below the established grade or approved cross section. Gutters and ditches shall be finished so as to permit adequate drainage.
- C. All vegetation, roots, brush, sod, broken pavements, rubbish and other unsatisfactory or surplus material stripped or removed from the limits of construction shall be hauled off the Owner's property and disposed of by the Contractor as part of the contract price. The material shall be dumped, spread and leveled to drain.
- D. The Contractor shall be responsible for control of erosion and sedimentation during the work. Silt screens, hay bales or other devices as required shall be installed to prevent off-site deposits of eroded materials. Similar devices shall be placed around storm drain catch basins and inlets to prevent the infiltration of soil materials into the underground drainage system. Such devices shall be maintained until all site work is complete. Refer to the Sediment & Erosion Control Plan in the construction drawings.

3.2 CONSERVATION OF TOPSOIL

- A. Areas designated for grading operations that contain a blanket of soil which is more satisfactory for the growth of grass than the embankment material to be placed, as determined by the Engineer, shall be stripped to a depth of approximately four to six inches and placed in convenient stockpiles as directed in the field, for later use as a topsoil blanket on the new graded areas specified herein, or as designated.

- B. Material ordered stockpiled shall be placed in a satisfactory manner to afford drainage.
- C. When grading operations permit, instead of stockpiling, the topsoil shall be hauled and spread directly on the areas to receive topsoil.
- D. Surplus topsoil shall remain the property of the Owner.
- E. This work shall be the responsibility of the Contractor and considered subsidiary to the contract work.

3.3 PROTECTION OF EXISTING SERVICE LINES, UTILITIES AND STRUCTURES.

- A. Existing utility lines and structures that are shown on the drawings or the locations or other utility lines which may exist in the project area, as well as utility lines constructed during excavation operations, shall be protected from damage during excavation, and if damaged, shall be repaired by the Contractor at his expense.
- B. When utility lines that are to be removed or relocated are encountered within the area of operations, the Contractor shall notify the utility company in ample time for the necessary measures to be taken to prevent interruption of the service.
- C. It shall be the Contractor's responsibility to contact all utility companies with services in the area for an accurate location of the respective utilities prior to beginning excavation.

3.4 EXCAVATION OF DITCHES

- A. Ditches shall be cut accurately to the cross sections and grades indicated by the drawings.
- B. All roots, stumps and other foreign matter in the sides and bottom of ditches shall be cut 18 inches below the grades indicated.
- C. Any excessive ditch excavation due to the removal of roots, stumps, etc., or due to over-excavation, shall be backfilled to grade either with satisfactory soils thoroughly compacted, or with suitable stone or cobble to form an adequate ditch paving, as directed, at no additional cost to the Owner.
- D. The Contractor shall maintain all ditches excavated under this specification free from detrimental quantities of leaves, sticks and other debris until final acceptance of the work.

- E. Satisfactory earth material excavated from ditches and channel changes shall be placed in fill areas as directed.
- F. All excess excavation and debris shall be disposed of off-site unless otherwise directed the Engineer.
- G. No diking or berming of soils along the bank will be permitted.
- H. No excavated material shall be deposited within a distance of three feet from the edge of any ditches.
- I. When storm drain pipe terminates in a new ditch, ditch pavement, if specified, shall be constructed immediately as called for on the drawings.
- J. The Contractor shall be responsible for maintaining these newly constructed ditches and take immediate action to keep erosion of the ditch bottom and slopes to a minimum during the life of the contract. No additional compensation will be given to the Contractor for the required maintenance. See Section 02300 - Trenching, for additional details.

3.5 PREPARATION

- A. Identify required lines, levels, contours and datum.
- B. Identify known underground, above ground and aerial utilities. Stake and flag locations.
- C. Protect above and below grade utilities which are to remain.
- D. Protect plant life, lawns and other features remaining as a portion of final landscaping.
- E. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic.

3.6 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.
- B. Excavate subsoil required to accommodate building foundations, slabs-on-grade, paving and site structures.

- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Hand trim excavation. Remove loose matter.
- E. Take extreme care to protect existing concrete pavement / pavers and other existing features throughout duration of project.
- F. Remove lumped subsoil, boulders and rock up to 1/3 cubic yard measured by volume.
- G. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- H. Correct unauthorized excavation at no extra cost to Owner.
- I. Stockpile excess excavated material not being used in area designated on Owner's property. Arrange and pay for services of an independent Certified Land Surveyor to measure and report in writing to the Engineer the quantity of material in each stockpile.

3.7 FIELD QUALITY CONTROL

- A. Field Inspection will be performed under provisions of Section 1400.
- B. Provide for visual inspection of bearing surfaces.

3.8 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.

END OF SECTION

SECTION 2200

BACKFILLING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Building perimeter and site structure backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Fill and compaction of trenches.
- D. Fill under asphaltic paving.
- E. Consolidation and compaction.
- F. Fill for over-excavation.

1.2 RELATED SECTIONS

- A. Section 1410 - Testing and Laboratory Services.
- B. Section 2100 - Excavation.
- C. Section 2300 - Trenching.

1.3 REFERENCES

- A. ASTM C 136 - Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D 1556 - Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
- C. ASTM D 1557 - Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using a 10-lb Rammer and 18-in. Drop.
- D. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Type A (Class 1) - Coarse Stone Crushed: Angular, washed natural stone; free of shale, clay, friable material, sand, debris; graded in accordance with ASTM C 136 within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
2 inches	100
1 inch	95
3/4 inch	95 to 100
5/8 inch	75 to 100
3/8 inch	55 to 85
No. 4	35 to 60
No. 16	15 to 35
No. 40	10 to 25
No. 200	5 to 10

- B. Type B (Class 2) - Pea Gravel: Natural stone; washed, free of clay, shale, organic matter; graded in accordance with ASTM C 136, to the following:

1. Minimum Size: 1/4 inch
2. Maximum Size: 5/8 inch

- C. Type C (Class 3) - Sand: Natural river or bank sand; washed, free of silt, clay, loam, friable or soluble materials or organic matter; graded in accordance with ASTM C 136, within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100
No. 14	10 to 100
No. 50	5 to 90
No. 100	4 to 30
No. 200	0

- D. Subsoil and General Fill: Reused and/or imported, free of gravel larger than 3-inch size, roots and other organic material and trash and approved by the Engineer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify from Engineer fill materials to be reused are acceptable.

3.2 PREPARATION

- A. Generally, compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type C fill and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Prior to placement of aggregate base coarse material at gravel or paved areas, compact subgrade to a minimum of 98% of its maximum dry density in accordance with ASTM D 1557 and AASHTO T-180.
- D. All vegetation, such as roots, brush, heavy sods, heavy growth of grass and all decayed vegetable matter, rubbish and other unsuitable material within the area upon which fill is to be placed shall be stripped or otherwise removed before the fill is started.
- E. In no case will unstable material remain in or under the fill area that will prevent the placement and compaction of subsequent layers to the specified densities.
- F. Sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed shall be plowed, stepped and benched, or broken up as directed, in such manner that the fill material will bond with the existing surface.
- G. Prepared surfaces on which compacted fill is to be placed shall be scarified, wetted or dried as may be required to obtain the compaction specified.

3.3 BACKFILLING

- A. Backfill areas at the locations and to lines and elevations shown on the drawings.
- B. Filled areas shall conform to the shape of the typical sections indicated or shall meet the requirements of the particular case.
- C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- D. Granular Fill: Place and compact materials in continuous layers not exceeding 6 inches compacted depth.
- E. Soil Fill: Place and compact material in continuous layers not exceeding 8 inches compacted depth.

- F. Employ a placement method that does not disturb or damage utilities in trenches.
- G. Maintain optimum moisture content of backfill materials to attain required compaction density.
- H. Slope grade away from buildings minimum 2 inches in 10 ft., unless noted otherwise.
- I. Make grade changes gradual. Blend slope into level areas.
- J. Stockpile surplus reusable backfill materials on Owner's property at Owner's designated site. See Section 2100 for stockpile measurement requirements.
- K. Leave fill material stockpile areas completely free of excess unsuitable materials.

3.4 TOLERANCES

- A. Top Surface of Backfilling: Plus or minus one tenth from required elevations.

3.5 FIELD QUALITY CONTROL

- A. Field inspection will be performed by the Engineering firm.
- B. Tests and analysis of fill material will be performed in accordance with ASTM D 1557 (AASHTO T-180).
- C. Compaction testing will be performed in accordance with ASTM D 1557 (AASHTO T-180) and ASTM D 2922.
- D. If tests indicate work does not meet specified requirements, remove work, replace and retest at no additional cost to Owner.
- E. Frequency of tests: As required by the testing firm or as directed by the Engineer.
- F. Proof roll all compacted fill surfaces under paving.

3.6 PROTECTION OF FINISHED WORK

- A. Protect all finished Work.
- B. Recompact fills subjected to vehicular traffic.

3.7 COMPACTION REQUIREMENTS

- A. The compaction of fill materials shall meet the following requirements as determined

by the maximum density obtained at optimum moisture content by an approved laboratory.

- | | | |
|----|------------------------|------|
| 1. | Fill under buildings | 100% |
| 2. | Fill under paved areas | 98% |
| 3. | Fill in other areas | 95% |

B. The Contractor shall be responsible for compaction of the existing soils to meet the above compaction requirements.

C. The Contractor will be responsible for compacting the subgrade to the required density by whatever means necessary.

3.8 SCHEDULE

A. Fill under asphaltic concrete pavement.

1. Type C fill to 8 inches below finished paving elevation.

END OF SECTION

SECTION 2300

TRENCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavate trenches for utilities.
- B. Compacted bedding under fill over utilities.
- C. Backfilling and compaction.

1.2 RELATED SECTIONS

- A. Section 2100 - Excavation.
- B. Section 2200 - Backfilling.
- C. Section 2910 - Irrigation.
- D. Section 16111 - Electrical Conduit.

1.3 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as shown on the drawings prior to proceeding with construction.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Types A, B, and C subsoil materials as specified in Section 2200.

2.2 BED MATERIALS

- A. Type 1 Material: As specified for Type A in Section 2200.
- B. Type 2 Material: As specified for Type B in Section 2200.
- C. Type 3 Material: As specified for Type C in Section 2200.
- D. Subsoil Material: As specified in Section 2200.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify fill materials to be reused are acceptable.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Maintain and protect existing utilities remaining, which pass through work area.
- C. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic.
- E. Protect above and below grade utilities which are to remain.
- F. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type 3 fill and compact to density equal to or greater than requirements for subsequent backfill material.

3.3 EXCAVATION

- A. Excavate subsoil required for storm sewer, sanitary sewer, or water line piping.
- B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.
- C. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- D. Remove lumped subsoil, boulders and rock larger than 3 inches in diameter.
- E. Correct unauthorized excavation at no cost to Owner.
- F. Correct areas over-excavated by error.
- G. Stockpile excess excavated material, suitable for use as fill, in a designated area on the Owner's property. Excess excavated material unsuitable for use as fill shall be removed from the site and disposed of by the Contractor as part of the contract price. See Section 2100 for stockpile measurement requirements.

3.4 BEDDING

- A. Support pipe during placement and compaction of bedding fill.

3.5 BACKFILLING

- A. Backfill trenches to elevations shown on plans.
- B. Systematically backfill to allow maximum time for maximum compaction. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Granular Fill: Place and compact material in continuous layers not exceeding 6 inches compacted depth.
- D. Soil Fill: Place and compact material in continuous layers not exceeding 6 inches compacted depth.
- E. Employ a placement method that does not disturb or damage foundation perimeter, pipe, or conduit in trench.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Stockpile surplus reusable backfill materials on site in a location approved by Owner.
- H. Leave fill material stockpile areas completely free of excess unsuitable materials.

3.6 TOLERANCES

- A. Top Surface of Backfilling: Plus or minus one tenth from required elevations.

3.7 FIELD QUALITY CONTROL

- A. Field inspection will be performed by the Engineering firm and/or Engineer-approved independent testing firm.

3.8 PROTECTION OF FINISHED WORK

- A. Protect all finished Work.
- B. Re-compact fills subjected to vehicular traffic.

END OF SECTION

2300 - 3

SECTION 2420

CONCRETE CURB, GUTTER AND SIDEWALK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cast-in-place concrete curb and gutter and sidewalk/plaza construction.

1.02 RELATED SECTIONS

- A. Section 1410 – Testing and Laboratory Services.
- B. Section 2100 - Excavation.
- C. Section 3000 - Cast-in-Place Concrete.

1.03 REFERENCES

- A. ACI 347 - Recommended Practice for Concrete Form Work.
- B. PS 1 - Construction and Industrial Plywood.

1.04 QUALITY ASSURANCE

- A. Obtain materials from same source throughout.

1.05 FIELD CONSTRUCTED MOCK-UP

1. Prior to installation of concrete walks, construct sample mock-up panels to verify implementation of each specified finish treatment. Sample panels shall represent complete walk installation for each treatment type – standard broom, heavy broom and salt-treated, including finishes, edge and joint treatment, for quality of appearance, materials, construction and workmanship. Locate mock-ups at site as directed by the Engineer. Obtain approval of panels from the Engineer prior to beginning installation. Prepare new mock-up panel(s) as necessary to obtain desired appearance. Quality of appearance, materials, construction and workmanship, as established by the approved panel, shall be the standard by which finished work is judged acceptable.

Multiple mock-up panels may be required. Mock-up panel shall be a minimum of 5' x 5' each. Approved panels shall remain in place throughout the duration of the

Project, until such time as all walks have been installed and found acceptable by the Engineer, at which time the panel shall be removed in its entirety. Mock-up panel shall not remain part of the finished work.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete in temperatures less than 40 degrees F without Engineer's approval.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete Materials: Comply with requirements of applicable Division 3 sections for concrete materials, curing materials and others as required.
- B. Forms: Steel, of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms to form radius bends as required. Coat forms with nonstaining type coating that will not discolor or deface surface of concrete.
- C. Joint Fillers: Resilient premolded bituminous impregnated fiberboard units complying with ASTM D 1751, FS HH-F-341, Type II, Class A; or AASHTO M 153, Type I.
- D. Joint Sealants: Standard joint sealant specifically manufactured for intended purpose; Sikaflex[®] 1C SL or prior approved equal.

2.02 MIX DESIGN

- A. Mix design shall comply with requirements of Section 03250.
- B. Design mix to produce normal weight concrete consisting of portland cement, aggregate, water-reducing admixture, air-entraining admixture, and water to produce the following properties:
 - 1. Compressive Strength: 3,000 psi, minimum at 28 days, unless otherwise indicated on Plans.
 - 2. Slump Range: 2" - 4" maximum.
 - 3. Air Entrainment: 5% to 8%.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify reinforcement and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

3.02 PREPARATION

A. Form Construction

1. Set forms to required grades and lines, rigidly braced and secured.
2. Clean forms after each use, coat with form release agent as often as required to ensure separation from concrete without damage.

B. Concrete Placement

1. Do not place concrete until subgrade and forms have been checked for line and grade.
2. Place concrete using methods which prevent segregation of mix.
3. Automatic machine may be used for curb and gutter and sidewalk placement at Contractor's option. Machine placement must produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

C. Joint Construction - Curb and Gutter

1. Weakened Joints: Provide joints as indicated on Drawings. The joint shall be made by cutting the concrete with a trowel or by other acceptable methods. Saw cutting joints shall not be allowed.
2. Expansion Joints: Preformed expansion joints 3/4 or one (1) inch thick, extending the full depth of the concrete curbing, shall be constructed at all radius points, junctions with existing concrete, inlets and manholes, and at not more than 50 foot intervals in continuous runs of curb. Leave expansion joints 1/2" from level with finished surface. Fill remaining 1/2" with Sikaflex® 1C SL joint sealer to flush with finished surface. Protect joint sealer until it has cured enough to handle foot and vehicular traffic.

D. Joint Construction - Sidewalks

1. Control Joints: Provide joints at intervals noted on drawings, both ways. The joint shall be made by cutting with trowel or other acceptable means. Saw cutting joints shall not be allowed, except for on connector sidewalks, and as indicated on Drawings.
2. Expansion Joints: Preformed expansion joints ½ inch thick, extending full depth of walk to within ½ inch of finished surface. Fill last ½ inch with standard joint sealer, to flush with top of joint. Apply sealant so as to prevent discoloration or defacement of surface of concrete. Provide expansion joints at a minimum of 20 feet on center, both ways; in addition, provide expansion joints where walks abut all existing vertical structures, building foundations, concrete collars, and between existing and new concrete pavements.

E. Joint Construction - Concrete Collars

1. Expansion Joints: Preformed expansion joints ½ inch thick, extending full depth of collar to within ½ inch of finished surface. Fill last ½ inch with Sikaflex® 1C SL joint sealer, to flush with top of joint. Apply sealant so as to prevent discoloration or defacement of surface of concrete. Provide expansion joints at a minimum of 25 feet on center; in addition, provide expansion joints where collars abut building foundations, existing concrete pavement, walks, new concrete pavement, and all structures.

F. Place concrete continuously between predetermined expansion joints. Do not break or interrupt successive pours such that cold joints occur.

G. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

3.03 FINISHING

A. Curb and Gutter

1. Broom finish by drawing fine-hair broom across concrete surface parallel to line of traffic. Repeat procedure as required to provide fine line texture. Alternate direction of broom finish on adjacent squares of concrete.

B. Sidewalk

1. All concrete walks shall be finished as detailed.

C. Concrete Collar

1. Broom finish by drawing fine-hair broom across concrete surface parallel to length of collar. Repeat procedure as required to provide fine line texture.

3.04 PATCHING

- A. Notify Engineer immediately upon removal of forms.
- B. Patch imperfections.

3.05 DEFECTIVE CONCRETE

- A. Modify or replace concrete not conforming to required levels and lines, details and elevations.
- B. Repair or replace concrete not properly placed or of the specified type.
- C. Remove and replace defective concrete as directed, at no additional cost to the Owner.

3.06 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 1410.

3.07 PROTECTION

- A. Protect concrete from damage until acceptance of work.

END OF SECTION

SECTION 2870

SITE FEATURES AND FURNISHINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Miscellaneous site features and furnishings, including installation and attachment.

1.02 RELATED SECTIONS

- A. Section 2420 - Concrete Curb, Gutter and Sidewalks.
- B. Section 2875 – Structureworks Pergolas.

1.03 QUALITY ASSURANCE

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data, materials specification, color/finish chart, and installation instructions for each material and component part.
- B. Shop Drawings: Submit shop drawings for each type of furnishing specified. Include typical sections, dimensioned elevations and plans. Show attachment details, connections, fittings, accessories and installation details. Provide technical data for each finish type required.

1.05 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - PRODUCTS

2.01 Concrete Seating: Precast concrete bench as manufactured by Doty & Sons Concrete Products, Inc. - 1275 E. State Street, Sycamore, IL 60178, or approved equal.

1. Special made round bench. Seat shall be 36" diameter and 17" ht approximate.

Seat shall have 45 degree chamfered top and bottom edges. Chamfer shall be ½" on top edge and ¼" on bottom edge.

2. Bench Reinforcing: Reinforced rebar and wire mesh used throughout. Reinforcing placed at least 1½" away from outside surfaces.
3. Weight: 838 lbs. approximate
4. Finish: Special Finish SB4 light sandblast brown color.
5. Sealer: 2 coats ACR3 semi-gloss sealer on all exposed surfaces.
6. Seat Surface: Diamond ground smooth.
7. Concrete for all seating shall meet the following requirements:
 - Sand: Washed torpedo sand (tan color)
 - Stone: 3/8" washed pea gravel
 - Cement: Very light gray color, 7-7.5 bags per cubic yard
 - Water Reducers: Used to increase strength and durability
 - Chemical Entrained Air: 6-8% to cause concrete to be more salt and chloride resistant
 - Average Strength (after 28 days): 4000 psi minimum
 - Concrete cured indoors under plastic for 5-7 days at 70 degrees before exposure to outside air.

2.02 Railing (ramp condition): Series 500 non-welded aluminum pipe railing with white vinyl coated finish as manufactured by Superior Aluminum Products, Inc. - 555 E Main Street PO Box 430, Russia, OH 45363, or approved equal. Provide freestanding single-rail system embedded and grouted in concrete. Railing shall be 34" ht above ramp surface and shall follow curve of ramp. Either end of railing shall return to post. Railing shall be compliant with ADA standards and in all respects be in compliance with code. Provide railing along each side of stage ramp, as detailed.

2.03 Railing (stage condition): Series 550 non-welded aluminum pipe picket railing with white vinyl coated finish as manufactured by Superior Aluminum Products, Inc. - 555 E Main Street PO Box 430, Russia, OH 45363, or approved equal. Provide freestanding picket rail design system embedded and grouted in concrete. Railing shall be 42" ht above stage surface and shall follow curve of stage. Railing pickets shall cantilever beyond end posts on either side. Railing shall in all respects be in compliance with code. Provide railing along back-side of stage, centered between pergola columns, as detailed.

2.04 Bollards: Model No R-8464-RA as manufactured by Reliance Foundry Co. Ltd. - Unit 207, +6450-148th Street, Surrey, BC Canada V35-7G7, or approved equal.

1. Height: 35.5"
2. Diameter: 4.5" body, 6.5" base
3. Weight: 26 lbs. approximate
4. Design: Fixed cylinder with flat top.
5. Material: Coated Stainless Steel:
 - a. Pipe: ASTM A312, Grade TP 316
 - b. Plate: ASTM A959, Grade TP 316

6. Color Coating:
 - a. Type: Polyester powder coat over epoxy primer
 - b. Color: Black textured semi-gloss, no reflective tape
7. Installation: Removable, receiver with key

2.05 Detectable Warning Tiles: Product No 110126, Cityscape Detectable Warning Paver as manufactured by Pavestone - 1101 Westinghouse Blvd, Charlotte, NC 28273, or approved equal. Provide paver size 6" width x 12" length x 60 mm thickness. Color to be approved by Engineer.

PART 3 - EXECUTION

- 3.01 Concrete Seating: Place each bench at locations as shown on plans.
- 3.02 Railing (ramp condition): Install aluminum railing along each side of stage ramp (ramped defined as any sloped surface steeper than 1:20 {5% } slope, where the change in grade along the run exceeds 6" in vertical rise) per manufacturer's recommendations. Railing shall be compliant with ADA standards and in all respects be in compliance with code.
- 3.03 Railing (stage condition): Install aluminum railing along back-side of stage surface, centered between pergola columns, per manufacturer's recommendations and as detailed. Prior to installation, field-verify dimensions between pergola foundation and column locations. Railing shall in all respects be installed in compliance with code.
- 3.04 Bollards: Install bollards plumb and in center of concrete panel, per manufacturer's recommendations and as detailed. Where discrepancies between manufacturer's recommendations and details occur, most stringent shall apply. Upon installation, ensure proper functioning of removal and locking mechanisms prior to turning keys (2 keys per bollard) over to OWNER.
- 3.05 Detectable Warning Tiles: Install tiles in mortar bed per manufacturer's recommendations and as detailed. Where discrepancies between manufacturer's recommendations and details occur, most stringent shall apply. Where required, cut paver stones with an approved cutting device to fit accurately, neatly and without damaging edges.

END OF SECTION

SECTION 2875

STRUCTUREWORKS PERGOLAS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Manufactured pergolas, hardware connections and attachments, including engineering design and certification, field verification of dimensions, installation, assembly and coordination with other contractors.

1.02 QUALITY ASSURANCE

- A. Construction of product shall be performed by Structureworks Fabrication, located at 3300 Dill Smith Drive, Fredricksburg, VA 22408 and represented specifically by Neil O’Hare, Sales Manager – nohare@structureworksfab.com / (540)-416-0823. Structureworks has been designated by the Owner as the Sole Source provider of the pergolas.
- B. Use adequate numbers of skilled design professionals and workmen, who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. Contractor shall be solely responsible for compliance with the requirements of and for obtaining approvals by the authority(ies) have jurisdiction. Contractor shall be responsible for obtaining, paying for, and documenting to the project Engineer, all required approvals. All costs associated with submissions and modifications to the design to obtain approvals shall be borne entirely by the Contractor.
- D. Design by Contractor: Contractor shall be solely responsible for the complete design and certification by a South Carolina Professional Engineer, of the entire pergola system, including but not limited to footer sizes and reinforcing, vertical elements and all other related components. Contractor shall coordinate with manufacturer to provide wet stamped drawings for entire pergola system. All costs associated with the design, redesign and certification of the pergola system shall be borne entirely by the Contractor.

1.03 REFERENCES

- A. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. ASCE 710 American Society of Civil Engineers, Minimum Design Loads

for Buildings and other structures.

1.04 DESIGN/PERFORMANCE REQUIREMENTS

- A. Design members to withstand wind loads in accordance with ASCE 710 and applicable code.
- B. Design foundations in accordance with applicable code and good construction practices for the specific structure and site conditions.
- C. Cooperate with regulatory agency or authority and provide data as requested.
- D. Design pergola in accordance with applicable code.
- E. Design pergola in accordance with applicable fire code and provide data on ASTM E 84 testing performance.

1.05 SUBMITTALS

- A. Submit under provisions of Section 1300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Product specification sheets.
 - 2. Installation instructions.
- C. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections, and general construction details, anchorages and method of anchorage and method of installation.
- D. Manufacturer's wet stamped drawings.
- E. Verification Samples: For each finish product specified, two samples representing actual product and color.
- F. Maintenance Instructions: Prior to Final Acceptance, submit complete operations and maintenance instructions for the pergola system, including any take down or storage procedures. Meet with the OWNER or their representatives to review instructions and to assure adequate understanding for OWNER to carry out instructions.
- G. Fabrication shall not be commenced until all required approvals have been obtained, and documentation of approvals has been provided to the project Engineer.

- H. Upon completion of the work, furnish the Engineer three copies of any Inspection Certificate required from the authority(ies) having jurisdiction. Submit complete Record Drawings for all aspects of the work.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Single source manufacturer for design, engineering, structure fabrication, and shipping.
- B. Installer Qualifications: Familiar with manufacturer's structures and installation techniques.

1.07 DELIVERY, STORAGE AND HANDLING

- A. All packages and pallets should be opened and inspected for hidden damage upon receipt. Any missing or damaged components should be noted on the delivery receipt with the carrier before accepting the shipment.
- B. Repackage components and carefully store in an area protected from the weather until ready for installation.
- C. Handle materials so as to protect materials, coatings, and finishes during transportation and installation to prevent damage or staining.

1.08 SEQUENCING

- A. Ensure that footing location plans and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this Section are supplied to affected trades in time to prevent interruption of construction progress.

1.09 WARRANTY

- A. Provide manufacturer's warranties, as appropriate, for all pergola components, canopy systems, and finish coatings.
 - 1. 30 Year commercial warranty on fiberglass pergolas.
 - 2. 20 Year commercial/residential finish warranty on ColorLast Process coated materials.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Acceptable Manufacturer: Structureworks Fabrication, which is located at:
3300 Dill Smith Dr.; Fredericksburg, VA 22408, 877.489.8064,
info@structureworksfab.com, www.structureworksfab.com
- B. Substitutions: Not permitted.

2.02 MATERIALS

- A. Provide the following pergolas to the overall sizes and configuration indicated on the Drawings. Coordinate with manufacturer.
- B. Attachment Method: Freestanding.
- C. Overall width (direction of beam) of pergola: See Drawings for Direction.
- D. Overall projection (direction of rafters) of pergola: See Drawings for Direction.
- E. Column Selection: Fiberglass 10” x 8’ High Round Tapered Column with TensionRod and Mounting System.
- F. Beam Component Selection: See Drawings for Direction.
- G. Rafter Component Selection: See Drawings for Direction.
- H. Stringer Component Selection: See Drawings for Direction.
- I. Hardware: All hardware to be “marine grade” Type 316 Stainless Steel.

2.03 FINISH

- A. Provide all pergola components (columns, beams, rafters, and stringers) with ColorLast Process finish coating applied. Specify standard color: WHITE.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until supporting structures have been properly

prepared.

- B. If foundation preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean component surfaces thoroughly prior to installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Construct foundations in accordance with local codes and good construction practices for the specific structure and site conditions.
 - 1. Surface Mount on New Footings: Surface mount units on new concrete footings as indicated in the on the approved shop drawings. Concrete shall conform to Section 3300.
 - 2. Anchor bolts for surface mounted units shall be accurately set using manufacturer's instructions.

3.04 CLEANING

- A. Clean all surfaces and restore any marred surfaces to original conditions as approved by the Engineer.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touchup, repair, or replace damaged products prior to date of Final Project Completion and as directed by Engineer or OWNER.

END OF SECTION

SECTION 2930

SODDING

PART 1 GENERAL

- 1.1. SECTION INCLUDES, BUT NOT LIMITED TO: Tillage, pH balancing, fertilizing, sodding of areas noted on the plans.
- 1.2. RELATED WORK SPECIFIED ELSEWHERE:
 - A. Section 2940 – Trees, Shrubs and Groundcover.
- 1.3. QUALITY ASSURANCE:
 - A. Installer's Qualifications: Sodding work shall be performed by a single firm specializing and experienced (minimum five years) in landscape work.
 - B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
 - C. Deliver materials in original un-opened containers, showing weight, name of manufacturer, vendor or source, and certified analysis, and with certificates of inspection required by the authorities having jurisdiction. Store in manner to prevent wetting and deterioration.
 - D. Comply with all regulations applicable to landscape materials.
 - E. Topsoil Analysis: Provide and pay for the services of an approved testing agency to perform an analysis of topsoil to be used. Analysis shall include a comprehensive description of topsoil, and a listing of types and quantities of soil amendments required for the establishment, growth and health of lawns.
- 1.4. SUBMITTALS:
 - A. Certifications:
 1. Submit certificates of inspection as required by authorities having jurisdiction.
 2. Submit manufacturer's or vendor's certified analysis for soil amendments and fertilizer materials in accordance with methods established by the Association of Official Agricultural Chemists.

3. Submit other data substantiating that materials comply exactly with specified requirements.
 4. Submit sod vendor's certified statement for each sod type, stating botanical and common name. Identify source location.
- B. Topsoil Analysis: Submit complete results of analysis.
- C. Planting Schedule: Submit proposed planting schedule, indicating dates for installation and completion of lawn work. Once accepted, revise schedule only as approved in writing by the Engineer, after documentation of reasons for delays.
- D. Maintenance Instructions: Prior to expiration of Contractor's Maintenance Period, submit instructions recommending procedures to be followed by OWNER for maintenance of lawns for one full year following expiration of Contractor's Maintenance Period. Meet with the OWNER and/or his/her representative, to review instructions and to assure adequate understanding for OWNER to carry out instructions.

1.5. DELIVERY, STORAGE AND HANDLING:

- A. Fertilizer and soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's guaranteed analysis, scientific name, trade name, trademark, and statement of conformance to state and federal laws. In lieu of containers, fertilizer and soil amendments may be furnished in bulk, with a certificate indicating the above information accompanying each delivery.
- B. Before and after delivery, fertilizer and soil amendments shall be kept in a dry storage area away from contaminants. Precautions shall be taken prior to use to prevent rupture of packaging and to prevent wetting, contamination, or deterioration.
- C. Time delivery of freshly dug sod so that sod will be placed within 36 hours after cutting. Protect sod against drying and breaking, in transit and on site. Prior to planting, store sod in shade to minimize sun damage and heat buildup.

1.6. JOB CONDITIONS:

- A. Utilities: Locate and avoid damage to all underground utilities; perform work in a manner which will avoid damage. Utilities not necessarily shown on Drawings.
- B. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.

- C. When conditions detrimental to lawn establishment, growth and maintenance are encountered, such as rubble, adverse drainage conditions, or obstructions, notify Engineer for directions before planting.

1.7 **LAWN GUARANTEE:** Warranty lawns through specified lawn Maintenance Period, and up to the date of Final Acceptance.

PART 2 PRODUCTS

2.1. SOIL AMENDMENTS:

- A. **Lime:** Natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve; to be used to pH balance soil, as required.
- B. **Aluminum Sulfate:** Commercial grade in dry powder form; to be used to pH balance soil, as required.

2.2. **COMMERCIAL FERTILIZER:** Complete starter fertilizer, partially organic, neutral, granular or pellet form, dry and free flowing, uniform in composition and suitable for application by approved equipment. Fertilizer shall contain a minimum percentage by weight of 18 percent nitrogen (of which 50 percent shall be organic), 24 percent available phosphoric acid, and 6 percent potash, unless otherwise recommended by soil test.

2.3. SOD:

- A. Sod used shall be State-certified, meeting published State standards and bearing an official "Certified Turf" label on the bill of lading.
- B. Sod shall be delivered machine cut to a uniform thickness of ¾" to 1½", excluding top growth and thatch. Length and width shall be the supplier's standard, with a maximum allowable deviation of 5%. Torn, uneven, or desiccated pads or edges shall not be acceptable.
- C. Standard size sections of sod shall be capable of supporting their own weight and shape when suspended vertically.
- D. Provide sod composed of species noted on drawings, free of weeds and other extraneous grass types.

2.4. **WATER:** Arrange with OWNER or other source for water; any cost shall be borne by Contractor.

2.5. **PEGS:** Softwood stakes or dowels, 6" to 10" long, pointed to minimize damage to sod when driven.

PART 3 - EXECUTION

3.1 GENERAL:

- A. Sodding shall not be done when the ground is frozen, snow covered, saturated, excessively dry, or in any other condition which would make establishment and survival of sod reasonably unlikely.
- B. Prior to sod bed preparation, topsoil shall be in a loose, smooth, friable condition, free from stones over 1-½" in any dimension, sticks, roots, construction debris, and other extraneous matter. If topsoil has become crusty, hardened or eroded since being spread, it shall be a part of this work to restore the soil to the loose, smooth condition described above.
- C. Prior to preparation of previously undistributed areas, completely remove existing vegetation and debris, and dispose of such material off-site; do not turn under vegetation into soil being prepared for sod bed. Loosen existing grade to a depth of 4"; remove all debris which surfaces.

3.2. SOD BED PREPARATION:

- A. Spread fertilizer at the rate of 16 lbs per 1000 sq. ft. or as otherwise recommended by the soil test report for the specified turf species. Add pH balancing agents at rate recommended by soil test report to achieve a pH of 5.5 to 6.5 for Centipedegrass, 6.5 to 7.0 for Bermudagrass, 6.5 to 7.5 for St. Augustinegrass and 6.0 to 7.0 for Zoysiagrass. Blend additives thoroughly into upper 4" of topsoil. Remove any rock or other debris which may surface. Till areas until soil is loose and friable and all soil amendments are uniformly distributed.
- B. Work areas to a smooth even surface free from surface irregularities, ridges or depressions. Prepared areas shall meet required finish grade elevations allowing for sod thickness, and shall have positive drainage.
- C. Moisten prepared areas if soil is dry. Water thoroughly, then allow surface moisture to evaporate. Do not create muddy soil conditions; do not saturate soil.

3.3. SOD INSTALLATION:

- A. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger strips to offset joints in adjacent courses. Care shall be taken to ensure that sod is not stretched or overlapped and that all joints are butted tight. On slopes, sod shall be laid parallel to the contour.
- B. On slopes of 3 to 1 or steeper, within and along drainage swales, along the edge of ponds, and in other locations where erosion is probable, sod shall be secured at

the ends and center of individual strips with pegs.

- C. Tamp or roll area with a roller not exceeding 90 lbs. per foot of roller width to provide firm contact between roots and soil.
- D. Immediately after laying and firming the sod, irrigate to a depth of 4 inches below the underside of the strips.
- E. During the first seven days after installation, maintain a continuous moist soil depth of at least 4 inches. After that period, water as necessary to maintain moist root zone.

3.4. MAINTENANCE:

- A. The Maintenance Period for sodded lawn areas shall be the time from installation, through and for not less than 60 days.
- B. The Contractor shall be responsible for all maintenance during the Maintenance Period and until Final Acceptance. Maintenance shall include watering, fertilizing, weed eradication, insect and other pest control, mowing, trimming, clipping removal (unless mulching mower is used), the reconstruction with specified turf type, of all areas failing to maintain good color and growth, and the reconstruction of all areas damaged by erosion or other occurrence.
- C. The first mowing shall not be attempted until the sod is firmly rooted.
- D. Prior to cutting secured areas, drive pegs flush with grade.
- E. Lawn shall be mowed whenever the average height reaches 3-½ inches. Mowing height shall be 2-½ inches. Not more than 1/3 of the grass leaf shall be removed at any one cutting.
- F. Waste Material: Periodically (minimum every week) remove from site all excess materials, soil, debris, and extraneous materials and equipment.

3.5. CLEAN-UP AND PROTECTION

- A. During sodding work, keep pavements clean and work area in an orderly condition.
- B. Damage caused to trees, lawns, buildings, street, curbs, walks and other items shall be corrected by whatever means necessary to satisfy the requirements of the Engineer, and of the state, city or county, whichever may have jurisdiction, at no additional cost.
- C. Protect landscape work and materials from damage due to operations by other

contractors, trades, and trespassers. Maintain protection during installation and Contractor's Maintenance Period(s). Treat, repair or replace damaged landscape work as directed by the Engineer, at no additional cost.

3.6. INSPECTION AND FINAL ACCEPTANCE:

- A. When Maintenance Period is completed, Engineer will, upon written request from the Contractor, make an inspection to determine acceptability.
- B. Work may be inspected for acceptability in sections (up to a maximum of three sections) when agreeable to Engineer, provided all work for that section is complete.
- C. When inspected work is not acceptable, as determined by the Engineer, replace or remedy rejected work. Continue all requirements of Contract until re-inspected and accepted by Engineer. The cost of remedial work, continued maintenance, and additional inspections, required by unacceptable work, shall be borne entirely by Contractor.

END OF SECTION

SECTION 2940

TREES, SHRUBS AND GROUNDCOVER

PART 1 GENERAL

1.1 SECTION INCLUDES, BUT NOT LIMITED TO: Plant materials, mulch, and planting accessories.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Section 2930 – Sodding.

1.3 QUALITY ASSURANCE

A. Installer's Qualifications: Planting shall be performed by a single firm specializing and experienced (minimum five years) in landscape work.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

C. Codes and Standards: Comply with applicable provisions of the most recent edition of the following, except as otherwise indicated or specified. Most restrictive requirements shall apply.

“Grades and Standards”, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

ANSI Z60.1 “American Standard for Nursery Stock.”
Standards of the American Association of Nurserymen.
Federal, State and local regulations.

D. Plant names indicated comply with “Standardized Plant Names” as adopted by the latest edition of the American Joint Committee of Horticulture Nomenclature. Names of varieties not listed in that publication conform generally with names accepted by the nursery trade.

E. Inspection: Engineer may inspect plant materials at place of growth and again on site. Engineer reserves the right to tag some or all trees at place of growth; coordinate with Engineer to allow sufficient opportunity for Engineer to tag material.

F. Soil Analysis: Provide and pay for the services of an approved testing agency to perform an analysis of planting soil to be used. Analysis shall include a comprehensive description of soil, and a listing of types and quantities of soil amendments required for the establishment, growth and health of plant material.

1.4 SUBMITTALS

A. Certification:

1. Submit certification of inspection as required by authorities having jurisdiction.
2. Submit manufacturer's or vendor's certified analysis for soil amendments and fertilizer materials, in accordance with methods established by the Association of Official Agricultural Chemists.
3. Submit other data substantiating that materials comply with specified requirements, including certification from the plant source (i.e., grower) that plant material species as delivered to the site comply exactly with those specified.

B. Planting Schedule: Submit proposed planting schedule, indicating dates for completion of landscape work. Once accepted, revise schedule only as approved in writing by the Engineer, after documentation of reasons for delays.

C. Maintenance Instructions: Prior to expiration of Contractor's Maintenance Period, submit instructions recommending procedures to be followed by OWNER for maintenance of landscape work for one (1) full year following expiration of Contractor's Maintenance Period. Meet with the OWNER and/or his/her representative, to review instructions and to assure adequate understanding for OWNER to carry out instructions.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Packaged Materials: Deliver packaged materials in original un-opened containers showing weight, name of manufacturer, vendor or source, and certified analysis, and with certificates of inspection required by governing authorities. Store in manner to prevent rupture of packaging and to prevent wetting, contamination or deterioration.

B. Trees and Shrubs:

1. Where B&B material is specified, provide only freshly dug trees and shrubs. All B&B material shall be hardened-off prior to being dug.
2. Take all precautions customary in good trade practice in preparing plants for moving. Ship with certificates of inspection required by governing authorities. Do not prune prior to delivery. Do not bend or bind-tie trees or shrubs in such a manner as to damage bark, break branches, or destroy natural shape of plant. Provide protective covering during transport.

3. Deliver trees and shrubs after preparations for planting have been completed. Do not lift plants by the trunk; lift using rootball straps or container handles. Do not drop stock. If planting is delayed more than 4 hours after delivery, set trees and shrubs upright in shade, protect from weather and damage, and keep roots moist by covering with mulch or other material acceptable for retaining moisture. Irrigate twice daily with five (5) gallons per caliper inch, applied directly to the rootball. Do not remove container grown stock from containers until time of planting. Do not store trees on asphalt surfaces.

1.6 JOB CONDITIONS:

- A. Utilities: Locate and avoid damage to all underground utilities; perform work in a manner which will avoid damage. Utilities not necessarily shown on Drawings. Hand excavate adjacent to utility lines. If conflicts between utilities and plantings are encountered, notify Engineer for direction before planting.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble, adverse drainage conditions, or obstructions, notify Engineer for direction before planting.
- C. Coordination with Lawnwork: Plant trees, shrubs and groundcovers after final grades are established and prior to planting of lawns, unless otherwise approved by Engineer. If plantings occur after lawn work, or in areas of existing lawns, protect lawns and promptly repair any damage to lawns resulting from planting operations.
- D. A complete list of plants, including schedule of sizes, quantities, and other requirements, is shown on the Drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the Planting Plans shall govern. Payment shall be based on actual Planting Plan count.

1.7 PLANT GUARANTEE AND REPLACEMENT: Warranty all plant material, for a period of one year after date of Final Completion, against death and /or unsatisfactory condition, as determined by the Engineer.

- A. During the warranty period, plants found to be dead or in unsatisfactory condition, as determined solely by the Engineer, shall be immediately removed from site.
- B. At the end of the warranty period, plants found to be dead, or in an unsatisfactory condition, as determined solely by the Engineer, shall be removed from the site.
- C. Make replacements of dead and/or unsatisfactory condition material during the first normal planting season following end of guarantee period. After all replacements have been made, Engineer will re-inspect planting for acceptance. Cost of re-inspection shall be the responsibility of the Contractor.

- D. Up to one (1) replacement of dead and/or unsatisfactory plants shall be provided as required by the Engineer. Cost of replacement plants, including their installation in keeping with the specifications, shall be the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 NATIVE SOIL

- A. Obtain native soil from material dug to create plant pits. To use native soil from onsite, soil shall be natural, fertile, friable, granular, characteristic of productive soils in vicinity, uniform in composition and texture, clean and free from clay lumps, brush, weeds, stumps, roots, toxic substances, stones and other debris 1 ½" or more in greatest dimension. If native soil does not meet this criteria, provide new planting soil from off-site, local sources, which are naturally well-drained sites. Do not obtain planting soil from bogs, marshes or wetlands.
- B. Planting soil from off-site sources: Natural, fertile, friable, granular, characteristic of productive soils in vicinity, uniform in composition and texture, clean and free from clay lumps, brush, weeds, stumps, roots, toxic substances, stones and other debris 1 ½" or more in greatest dimension.

2.2 SOIL AMENDMENTS

- A. Lime: Natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve; to be used to pH balance soil, as required.
- B. Aluminum Sulfate: Commercial grade, in dry powder form; to be used to pH required, and/or to acidify soil for "acid loving" plants.
- C. Peat Humus: FS Q-P-166 decomposed peat with no identifiable fibers and with pH range suitable for intended use, free of weeds and seeds.
- D. Bonemeal: Commercial, raw, finely ground; 4% nitrogen and 20% phosphoric acid.
- E. Superphosphate: Soluble mixture of treated minerals, 20% available phosphoric acid.
- F. Sand: Clean, washed sand, free of toxic materials.
- G. Vermiculite: Horticultural grade, free of toxic substances.

H. Mycorrhizal, Vitamin, and Moisture Retention Additives for Planting Beds;

An ENDO-SPECIFIC granular, mycorrhizal inoculant containing highly active, live propagules of endomycorrhizal fungi. Inoculant shall contain a minimum of 3780 viable propagules per pound of material derived from seven species of endomycorrhizal fungi: *Glomus intraradices*, *Glomus aggregatum*, *Glomus mosseae*, *Glomus clarum*, *Glomus deserticola*, *Glomus monosporum* and *Gigaspora margarita*. Inoculant shall contain a minimum of 50 strains of bacteria with a minimum of 2 billion colony forming units per pound. Inoculant shall contain 5 strains of *Trichoderma*. Sea kelp extract, humic acid, folic and fulvic acid, biotin, natural sugars, vitamins B1, B2, B3, B12, C & K, minimum of 3 ounces of crosslinked polyacrylamide polymer per pound. Soil Moist Flower Bed as manufactured by JRM Chemical, Inc., of Cleveland, Ohio 800-962-4010, or equal (submittal of detail composition required).

2.3 COMMERCIAL FERTILIZER Complete fertilizer, partially organic, neutral, granular or pellet form, uniform in composition, dry and free flowing. Fertilizer shall contain not less than 5% total nitrogen (of which 50 percent shall be organic), 10% available phosphoric acid, and 10% soluble potash, unless otherwise recommended by soil test.

2.4 PLANTING MULCH: For planting beds and individual plantings: Organic mulch free from deleterious materials and suitable for top dressing of trees, shrubs, groundcovers and other plants. Provide aged triple-hammered hardwood mulch. Use same mulch type throughout entire project.

2.5 PLANT MATERIALS:

A. Quality: Provide trees, shrubs, groundcover plants, and other plants of size, condition, quantity, genus, species and variety shown or scheduled for landscape work, and complying with recommendations and requirements of the latest edition of ANSI Z60.1. Provide healthy, vigorous stock, grown in recognized nurseries under climatic conditions similar to those in locality of project, in accordance with good horticultural practice. Plants shall be free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, insect damage or disfigurements. Only "Florida Fancy" grade trees shall be allowed.

B. Size: Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable at no additional cost, and providing that the larger plants will not be cut back to size indicated, and providing root balls meet standards specified for the larger material provided.

C. Uniformity: Where formal arrangements of trees are shown, select stock for uniform height, spread, and growth habit to assure symmetry in planting.

D. 'Specimen' Quality Plants: Provide, where noted, plants exhibit the very highest quality of health, shape, fullness, uniformity and growth character. Plants should be representative of the best of the plant type specified.

- E. Substitutions: If specified landscape material is not obtainable, submit proof of non-availability, together with proposal for use of material with similar characteristics. Engineer reserves the right to make the final determination as to what plants do and do not meet the “similar characteristics” requirement.
- F. Tree and Shrub Root Condition: Unless otherwise noted on plans, provide container grown stock subject to specified limitations of ANSI Z60.1 for container grown stock, and upon the condition that plants have been cultivated in containers for a minimum of one year. Bare root plants are not acceptable, unless specifically noted on plans.
- G. Provide balled and burlapped (B&B) plants when specifically noted as such on plans. When B&B plants are specified, trees should be harden-off or pre-dug at the nursery until new roots are visible through the burlap; trees should be solid in the rootball. Check for kinked and/or circling roots and cut them if present.
- H. Deciduous Trees: Form and branching configuration shall be as recommended by Florida Department of Agriculture, Department of Plant Industry, “Grades & Standards”, and by ANSI Z60.1 for species and/or variety specified. Provide single stem trees, except where special forms are shown or listed.
- I. Deciduous Shrubs: Provide deciduous shrubs with well-balanced form complying with requirements of Florida Department of Agriculture, Department of Plant Industry, “Grades and Standards”, and by ANSI Z60.1 for type and height of plant listed. Dimensions indicate minimum spread for spreading and semi-spreading type deciduous shrubs, and height for other types.
- J. Coniferous and Broadleafed Evergreens: Provide evergreens with well-balanced form complying with requirements of Florida Department of Agriculture, Department of Plant Industry, “Grades and Standards”, and by ANSI Z60.1 for type and height of plant listed. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens, and height for other types.
- K. Groundcover: Provide plants established and well-rooted in removable containers or peat pots (PP), and with not less than minimum number and length of runners required by ANSI Z60.1 for pot size listed.

2.6 MISCELLANEOUS LANDSCAPE MATERIALS

- A. Anti-Desiccant: Emulsion type, film-forming agent, designed to permit transpiration but retard excessive loss of moisture from plants. Mix and apply in accordance with manufacturer’s instructions.
- B. Conventional Staking:
 - 1. Stakes: Provide nominal 2" x 2" stakes of sound new hardwood, pressure-treated softwood, or cypress, free of knot holes and other defects. At Contractor’s alternative option, provide galvanized 16-gauge steel posts,

painted dark brown or black.

2. Guys: Provide wire ties and guys of 2-strand, twisted, pliable galvanized iron wire not lighter than 12 ga., with zinc-coated turnbuckles. Provide not less than ½" diameter rubber or plastic hose, cut to required lengths and of uniform black color, to protect tree trunks from damage by wires.
- C. Alternative Staking: At Contractor's option to wire ties and turn buckles, provide Arbor Tie tree staking and guying material as manufactured by Deep Root Urban Landscape Products, or approved equal.
- D. Water: Arrange with OWNER or other source for water; any cost shall be borne by Contractor.

PART 3 EXECUTION

3.1 PREPARATION:

- A. Proceed with and complete landscape work as rapidly as portions of site become available. Install materials during normal planting seasons. Planting operations shall not occur when soil is frozen, or saturated, or when temperature extremes or wind conditions make survival of plant material unlikely. Provide continuous maintenance from date of initial planting through end of Contractor's Maintenance Period(s).
- B. Stake locations of trees and individual shrubs, and outline multiple shrub areas, groundcover beds, and flower beds. Secure acceptance of Engineer before starting installation. Make adjustments as required.
- C. Preparation of Planting Soil Admixture.
 1. Use native soil, meeting specified criteria, for backfill of all planting.
 2. Before mixing, clean native soil of roots, plants, sod, stones, clay lumps, and any extraneous materials harmful or toxic to plant growth.
 3. Fertilizer: Mix in fertilizer at rate of one-half pound per cubic yard of planting soil, unless otherwise recommended by the contractor-obtained soil analysis. Delay mixing of fertilizer, if planting will not follow mixing of planting soil within three days.
 4. Soil Acidifier: Mix aluminum sulfate, at rates recommended by the manufacturer, into planting soil to be used for all plants with optimum pH growth of 6.5 or less, identified as "acid loving" in plant list. Delay mixing of aluminum sulfate, if planting will not follow mixing of plant soil within three days.

D. Preparation of Groundcover and Flower Beds:

1. Dig beds to not less than depth noted and/or detailed. Dispose of excavated material off-site.
2. Scarify subgrade of bed areas to minimum depth as noted and/or detailed on the plans using a cultimulcher or similar equipment. Remove sticks, roots, rubbish, other extraneous matter, and stones over 1-1/2" in any dimension.
3. Spread planting soil admixture to depth noted and/or detailed; lightly tamp or roll; match adjacent grades.
4. Mycorrhizal, Vitamin and Moisture Retention Additives for Planting Beds:

Groundcover and Flower Beds - Mix approximately five pounds of product per 200 square feet into the top 4-5" of prepared soil. Apply by the method and in the quantity recommended by the manufacturer for the applications required within these specifications - groundcover and flower beds.

E. Excavation for Plant Pits and Trenches:

1. Excavate with vertical sides and with bottom raised at center to provide proper drainage.
2. For both balled and burlapped (B & B) and container (cont.) grown stock, make excavations at least two and a half times as wide as ball or container diameter. Depth to be equal to ball or container depth, plus allowance for native soil pedestal under ball or container, and allowing for settlement.
3. Fill excavations with water and allow to percolate out before beginning planting.

3.2 INSTALLATION

A. Planting Trees and Shrubs:

1. Set plants upright, plumb and faced to give the best appearance or relationship to each other and adjacent structure. In no case shall the first root emerging from the trunk be below the soil level.
2. Set balled and burlapped (B & B) stock on native soil pedestal as detailed, in center of pit or trench with top of ball three to six inches above adjacent finished grades. In conditions of high water tables, set plants high such

that the top half of the root ball is above adjacent grade level (except plants in tree grates). Do not break or damage root ball. Remove burlap from collar of balls; retain on sides and bottoms. Remove all rope, string, strapping or wire from around ball. If ball is wrapped in material other than burlap, completely remove material from around and under ball, protecting the ball from cracking or other damage. When set, place planting soil admixture backfill around sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3-full, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing final layer of backfill; for trees, water with five (5) gallons of water per inch of caliper.

3. Mycorrhizal, Vitamin, and Moisture Retention Additives for Planting Beds:

Individual Trees and Shrubs - apply approximately 0.5 - 1.0 oz. By weight per gallon volume of plant container, or 4-5 oz. by weight per inch caliper of tree, or 1 oz. by weight per foot height or spread (whichever is greater) of shrub and evergreen tree, next to the roots. Apply by the method and in the quantity recommended by the manufacturer for the applications required within the specifications - trees and shrubs.

4. Set container grown stock as specified for balled and burlapped stock, except cut containers on two sides; remove container and set plant so as not to break or damage root balls. Where plant shows signs of being rootbound, cleanly cut roots, sides and bottom.
5. Dish top of backfill to allow for mulching. Provide planting soil saucer mound around plant pit to retain water.
6. Prune, thin out and shape plants in accordance with standard horticultural practice. Prune, but retain required height and spread. Unless otherwise directed by Engineer, do not cut tree leader. Remove injured and dead branches. Prune shrubs to retain natural character. Remove and replace excessively or improperly pruned stock.
7. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage. If trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again two weeks after planting.
8. Stake and guy trees immediately after planting. Trees up to 2" caliper shall have two stakes. Trees over 2" caliper shall have three stakes. Multi-stem trees, and broadleaf evergreen trees, with heights up to 6' shall have two stakes; multi-stem trees and broadleaf evergreen trees over 6' in

height shall have three stakes. Contractor's option: Arbor Tie, staking and guying system, or approved equal, installed per manufacturer's recommendations. Exception: Palmettos shall have four stakes, one each side, as shown on drawing detail; Arbor Tie staking and guying system not allowed for Palmettos.

9. Mulch immediately after planting. Do not pile mulch directly against trunk or stem. Provide, uniform thickness for individual pits and for planting beds; depth as noted and/or detailed on plans. Areas of mass plantings shall be mulched entirely within limits of bed.

B. Planting Groundcovers and Flowers:

1. Space plants as scheduled, or detailed.
2. Remove plants from containers. Dig holes in planting soil mixture large enough to allow for spreading roots. Backfill with planting soil admixture. Work soil around roots to eliminate air pockets. Water thoroughly after planting, taking care not to cover crowns with wet soil. Where plants show signs of being root-bound, cleanly cut roots, sides and bottom.
3. Mulch entire groundcover and/or flower beds. Place minimum uniform thickness of mulch immediately after planting; depth as noted and/or detailed on plans. Do not pile mulch directly against plant stems.

3.3 CLEANUP AND PROTECTION:

- A. During landscape work, keep pavements clean and work area in an orderly condition. Periodically (minimum every week) remove from site all excess materials, soil, debris, and extraneous materials and equipment.
- B. Damage caused to trees, lawns, buildings, street, curbs, walks and other items shall be corrected by whatever means necessary to satisfy the requirements of the Engineer, and of the state, city or county, whichever may have jurisdiction, at no additional cost.
- C. Protect landscape work and materials from damage due to operations by other contractors, trades, and trespassers. Maintain protection during installation and Contractor's Maintenance Period(s). Treat, repair or replace damaged landscape work as directed by the Engineer, at no additional cost.

3.4 CONTRACTOR'S MAINTENANCE PERIOD

- A. Begin maintenance immediately after planting.
- B. Maintain trees, shrubs and other plant material continuously, through and for not less than 60 days beyond the date that all required plant material has been installed.
- C. Maintain trees, shrubs and other plants by pruning, cultivating, fertilizing, weed control, watering, insect (and other pest) control, mulch and saucer restoration, and tightening and resetting guys and stakes. Reset trees and shrubs to proper grades and vertical position. Spray as required to keep plants free of insects and disease. Staking shall remain on trees until the end of the warranty period.

3.5 INSPECTIONS

- A. The Engineer will make the following inspections of completed work upon written request by Contractor:
 - 1. Substantial Completion Inspection(s): When all planting and related work is completed. Warranty period shall begin upon acceptance of work by Engineer.
 - 2. Final Completion Inspection(s): When minimum maintenance period has been completed. Acceptance of work by Engineer ends Contractor's Maintenance Period.
 - 3. Warranty Inspection: At end of warranty period(s).
- B. Landscape work may be inspected for acceptance in sections (up to a maximum of three) when agreeable to Engineer, provided all required work in that section is complete.
- C. Where inspected work is not acceptable, as determined by the Engineer, replace or remedy rejected work. Remove rejected plants and materials promptly from site. Continue all requirements of contract until reinspected and accepted by the Engineer. The cost of remedial work, continued maintenance, and additional inspections, required by unacceptable work, shall be borne entirely by Contractor.

END OF SECTION

DIVISION 3
CONCRETE

SECTION 3300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for structural concrete including retaining walls, vertical construction, storm drainage systems, paving, curb and gutter, and traffic bearing walks and slabs.
- B. See Section 2100 - Excavation, for drainage fill under slabs-on-grade.
- C. See Structural Drawings for additional notes and requirements concerning structural concrete and reinforcement.

1.2 RELATED SECTIONS

- A. Section 1410 – Testing and Laboratory Services.
- B. Section 2420 – Concrete Curb, Gutter and Sidewalks.
- C. Section 2870 – Site Features and Furnishings.
- D. Section 2875 – Structureworks Pergolas.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.
- C. Shop Drawings: For steel reinforcement, Material test reports and certificates. For steel reinforcement in structural use (as indicated on Structural Drawings), provide reinforcement layout drawings for review.
- D. Concrete Testing frequency shall comply with ACI-318-14.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete,"
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.5 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ASTM C 33 - Concrete Aggregates.
- C. ASTM C 94 - Ready-Mixed Concrete.
- D. ASTM C 150 - Portland Cement.
- E. ASTM C 260 - Air-Entraining Admixtures for Concrete.
- F. ASTM C 494 - Chemical Admixtures for Concrete.
- G. ACI 315 - Details and Detailing of Concrete Reinforcement.
- H. ASTM A 82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- I. ASTM A 185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- J. ANSI/AWS D1.4 - Structural Welding Code Reinforcing Steel.
- K. ASTM A 615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement
- L. CRSI - Manual of Practice.
- M. ASTM C 309 - Liquid Membrane - Forming Compounds for Curing Concrete
- N. ASTM D 2103 - Polyethylene Film and Sheeting.
- O. FS TT-C-800 - Curing Compound, Concrete for New and Existing Surfaces.

1.6 TESTS

- A. Testing and analysis of concrete will be performed under provisions of Section 1400.
- B. Submit proposed mix design of each class of concrete to Engineer for Review prior to commencement of work.
- C. Test of cement and aggregates will be performed to ensure conformance with requirements stated herein.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete in temperatures less than 40 degrees F without Engineer's approval.
- B. Maintain ambient temperature at 70 degrees F (minimum) for three days for curing.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Special Finished Concrete: Stripe finished concrete forming shall meet the Architectural requirement.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed with uncoated finish.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets, uncoated finish 6"x6" mesh of 0.135" diameter unless otherwise noted.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."
- D. Tie Wire: Minimum 16 gauge annealed type – acceptable patented system.
- E. Stirrup Steel: ASTM A 82.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same brand and source, throughout Project:
 - 1. Portland Cement: ASTM C 150

Type I unless otherwise noted.

Type III for High-Early strength concrete where shown or scheduled.

Cement can be supplemented with the following:

- a. Fly Ash: ASTM C 618, Class C or F.
- b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates:

For 5" and 6" concrete walls: ASTM C 33, graded, 3/4-inch (38-mm) nominal maximum coarse-aggregate size and comply with ACI 301.

For all other concrete: ASTM C 33, graded, 1-1/2-inch (38-mm) nominal maximum coarse-aggregate size and comply with ACI 301.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size and Comply with ACI 301.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

2.6 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3000 psi at 28 days (unless noted otherwise).
 - 2. Maximum Water-Cementitious Materials Ratio: 0.40 (unless noted otherwise).
 - 3. Slump Limit: 4 inches (100 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture.
 - 4. Air Content: 5 percent, plus or minus 1 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.
 - 5. Air Content: 6 percent, plus or minus 1 percent at point of delivery for 3/4-inch (19-mm) nominal maximum aggregate size.

2.7 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
 - 2. Use accelerating admixtures in cold weather only when approved by Engineer. Use of admixtures will not relax cold weather placement requirements.
 - 3. Use set-retarding admixtures during hot weather only when approved by Engineer.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Do not chamfer exterior corners and edges of permanently exposed concrete (unless noted otherwise).

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least 1 inch as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces. Provide except where noted otherwise on drawings.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Provide only where specifically noted on drawings as allowed.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Before placing concrete, clean reinforcement of foreign particles or coating and remove any foreign material in forms by sweeping, blowing or washing.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- D. Cold-Weather Placement: Comply with ACI 306.1.
- E. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

- A. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.
- B. Rough Form Finish: For formed concrete surfaces not exposed-to-view, tie holes and defective areas shall be repaired, patched; fins and other projections exceeding ¼” in height shall be rubbed down or chipped off.
- C. Smooth-Formed Finish and Cylindrical Columns: For formed concrete surfaces exposed-to-view, or which receive a covering material applied directly to the concrete, such as waterproofing, damp-proofing, painting or other similar system: as-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes, seams and defects. Completely remove and smooth fins and other projections. Trowel all exposed faces of stage walls, retaining wall and statue base smooth.

3.7 FINISHING SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces to receive trowel finish.
- C. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 - 1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.
- D. Broom Finish: Apply a broom finish to exterior concrete sidewalks, platforms, steps, and ramps, and elsewhere as indicated.
- E. Salt-treated Finish: Apply a salt-treated finish to exterior concrete sidewalks and elsewhere as indicated.
- F. See Section 2420 and Drawings for finish treatments.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect all finished work. Immediately after placing, protect freshly placed concrete from premature drying and excessive cold or hot temperatures and mechanical injury. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Maintain concrete with minimal moisture loss relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
 - 1. Testing Services: Tests shall be performed according to ACI 301.
- B. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

END OF SECTION

DIVISIONS 4 THROUGH 15

NOT USED

DIVISION 16
ELECTRICAL

SECTION 16010

GENERAL ELECTRICAL PROVISIONS

PART 1 GENERAL

1.01 WORK INCLUDED:

- A. The work covered by this Section consists of furnishing all material and labor, equipment and supplies, and performing all operations including cutting, channeling, chasing, excavating and backfilling necessary for the installation of complete wiring systems and electrical equipment, in accordance with this Section and the accompanying drawings.
- B. Items covered by this Section include, but are not limited to, systems for lighting, power, connections to equipment furnished by others and other items, as indicated.
- C. The work shall be coordinated with the work of other trades to insure correct location and installation of the building components and equipment required by all trades for electrical service.

1.02 DRAWINGS:

- A. The drawings and specifications are complimentary to one another and what is called for by one shall be as binding as if called for by both.
- B. Drawings indicate generally the location of equipment and are to be followed as closely as possible. If due to job conditions it is found necessary to change the location of equipment, such changes shall be made without additional cost to the Owner and as approved by the Engineer.

1.03 RULES AND PERMITS:

- A. Installation shall be in accordance with the latest applicable rules of the National Electrical Code and local codes. In the event that local codes are more stringent than the N.E.C., the local code shall prevail.
- B. The Electrical Contractor shall be required to obtain permits and licenses to perform the work. Fees for such permits shall be paid by the Electrical Contractor.

- C. The Contractor shall be responsible for the proper selection and application of materials and the methods of their installation. UL listed equipment shall be installed as specified in the latest edition of the "Electrical Construction Materials Directory" (Green Book).

1.04 EXISTING CONDITIONS:

- A. The Electrical Contractor shall visit job site and verify all conditions and dimensions. No extra payment shall be approved for unforeseen items.

1.05 SUBSTITUTIONS AND APPROVALS:

- A. Bids for work covered under this section of the specifications shall be based on the layout and equipment exactly as shown and specified. If the Electrical Contractor wishes to bid an alternate item, he shall request such substitutions in writing in accordance with the General Conditions prior to bid opening. Such requests shall be accompanied by sufficient catalog data upon which a decision may be based.

1.06 SHOP DRAWINGS:

- A. Submit shop drawings (six copies) of all major items of equipment, including all lighting fixtures. A cover sheet shall be included, listing manufacturer and model number of each item submitted.

1.07 AS BUILT DRAWINGS

- A. During construction, the electrical contractor shall make a record of all changes made in contract drawings, including accurate dimensions, where applicable, and shall record accurate dimensions locating all below-grade outside electrical utilities with reference to permanent above grade objects.
- B. At the completion of all work, all changes noted in '1.07A' above shall be recorded neatly, with red ink, by the electrical contractor on an unused set of the electrical contract drawings supplied by the architect. Red line changes shall be reviewed and approved by the Engineer and the completed record prints shall then be returned to the Owner.

END OF SECTION

SECTION 16111

ELECTRICAL CONDUIT

PART 1 – GENERAL

1.01 SCOPE

- A. The work covered by this section includes furnishing all labor, equipment, and materials required to install electrical conduit and fittings as specified herein and/or shown on the Drawings.
- B. The Contractor's attention is called to the fact that all conduits and conduit fittings are not necessarily shown completely on the Drawings, which are more or less schematic. However, the Contractor shall furnish and install all conduit and conduit fittings indicated or required for the proper connection and operation of all equipment and services requiring such conduit.

1.02 SHOP DRAWINGS AND ENGINEERING DATA

Shop drawings and engineering data shall be submitted in accordance with the requirements of the section entitled "Submittals" of these Specifications.

1.03 STORAGE AND PROTECTION

Store and protect conduit and fittings in accordance with the manufacturer's recommendations and the requirements of these Specifications. Conduit shall be stored aboveground and adequately supported.

1.04 GUARANTEE

Provide a guarantee against defective equipment and workmanship in accordance with the requirements of these Specifications.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Unless otherwise shown or specified, all conduits shall be rigid non-metallic conduit.
- B. All primary power conduits shall be buried with 4' or more of cover. If the primary power conduits cannot be installed with 4' cover, they must be encased in concrete prior to backfilling and installing the remainder of the conduits.
- C. Damaged, dented, flattened, or kinked conduit shall not be used.

2.02 RIGID NONMETALLIC CONDUIT

- A. Rigid nonmetallic conduit shall be SCH 40 heavy wall polyvinyl chloride (PVC) electrical conduit rated for 90EC conductors and conforming to NEMA TC-2, Type EPC-40-PVC. It shall be listed by Underwriters Laboratories in conformance with the National Electrical Code. Conduit fittings, elbows, and joint cement shall be produced by the same manufacturer as the conduit. Conduits shall be as manufactured by Carlon, Borg-Warner, or equal.

2.03 BENDS AND SWEEPS

- A. All abrupt changes in direction of a conduit run shall be made with a sweep of the same diameter as the rest of the conduit run, and having the following minimum radii for each conduit size:

Minimum Sweep radii for Project:

1" Conduit	-	2' Radius
2" Conduit	-	3' Radius
3" Conduit	-	3' Radius
4" Conduit	-	4' Radius
6" Conduit	-	4' Radius

PART 3 – EXECUTION

3.01 GENERAL

- A. Minimum size conduit shall be 1 inch, except where noted otherwise, and no conduit shall have more than 40 percent of its internal area occupied by conductors.
- B. During construction, all installed conduits shall be temporarily plugged, capped, or otherwise protected from the entrance of dust, trash, moisture, etc., and any conduits which may become clogged shall be replaced. No conductor shall be pulled in until all work that might cause damage to the conduit or conductors has been completed.
- C. Unless otherwise shown or specified, exposed rigid conduit shall be installed parallel or at right angles to structural members, surfaces, and building walls.
- D. Two or more conduits in the same general routing shall be parallel with symmetrical bends.
- E. Where groups of conduits terminate together, provide template to hold conduits in proper relation to each other and to building.

- F. Conduit shall be temporarily plugged or capped with plastic caps during construction to protect ends and prevent entrance of dirt and water.

3.02 INSTALLATION OF RIGID NONMETALLIC CONDUIT

- A. Field bending of polyvinyl chloride conduit shall be made with appropriate equipment. No torches or flame-type devices shall be used.
- B. When joints are to be made with polyvinyl chloride conduit, the conduit shall be cut with a fine-tooth saw and deburred. Conduit ends shall be wiped clean of dust, dirt, and shavings, and shall be dry. A solvent cement shall be applied to bond the joint. The joint should be watertight.
- C. Polyvinyl chloride conduit shall be installed in accordance with the manufacturer's specifications and recommendations.

3.03 INSTALLATION OF UNDERGROUND CONDUIT

- A. No conduit shall be concealed or encased until the Engineer has inspected the conduit for proper installation and accurate placement.
- B. The Contractor shall be responsible for all excavating, draining, trench forming of duct assembly, protective concrete envelope, backfilling, and removal of excess earth.
- C. Underground conduit shall be installed with a minimum 3-inch per 100-foot downward slope for drainage. Drains shall be provided at all low points.
- D. Bends and turns shall be made using long radius sweeps. Ninety-degree bends shall not be used.
- E. All underground conduit runs for primary power service shall be at least 48 inches below grade and shall have a minimum conduit separation of 6 inches. Conduit shall have a minimum 6-inch concrete cover on all sides if 48" of cover cannot be achieved.
- F. All underground conduit runs shall be rodded, followed by a swab to clean out any obstructions which may cause cable abrasions.
- G. All underground conduit runs shall be marked by a strip of permanently colored red polyethylene tape, 0.0004 inch thick and 6 inches wide, buried above the conduit and 6 inches below finished grade.
- H. After conduits have been installed to their termination point, the Contractor shall install rope into each conduit run, with a tag on the end indicating the owner and size of each conduit. This rope shall be polypropylene, with a minimum tensile strength of 100 Newtons (240 pounds), which shall remain in place for future use.

- I. Conduit bends, conduit bodies (condulets), sweeps, pulling boxes, miscellaneous fittings, couplings, adapters, bushings, locknuts, and other items shall be incidental to conduit installation and shall not be measured.

END OF SECTION